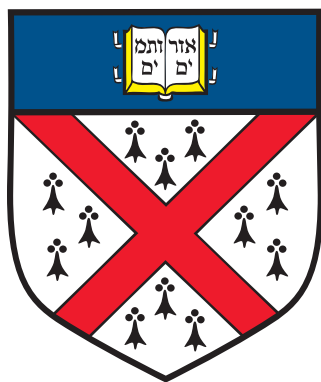


Yale College
Programs of Study
Fall and Spring Terms

2024–2025



BULLETIN OF YALE UNIVERSITY

Series 120 Number 1 May 5, 2024

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BUILDING ABBREVIATIONS

AKW	Arthur K. Watson Hall	KGL	Kline Geology Laboratory
BASS	Bass Center for Molecular and Structural Biology	KRN	Kroon Hall
BASSLB	Bass Library	L	Lawrance Hall
BATTEL	Battell Chapel	LC	Linsly-Chittenden Hall
BCMM	Boyer Center for Molecular Medicine	LEPH	Laboratory of Epidemiology and Public Health
BCT	Becton Engineering and Applied Science Center	LFOP	Leitner Family Observatory and Planetarium
BF	Benjamin Franklin College	LGH	Abby and Mitch Leigh Hall
BK	Berkeley College	LOM	Leet Oliver Memorial Hall
BM	Charles W. Bingham Hall	LORIA	Jeffrey H. Loria Center
BML	Brady Memorial Laboratory	LUCE	Henry R. Luce Hall
BR	Branford College	LWR	Lanman-Wright Memorial Hall
BRBL	Beinecke Rare Book and Manuscript Library	MC	Morse College
BRW ₃₅	35 Broadway	MEC	Malone Engineering Center
C	Connecticut Hall	ML	Mason Laboratory
CCAM	Center for Collaborative Arts and Media	MY	Pauli Murray College
CO ₄₅₁	451 College Street	OML	Osborn Memorial Laboratories
CO ₄₉₃	493 College Street	PC	Pierson College
CRB	Class of 1954 Chemistry Research Building	PH	Phelps Hall
CSC	Child Study Center	PR ₇₇	77 Prospect Street
D	Durfee Hall	PWG	Payne Whitney Gymnasium
DAVIES	Davies Auditorium, Becton Center	RDH	Rudolph Hall
DC	Davenport College	RSN	Rosenfeld Hall
DL	Dunham Laboratory	RKZ	Rosenkranz Hall
DOW	Dow Hall	S	Sage Hall
EM	Edwin McClellan Hall	SA ₁₀	10 Sachem Street
ES	Ezra Stiles College	SCL	Sterling Chemistry Laboratory
ESC	Class of 1954 Environmental Science Center	SDQ	Sterling Divinity Quadrangle
EVANS	Edward P. Evans Hall	SHM	Sterling Hall of Medicine
F	Farnam Hall	SLB	Sterling Law Building
GH	Grace Hopper College	SM	Silliman College
GML	Greeley Memorial Laboratory	SMH	Sprague Memorial Hall
GRN	Holcombe T. Green, Jr., Hall	SML	Sterling Memorial Library
HEN	Hendrie Hall	SPL	Sloane Physics Laboratory
HLH ₁₇	17 Hillhouse Avenue	SSS	Sheffield-Sterling-Strathcona Hall
HLH ₂₈	28 Hillhouse Avenue	STOECK	Stoeckel Hall
HQ	Humanities Quadrangle	SY	Saybrook College
JE	Jonathan Edwards College	TAC	The Anlyan Center
K	Kirtland Hall	TC	Trumbull College
KT	Kline Tower	TD	Timothy Dwight College
		TM ₄₃₂	432 Temple Street
		UT	University Theatre
		V	Vanderbilt Hall
		W	Welch Hall
		WALL ₅₃	53 Wall Street

WALL81	81 Wall Street
WH55	55 Whitney Avenue
WL	Wright Laboratory
WL-W	Wright Laboratory West
WLH	William L. Harkness Hall
WTS	Watson Center
YCBA	Yale Center for British Art
YK212	212 York Street
YK220	220 York Street
YSB	Yale Science Building
YUAG	Yale University Art Gallery

FINAL EXAMINATION SCHEDULES

Rules governing the conduct of final examinations are given in Academic Regulations, section G, Reading Period and Final Examination Period.

An examination group number is assigned to every course. Examination group assignments are based on course meeting times, according to the following scheme. Hours shown are the times at which courses begin:

- | | | | |
|------|----------------------------|------|-------------------------|
| (31) | M, W, or F, 8:20 a.m. | | |
| (32) | M, W, or F, 9 or 9:25 a.m. | (22) | T or Th, 9 or 9:25 a.m. |
| (33) | M, W, or F, 10:30 a.m. | (23) | T or Th, 10:30 a.m. |
| (34) | M, W, or F, 11:35 a.m. | (24) | T or Th, 11:35 a.m. |
| (36) | M, W, or F, 1 or 1:30 p.m. | (26) | T or Th, 1 or 1:30 p.m. |
| (37) | M, W, or F, after 2 p.m. | (27) | T or Th, after 2 p.m. |

Note: With the exception of courses assigned to common examination groups, a change in class meeting time will alter the examination time.

Courses with multiple sections but a common examination are assigned to an examination group from (61) to (69). Typical assignments include (but are not limited to): (61) foreign languages; (63) introductory-level English; (64) introductory economics; (65) physics; (69) introductory mathematics.

The examination group (50) is assigned to courses whose times are published HTBA, or whose times belong to more than one of the groups listed above.

Courses in group (o) usually have no regular final examination, concluding instead with a term essay or other final exercise. Instructors of such courses may schedule a regular final examination based on the course starting time. The time slots of 2 p.m. during the last day of the reading period and 7 p.m. on the last day of the final exam period are available for makeup final exams only.

Final examination dates and times for Spring 2024 are:

Spring	9 a.m.	2 p.m.	7 p.m.
May 2 Th		*	(63)
May 3 F	(23)	(61)	
May 4 Sa	(69)	(24)	(31)
May 5 Su		(27)	(36)
May 6 M	(64)	(34)	(32)
May 7 Tu	(26)	(65)	(37)
May 8 W	(22)	(33)	*

* Makeup final exams only

Final examination dates and times for Fall 2024 and Spring 2025 are:

Fall	9 a.m.	2 p.m.	7 p.m.	Spring	9 a.m.	2 p.m.	7 p.m.
Dec 12 Th		*	(63)	May 1 Th		*	(61)
Dec 13 F	(32)	(61)		May 2 F	(65)	(24)	
Dec 14 Sa	(64)	(34)	(33)	May 3 Sa	(27)	(36)	(64)
Dec 15 Su		(36)	(65)	May 4 Su		(34)	(23)
Dec 16 M	(69)	(24)	(27)	May 5 M	(22)	(69)	(33)
Dec 17 Tu	(22)	(26)	(23)	May 6 Tu	(37)	(26)	(32)
Dec 18 W	(37)	(31)	*	May 7 W	(31)	(63)	*

* Makeup final exams only

IDENTIFICATION CARDS, YALE UNIVERSITY

Yale University issues identification (ID) cards to faculty, staff, and students. ID cards support the community's safety and security by allowing access to many parts of campus: dining halls and cafés, residential housing, libraries and athletic centers, workspaces, labs, and academic buildings. Cultivating an environment of public safety requires the entire community to work together to ensure appropriate use of our spaces, as well as to foster a sense of belonging for all members of our community.

University policies, regulations, and practice require all students, faculty, and staff to carry their Yale ID card on campus and to show it to university officials on request. Yale ID cards are not transferable. Community members are responsible for their own ID card and should report lost or stolen cards immediately to the Yale ID Center: <https://idcenter.yale.edu/>.

Members of the University community may be asked to show identification at various points during their time at Yale. This may include but not be limited to situations where: individuals are entering areas with access restrictions; for identification in emergency situations; to record attendance at a particular building or event; or other academic or work-related reasons related to the safe and effective operation and functioning of Yale's on-campus spaces.

For some members of our community, based on the needs and culture of their program, department and/or characteristics of their physical spaces, being asked to show an ID card is a regular, even daily, occurrence. However, for others it may be new or infrequent. For some, being asked to produce identification can be experienced negatively, as a contradiction to a sense of belonging or as an affront to dignity. Yale University is committed to enhancing diversity, supporting equity, and promoting an environment that is welcoming, inclusive, and respectful. University officials requesting that a community member show their ID card should remain mindful that the request may raise questions and should be prepared to articulate the reasons for any specific request during the encounter. In addition, individuals requesting identification should also be prepared to present their own identification, if requested.

KEY TO COURSE LISTINGS

AFAM	Course subjects are listed by three- or four-letter abbreviations in capitals. See the complete list of Subject Abbreviations.
Staff	Staff is listed when an instructor has yet to be assigned to a course or when there are multiple instructors. Refer to Yale Course Search (https://courses.yale.edu) for individual section instructors.
Prerequisite: MATH 120	Prerequisites and recommendations are listed at the end of the course description.
L5, HU	Language courses are designated L ₁ (first term of language study), L ₂ (second term), L ₃ (third term), L ₄ (fourth term), or L ₅ (beyond the fourth term). Other distributional designations are QR, WR, HU, SC, and SO, representing quantitative reasoning, writing, humanities and arts, science, and social science, respectively. See “Distributional Requirements” under “Requirements for the B.A. or B.S. Degree” (http://next.catalog.yale.edu/ycps/academic-regulations/requirements-for-ba-bs-degree/) in the Academic Regulations.
0.5 Course cr RP	Most courses earn one course credit per term; variations are noted. A course designated “RP” meets during the reading period. See “Reading Period and Final Examination Period” (http://next.catalog.yale.edu/ycps/academic-regulations/reading-period-final-examination-period/) in the Academic Regulations.
*HIST 012	All seminars are starred and enrollment is limited. The instructor’s permission may be required.
ITAL 310/LITR 183	A course with multiple titles, i.e., with two or more departments in the title line, counts toward the major in each department where it appears.
TR	The abbreviation “TR” denotes a literature course with readings in translation.
Attributes	Courses with department-specific designations, such as YC English: 18th/19th Century and YC BENG: Bioimaging, are applied toward the requirements of certain majors. See the program descriptions of the relevant majors.
HIST 130J, MCDB 201L	A capital J or L following the course number denotes a History departmental seminar or a science laboratory, respectively.

SUBJECT ABBREVIATIONS

ACCT	Accounting	EP&E	Ethics, Politics, and Economics
AFAM	African American Studies	EPS	Earth and Planetary Sciences
AFST	African Studies	ER&M	Ethnicity, Race, and Migration
AKKD	Akkadian	EVST	Environmental Studies
AMST	American Studies	F&ES	Forestry & Environmental Studies
AMTH	Applied Mathematics	FILM	Film and Media Studies
ANTH	Anthropology	FNSH	Finnish
APHY	Applied Physics	FREN	French
ARBC	Arabic	GLBL	Global Affairs
ARCG	Archaeological Studies	GMAN	German Studies
ARCH	Architecture	GREK	Ancient Greek
ARMN	Armenian	HEBR	Hebrew
ART	Art	HGRN	Hungarian
ASL	American Sign Language	HIST	History
ASTR	Astronomy & Astrophysics	HLTH	Global Health Studies
BENG	Biomedical Engineering	HMRT	Human Rights
BIOL	Biology	HNDI	Hindi
BRST	British Studies	HSAR	History of Art
BURM	Burmese	HSHM	History of Science, Medicine, and Public Health
CENG	Chemical Engineering	HUMS	Humanities
CGSC	Cognitive Science	INDN	Indonesian
CHEM	Chemistry	ITAL	Italian Studies
CHER	Cherokee	JAPN	Japanese
CHLD	Child Study Center	JDST	Jewish Studies
CHNS	Chinese	KHMR	Khmer
CLCV	Classical Civilization	KREN	Korean
CLSS	Classics	LAST	Latin American Studies
CPAR	Computing and the Arts	LATN	Latin
CPSC	Computer Science	LING	Linguistics
CSEC	Computer Science and Economics	LITR	Comparative Literature
CSLI	Computing and Linguistics	MATH	Mathematics
CZEC	Czech	MB&B	Molecular Biophysics and Biochemistry
DEVN	DeVane Lecture Course	MCDB	Molecular, Cellular, and Developmental Biology
DRST	Directed Studies	MENG	Mechanical Engineering
DUTC	Dutch	MGRK	Modern Greek
E&EB	Ecology and Evolutionary Biology	MMES	Modern Middle East Studies
EALL	East Asian Languages and Literatures	MTBT	Modern Tibetan
EAST	East Asian Studies	MUSI	Music
ECON	Economics	NAVY	Naval Science
EDST	Education Studies	NELC	Near Eastern Languages and Civilizations
EENG	Electrical Engineering	NSCI	Neuroscience
EGYP	Egyptian	OTTM	Ottoman
ENAS	Engineering and Applied Science	PERS	Persian
ENGL	English Language and Literature		
ENRG	Energy Studies		
ENVE	Environmental Engineering		

PHIL	Philosophy
PHYS	Physics
PLSC	Political Science
PLSH	Polish
PNJB	Punjabi
PORT	Portuguese
PSYC	Psychology
RLST	Religious Studies
ROMN	Romanian
RSEE	Russian, East European, and Eurasian Studies
RUSS	Russian
S&DS	Statistics and Data Science
SAST	South Asian Studies
SBCR	Bosnian-Croatian-Serbian
SCIE	Science
SKRT	Sanskrit
SLAV	Slavic Languages and Literatures
SNHL	Sinhala
SOCY	Sociology
SPAN	Spanish
SPEC	Special Divisional Major
SWAH	Kiswahili
TAML	Tamil
TBTN	Classical Tibetan
THST	Theater and Performance Studies
TKSH	Turkish
TWI	Twi
UKRN	Ukrainian
URBN	Urban Studies
USAF	Aerospace Studies
VIET	Vietnamese
WGSS	Women's, Gender, and Sexuality Studies
WLOF	Wolof
YDSH	Yiddish
YORU	Yorùbá
ZULU	isiZulu

TABLE OF ACCELERATION CREDIT

The table below shows how you gain and lose acceleration credit. Two is the maximum number of acceleration credits that can be earned in any subject.

In the left column are the criteria for granting acceleration credit based on AP scores. Students may receive acceleration credits by earning scores comparable to AP test scores on such tests as the International Baccalaureate (IB) higher-level examinations or the General Certificate of Education (GCE) A-level examinations. In subjects for which an AP score of 4 or 5 earns acceleration credit, a score of 6 or 7 on II B higher-level exams, or B or A on A-levels, is required; in subjects that require an AP score of 5 for acceleration credit, a score of 7 on the IB higher-level or an A on the A-level is required.

In the middle column are the courses whose successful completion—in the first year with a grade of B, B+, A–, or A—yields acceleration credit. In the right column are the courses resulting in the forfeit of acceleration credit.

In general, acceleration credit in a subject is forfeited by completing any course (other than a laboratory) with a lower number than the lowest-numbered course earning acceleration credit in the subject. Courses in this table were offered in 2023–2024 or are expected to be offered in 2024–2025. Except where noted, one acceleration credit is forfeited for each course credit earned in courses listed in the third column.

The University reserves the right to modify this table to reflect current course offerings. Regardless of the availability of AP tests, only the departments listed below award acceleration credit. The information in this table pertains to the Class of 2028.

	Acceleration Credit Awarded for AP Scores	Acceleration Credit Awarded for First- Year Courses	Courses Resulting in the Forfeit of Acceleration Credit
Chemistry	None	2 credits for CHEM 174, CHEM 175, CHEM 220, CHEM 221, CHEM 230, CHEM 252, CHEM 332, or CHEM 333.	If 2 acceleration credits awarded: 2 lost by CHEM 161, CHEM 163, or CHEM 165, or any course numbered CHEM 109 or lower.
Computer Science	None	1 credit for CPSC 201 or CPSC 223; 2 credits for CPSC 323.	If 1 acceleration credit awarded: 1 lost by CPSC 112. If 2 awarded: 2 lost by CPSC 112, 1 lost by CPSC 201 or CPSC 223.

Economics	None	1 credit in microeconomics for ECON 121 or ECON 125; 1 credit in macroeconomics for ECON 122 or ECON 126.	Microeconomics credit lost by ECON 108, ECON 110, or ECON 115; macroeconomics credit lost by ECON 111 or ECON 116.
English	1 credit for 5 on either AP English Lang and Comp or AP English Lit and Comp tests.	1 credit for ENGL 120 or ENGL 121; 1 credit for 1 term, 2 credits for 2 terms of ENGL 125, ENGL 126, ENGL 127, ENGL 128, ENGL 129, ENGL 130, or DRST 001, DRST 002.	ENGL 114, ENGL 115
Languages	Chinese, French, German, Japanese, Latin, and Spanish only: 2 credits for 5 on AP test. For Italian: 1 credit for 5 on AP test. No additional credit for multiple tests in a single language. All other languages: None.	All languages listed in first column, except Italian: 2 credits for a scheduled L5 course. For Italian: 1 credit for a scheduled L5 course.	All languages listed in first column except Italian: 2 acceleration credits lost for L1, L2, L3, L1-L2 or L3-L4 course; 1 lost for L4 course. For Ital: 1 acceleration credit lost in both instances.
History of Art	1 credit for 5 on AP test in Art History.	None	None

Mathematics	1 credit for 5 on AP Calculus AB test; 1 credit for 4 on Calculus BC test; 2 credits for 5 on Calculus BC test.	1 credit for MATH 115, MATH 116, or MATH 118; 2 credits for 120 or higher-numbered courses.	If 2 acceleration credits awarded: 2 lost by any course numbered MATH 112 or lower; 1 lost by MATH 115, MATH 116, or MATH 118. If 1 awarded: 1 lost by any course numbered 112 or lower.
Music	1 credit for 5 on AP Music Theory test.	None	None
Physics	1 credit for 5 on either AP Physics C test, with 5 on AP Calculus AB test or 4 or 5 on Calculus BC test. 2 credits for 5 on both parts of Physics C test with requisite score on Calculus AB or BC test. No credit for AP Physics 1 or 2 tests.	2 credits for PHYS 260, PHYS 261 or for course numbered PHYS 400 or higher.	If 1 acceleration credit awarded, 1 lost, and if 2 acceleration credits awarded, 2 lost, by any course numbered PHYS 201 or lower.

VETERANS AFFAIRS: BILL PAYMENT AND PENDING MILITARY BENEFITS

Yale will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other facilities, or the requirement that a student borrow additional funds, on any student because of the student's inability to meet their financial obligations to the institution, when the delay is due to the delayed disbursement of funding from VA under chapter 31 or 33.

Yale will permit a student to attend or participate in their course of education during the period beginning on the date on which the student provides to Yale a certificate of eligibility for entitlement to educational assistance under chapter 31 or 33 and ending on the earlier of the following dates: (1) the date on which payment from VA is made to Yale; (2) ninety days after the date Yale certifies tuition and fees following the receipt of the certificate of eligibility.

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ADMINISTRATIVE OFFICERS

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YALE COLLEGE CALENDAR WITH PERTINENT DEADLINES

This calendar includes a partial summary of deadlines given in the Academic Regulations and in the Yale College online publication *Undergraduate Regulations*. Unless otherwise specified, references are to sections in the Academic Regulations, and deadlines fall at 5 p.m. (EST). Dates are subject to change.

2023-2024 Yale College Calendar with Pertinent Deadlines

FALL 2024

Aug. 18	Su	Residences open to new students, 9:00 a.m.
Aug. 21	W	Registration opens for first-year students and incoming Eli Whitney and transfer students, time TBD
Aug. 23	F	Residences open to upper-level students, 9:00 a.m.
Aug. 26	M	Add/drop period opens; 8:00 a.m.
Aug. 28	W	Fall classes begin.
Aug. 30	F	Friday classes do not meet; Monday classes meet instead.
Sept. 2	M	Labor Day; classes do not meet.
Sept. 10	T	Add/drop period ends, 5:00 p.m.
Sept. 10	T	All students planning to complete degree requirements at the end of the fall term must file a petition by this date.
Sept. 10	T	Students in their final term of enrollment must petition to complete the requirements of two majors by this date.
Sept. 11	W	Withdrawal from Yale College on or before this date entitles a student to a full rebate of fall-term tuition (Undergraduate Regulations).
Sept. 11	W	Final deadline to apply for fall-term Leave of Absence.
Sept. 19	Th	Last day to withdraw from a course offered in the first half of the fall term without the course appearing on the transcript.
Sept. 21	S	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of fall-term tuition. See Undergraduate Regulations.
Oct. 1	T	Applications for spring 2025 Term Abroad close, 11:59 p.m.
Oct. 11	F	Last day of courses offered in the first half of the fall term.
Oct. 11	F	Last day to withdraw from a course offered in the first half of the fall term.
Oct. 11	F	Last day to convert from a letter grade to the Cr/D/F option in a course offered in the first half of the fall term.
Oct. 14	M	Courses offered in the second half of the fall term begin.
Oct. 15	T	October recess begins after last academic obligation.
Oct. 21	M	Classes resume.
Oct. 25	F	Midterm.
Oct. 25	F	Last day to withdraw from a fall full-term course without the course appearing on the transcript.
Oct. 25	F	Deadline to apply for double credit in a single-credit course.
Oct. 25	F	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-quarter of the term's tuition.

Oct. 25	F	Final ABX exam grades are due.
Nov. 7	Th	Last day to withdraw from a course offered in the second half of the fall term without the course appearing on the transcript.
Nov. 15	F	Spring term registration opens for GSAS students, 8:00 a.m.
Nov. 18	M	Spring term registration opens for Class of 2025, 8:00 a.m.
Nov. 19	T	Spring term registration opens for Class of 2026, visiting students, and Eli Whitney students (without a class year), 8:00 a.m.
Nov. 20	W	Spring term registration opens for Class of 2027, 8:00 a.m.
Nov. 21	Th	Spring term registration opens for Class of 2028, 8:00 a.m.
Nov. 22	F	November recess begins after last academic obligation.
Nov. 30	S	Last day to relinquish on-campus housing for the spring term without charge (Undergraduate Regulations).
Dec. 2	M	Classes resume.
Dec. 6	F	Classes end; reading period begins.
Dec. 6	F	Last day to convert from a letter grade to the Cr/D/F option for a full-term course and/or a course offered in the second half of the fall term.
Dec. 6	F	Last day to withdraw from a full-term course and/or a course offered in the second half of the fall term.
Dec. 12	Th	Reading period ends, 5:00 p.m.
Dec. 12	Th	Final examinations begin, 7:00 p.m.
Dec. 12	Th	Deadline for all course assignments, other than term papers and term projects. This deadline can be extended only by a Temporary Incomplete (TI) authorized by the student's residential college dean.
Dec. 18	W	Final examinations end, 5:30 p.m.; winter recess begins.
Dec. 18	W	Deadline for all term papers and term projects. This deadline can be extended only by a Temporary Incomplete (TI) authorized by the student's residential college dean.
Dec. 19	Th	Residences close, 12 noon.
Dec. 19	Th	Spring term registration closes for all GSAS & YC students, 5:00 p.m.

SPRING 2025

Jan. 3	F	Fall-term final grades due.
Jan. 6	M	Add/drop period opens for all GSAS & YC students, 8:00 a.m.
Jan. 8	W	Residences open, 9:00 a.m.
Jan. 9	Th	Applications for Yale 2025 Summer Session Abroad, Non-Yale 2025 Summer Abroad, and Yale 2025-2026 Fall and Full Year Abroad open.
Jan. 13	M	Spring-term classes begin.
Jan. 20	M	Martin Luther King Jr. Day; classes do not meet.
Jan. 22	W	Add/drop period closes for all GSAS & YC students, 5:00 p.m.
Jan. 22	W	Last day for students in their final term of enrollment to petition for permission to complete the requirements of two majors.
Jan. 24	F	Friday classes do not meet; Monday classes meet instead.
Jan. 27	M	Final deadline to apply for a spring-term Leave of Absence.
Jan. 27	M	Withdrawal from Yale College on or before this date entitles the student to a full rebate of spring-term tuition (Undergraduate Regulations).
Feb. 4	T	Last day to withdraw from a course offered in the first half of the spring term without the course appearing on the transcript.

Feb. 4	T	Applications for Yale 2025 Summer Session Abroad close, 11:59 p.m.
Feb. 6	Th	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of spring-term tuition (Undergraduate Regulations).
Feb. 26	W	Last day of courses offered in the first half of the spring term.
Feb. 26	W	Last day to withdraw from a course offered in the first half of the spring term.
Feb. 26	W	Last day to convert from a letter grade to Cr/D/F option for a course offered in the first half of the spring term.
Feb. 27	Th	Courses offered in the second half of the spring term begin.
Mar. 4	T	Applications for 2025 Non-Yale Summer Abroad close, 11:59 p.m.
Mar. 7	F	Midterm.
Mar. 7	F	Spring recess begins after last academic obligation.
Mar. 7	F	Last day to withdraw from a spring full-term course without the course appearing on the transcript.
Mar. 7	F	Deadline to apply for double credit in a single-credit course.
Mar. 7	F	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-quarter of the term's tuition (Undergraduate Regulations).
Mar. 7	F	Final ABX exam grades are due.
Mar. 24	M	Classes resume.
Apr. 1	T	Applications for fall 2025 Term Abroad or 2025–2026 Year Abroad close, 11:59 p.m.
Apr. 3	Th	Last day to withdraw from a spring second-half course without the course appearing on the transcript.
Apr. 11	F	Fall term registration opens for Graduate School students, 8:00 a.m.
Apr. 14	M	Fall term registration opens for Class of 2026, 8:00 a.m.
Apr. 15	T	Fall term registration opens for Class of 2027, visiting students, and Eli Whitney students (without a class year) 8:00 a.m.
Apr. 16	W	Fall term registration opens for Class of 2028, 8:00 a.m.
Apr. 25	F	Classes end; reading period begins.
Apr. 25	F	Last day to convert from a letter grade to Cr/D/F option for a full-term course and/or a course offered in the second half of the spring term.
Apr. 25	F	Last day to withdraw from a full-term course and/or a course offered in the second half of the spring term.
May 1	Th	Applications for fall-term Leaves of Absence due.
May 1	Th	Reading period ends, 5:00 p.m.
May 1	Th	Final examinations begin, 7:00 p.m.
May 1	Th	Deadline for all course assignments, other than term papers and term projects. This deadline can be extended only by a Temporary Incomplete (TI) authorized by the student's residential college dean.
May 7	W	Examinations end, 5:30 p.m.
May 7	W	Deadline for all term papers and term projects. This deadline can be extended only by a Temporary Incomplete (TI) authorized by the student's residential college dean.
May 8	Th	Residences close for non-seniors, 3 p.m.
May 9	F	Final grades due for graduating seniors.
May 14	W	Final grades due for continuing students.
May 16	F	Registration closes for Yale College and Graduate School students.

May 19 M University Commencement.
May 20 T Residences close for seniors, 12 noon.

SUMMER SESSION 2025

Courses offered during the summer are offered through Yale Summer Session. Further information is available from the Yale Summer Session office or on the website.

YALE COLLEGE MISSION STATEMENT

The mission of Yale College is to seek exceptionally promising students of all backgrounds from across the nation and around the world and to educate them, through mental discipline and social experience, to develop their intellectual, moral, civic, and creative capacities to the fullest. The aim of this education is the cultivation of citizens with a rich awareness of our heritage to lead and serve in every sphere of human activity.

In 2023, Yale College adopted a new strategic plan, with the following vision, in service to the mission:

Yale College offers a liberal education that aims to:

- Educate talented students of diverse backgrounds to lead and serve in a complex and changing society.
- Provide a supportive residential community of learning in which social experience and the free exchange of ideas underpin the pursuit of knowledge.
- Cultivate both the broad intellectual, moral, civic, and creative capacities and the more specialized skills that will allow students to thrive beyond the college gates.
- Draw on the distinctive strengths and traditions of Yale University as a globally recognized leader across the arts, humanities, social sciences, sciences, engineering, and the professions.

We seek to educate students who are broad-minded and autonomous, capable of making judgments and taking responsibility for their decisions. We believe that a liberal education should encourage students to become curious, engaged citizens. It should also prepare them well for their professional lives and further educational opportunities and help them develop as active learners who thrive in complex environments.

A MESSAGE FROM THE DEAN OF YALE COLLEGE

We officially call this publication the *Yale College Programs of Study*, but generations of students and faculty have known it simply as the blue book. A companion to the roughly 2,000 courses to be offered in Yale College in 2024–2025, the blue book is a resource to use as you learn about the curriculum, intended to complement the counsel of faculty and deans who can guide you. Here you will find the guiding principles of Yale College's liberal arts education, including its distributional and major requirements. Use it to explore old and new interests in ways that will lead you to become cultivated citizens of the world. Our expectation is that when you leave Yale, you will not only have acquired a trained mind, broadened knowledge, and a greater sense of citizenship; you also will have come to a deeper understanding of the continuing joy of disciplined learning.

We hope that the blue book will stir you to consider courses of study that you had never before imagined and lead you deeper into intellectual worlds you already have explored. It represents the heart and soul of what the Yale faculty holds in promise for you. It comes to you with our best wishes for a successful year.

Pericles Lewis

Douglas Tracy Smith Professor of Comparative Literature

Dean of Yale College

I. YALE COLLEGE

The Undergraduate Curriculum

Yale College, the undergraduate branch of Yale University, offers instruction in more than 120 subjects spanning the liberal arts, sciences, and engineering. Its signature residential college system and expansive extracurricular programs sustain a supportive community of students, staff, scholars, and researchers. For more than three centuries, Yale has provided leadership in undergraduate education in the liberal arts and sciences. While the University eventually grew to incorporate graduate and professional education, all undergraduate education at Yale continues to be provided through the College. Now in its fourth century, the College remains a recognized leader worldwide.

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Yale seeks to educate students who are broad-minded and autonomous, capable of making judgments and taking responsibility for their decisions. A Yale College education should encourage students to become curious, engaged citizens. It should also prepare them well for their professional lives and further educational opportunities and help them develop as active learners who thrive in complex environments.

This philosophy of education corresponds with that expressed in the Yale Report of 1828, which draws a distinction between “expanding [the mind’s] powers, and storing it with knowledge.” Acquiring facts is important, but learning how to think critically and creatively in a variety of ways takes precedence.

The College encourages students to learn broadly and deeply. Each student completes a major in one of the College’s 80 programs or departments. The distributional requirements described in this bulletin ensure that students learn about a variety of subjects and intellectual approaches. In addition, the College requires that all students take courses that develop certain foundational skills—writing, quantitative reasoning, and language competency—that hold the key to opportunities in later study and later life. In each skill, students are required to travel some further distance from where they were in high school so that each competency matures and deepens. A student working toward a bachelor’s degree normally takes four or five courses each term and receives the B.A. or B.S. degree after completing thirty-six term courses or their equivalent in eight terms of enrollment. A candidate for the bachelor’s degree is required, in

completing the thirty-six term courses, to fulfill the distributional requirements, as well as the requirements of a major program.

In a time of increasing globalization, both academic study of the international world and firsthand experience of foreign cultures are crucial. Yale College urges all of its students to consider a summer, a term, or a year abroad sometime during their college careers.

Yale College forms part of a great university and encourages students to participate in the conversation of a scholarly community that defines the pursuit of knowledge in such a university. While the College's goal of educating talented young people for future leadership has not changed since its founding, Yale has continually expanded the range of subjects it teaches, the excellence of its curriculum, pedagogy, and research, and the diversity of its student body. It currently offers instruction to over 6,000 students. For almost a century, the residential colleges have created enduring communities that are an essential part of the broader Yale ecosystem. As a distinctive community of learning, Yale College also seeks to instill an ethos of service—a sense of belonging on campus and a call to contribute beyond it. Participation in the College and University communities requires respect and tolerance and a willingness to listen to one another. Most of all, it requires an openness on the part of each member of the Yale community—an openness to learn and a humility about how little each of us actually knows.

Distributional Requirements

The distributional requirements described below are intended to ensure that all graduates of Yale College have an acquaintance with a broad variety of fields of inquiry and approaches to knowledge. These requirements are the only specific rules limiting the selection of courses outside a student's major program. The distributional requirements are intended as starting points, and students should feel free to pursue even greater breadth with their electives.

DISTRIBUTIONAL REQUIREMENTS FOR THE BACHELOR'S DEGREE

Students must fulfill disciplinary area requirements by taking no fewer than two course credits in the humanities and arts, two in the sciences, and two in the social sciences. Students must also fulfill skills requirements by taking at least two course credits in quantitative reasoning, two course credits in writing, and courses to further their language proficiency. Depending on their level of accomplishment in foreign languages at matriculation, students may fulfill this last requirement with one, two, or three courses or by certain combinations of course work and approved study abroad.

Area requirement in the humanities and arts (two course credits) Study of the humanities and arts—those subjects that explore how we chronicle and interpret the expression of human experience—cultivates an appreciation of the past and enriches our capacity to participate in the life of our times. By engaging other cultures and civilizations, both ancient and modern, students gain insight into the experiences of others while also obtaining an opportunity to critically examine their own. Through the study and practice of the arts, students analyze, create, and perform works allowing them to explore or experience firsthand the joy and discipline of artistic expression. Rigorous and systematic study of the humanities and the arts

fosters tolerance for ambiguity and sophisticated analytic skills that provide essential preparation for careers in most areas of contemporary life. Independently of any specific application, study of these subjects teaches understanding and appreciation of the highest achievements of humanity.

Area requirement in the sciences (two course credits) Science is the study of the principles of the physical and the natural world through observation and experimentation. The theoretical exploration, experimental analysis, and firsthand problem solving inextricably linked to scientific inquiry give rise to new discoveries and modes of thought. Acquiring a broad view of what science is, what it has achieved, and what it might continue to achieve is an essential component of a college education. Close study of a science develops critical faculties that educated citizens need to evaluate natural phenomena and the opinions of experts, and to make, understand, and evaluate arguments about them. Scientific literacy teaches students to appreciate the beauty and complexity of the natural and physical worlds often hidden from casual observation.

Area requirement in the social sciences (two course credits) Broadly conceived, the social sciences study human social behavior and networks using a variety of methodologies and both qualitative and quantitative analysis. The disciplines in the social sciences teach us about who we are as social beings and help us appreciate the perspective of the other as well as the particularities of society. Methods in the social sciences test for connections between the familiar and the foreign, the traditional and the contemporary, the individual and the group, the predicted result and the anomalous outcome. Their theories propose explanations for the entire range of human phenomena. Study of the social sciences prepares students for lives of civic engagement and develops a nuanced sense of the world around them.

Skills requirement in language (at least one course, depending on preparation)

The study of languages has long been one of the distinctive and defining features of a liberal arts education and, in the world of the twenty-first century, knowledge of more than one language is increasingly important. The benefits of language study include enhanced understanding of how languages work, often resulting in heightened sophistication in the use of one's own language; unmediated access to texts otherwise available only in translation, or not at all; and the ability to recognize and cross cultural barriers.

All Yale College students are required to engage in study of a language, regardless of the level of proficiency at the time of matriculation. Depending on their preparation, students take one, two, or three terms of language study to fulfill the distributional requirement. Students may complete an approved study abroad program in lieu of intermediate or advanced language study at Yale. Details of the language distributional requirement are listed under Distributional Requirements in the Academic Regulations, section A, Requirements for the B.A. or the B.S. Degree.

Skills requirement in quantitative reasoning (two course credits) The application of quantitative methods is critical to many different disciplines. Mathematics and statistics are basic tools for the natural and the social sciences, and are useful in many of the humanities as well. Information technology and the rigorous dissection of logical arguments in any discipline depend on algorithms and formal logical constructs. An

educated person must be able to use quantitative information to make, understand, and evaluate arguments.

Many quantitative reasoning courses are taught through the departments of Mathematics, Statistics and Data Science, Computer Science, Economics, and through undergraduate courses offered in the School of Engineering and Applied Science. Quantitative reasoning courses may also be found in a range of other programs.

Skills requirement in writing (two course credits) The ability to write well is one of the hallmarks of a liberally educated person and is indispensable to leadership in most fields of endeavor. As students strengthen their writing skills, they develop the ability to express more nuanced thought and intellectual practices that distinguish active from passive learners.

The English department in particular offers many courses that focus on writing clearly and cogently, and courses in other departments stress writing skills within the context of their disciplines. Hundreds of courses, spanning most academic programs, give special attention to writing. Such courses, designated WR, do not necessarily require more writing than other courses; rather, they provide more help with writing assignments. Some characteristics of WR courses include writing to discover ideas, learning from model essays, detailed feedback, and reviewing writing in small groups. Note that credit toward the writing requirement cannot be earned in courses in creative writing (specifically poetry, fiction, and playwriting), nor in courses conducted in a language other than English.

Major Programs

All candidates for a bachelor's degree in Yale College must elect a major program. The requirements for a major are described in general terms in the sections below, and in more detail under Subjects of Instruction. Students should acquaint themselves fully with all the requirements of the major they plan to enter, considering not only the choice of courses in the current term but also the plan of their entire work in the last two or three years in college. Advising in the major is provided by the director of undergraduate studies (DUS) or an adviser designated by the department or program, and students should plan a schedule of courses in their major in consultation with them. In addition, after a student has declared a major, the DUS or the DUS's designee is normally the person who reviews the student's course schedule.

Students seeking the B.S. or the B.A. degree with a major in science or engineering are expected to declare their majors at the beginning of sophomore year, although a student who has completed the prerequisites may elect a science major later. Sophomores interested in majoring in science or engineering should discuss their major course of studies with the director of undergraduate studies or an adviser designated by the department or program. Students seeking the B.A. degree with a major in a field other than science or engineering are expected to declare their major by the end of the sophomore year and should do so no later than the beginning of the junior year.

SELECTION OF A MAJOR

In designing a program of study, the student ought to plan for depth of concentration as well as breadth of scope. To study a subject in depth can be rewarding and energizing and can form the basis of the interests and occupations of a lifetime. Knowledge advances by specialization, and one can gain some of the excitement of discovery by pressing toward the outer limits of what is known in a particular field. Intense study of a seemingly narrow area of investigation may disclose ramifications and connections that alter perspectives on other subjects. Such study also sharpens judgment and acquaints a person with processes by which new truths can be found.

In order to gain exposure to this kind of experience, students must elect and complete a major—a subject in which they will work more intensively than in any other. Yale College offers more than eighty possible majors. The department or program concerned sets the requirements for each major, which are detailed under Subjects of Instruction.

Some students will have made a tentative choice of a major before entering college. Others will have settled on a general area—for example, the humanities, the social sciences, the natural sciences—without being certain of the specific department or program of their major. Still others will be completely undecided. Many students who arrive with their minds made up change them after a year or two. Even students who feel certain of their choices should keep open the possibility of a change. In selecting courses during their first two years, students should bear in mind not only the distributional requirements, but also the need for some exploration of the subjects to which they feel drawn.

THE MAJOR (B.A. OR B.S.)

A major program usually includes at least twelve term courses in the same area, progressing from introductory to advanced work, which become the focus of a student's program in the junior and senior years. Majors are offered by departments, interdepartmental programs, or interdisciplinary programs. In many departments and programs, a limited number of courses in related fields may be offered in fulfillment of the requirements for the major. Many majors have prerequisites, usually taken in the first year or sophomore year.

In all majors, the student must satisfy a senior requirement, usually a senior essay, senior project, or senior departmental examination. In an intensive major, the student must fulfill additional requirements, such as taking a prescribed seminar, tutorial, or graduate course, or completing some other project in the senior year.

SPECIAL DIVISIONAL MAJORS

A Special Divisional Major affords an alternative for the student whose academic interests cannot be met within one of the existing major programs. Such students may, with the approval of the Committee on Honors and Academic Standing, design special majors of their own in consultation with members of the faculty and in accordance with the procedures outlined under Subjects of Instruction. A Special Divisional Major may not be offered as one of two majors.

Multidisciplinary Academic Programs

Multidisciplinary Academic Programs provide opportunities for Yale College students to examine pressing social challenges from a variety of disciplinary perspectives among a community of students and faculty who have shared interests. Students from any major can participate in these programs, and faculty from across the University contribute to them. Each program focuses centrally on a distinct and different set of issues, but they all share common features, including a set of commonly taken courses and opportunities for practical experience that allow students to combine theory and practice, applying what they have learned in the classroom and in their research. Each of these programs offers an interdisciplinary certificate for students who complete stated requirements.

EDUCATION STUDIES

The Education Studies Program in Yale College provides a structure for students interested in the research, policy, and practice of education. By virtue of studying education at Yale, students engage in the interdisciplinary study of a primary institution impacting citizenship, governance, social reproduction, child development, and social inequality. Students seeking to engage with Education Studies can pursue one of two certificates alongside their major: the Scholars Intensive Certificate, with a focus on learning with a cohort of Yale students and completing a senior year research or creative capstone project, or the uncapped Education Studies Certificate, which offers an individualized pathway to develop expertise through Education Studies coursework. For more information, see the program website.

GLOBAL HEALTH STUDIES

The Global Health Studies Program prepares students to critically engage with global health and its multifaceted concerns in contemporary societies. Global health is an interdisciplinary field, and as such, students develop a sophisticated understanding of the roles of politics, history, and economics, engage with the insights of anthropology, ethics, law, and sociology, and relate this knowledge to public health and the biomedical sciences. Students who seek to earn a Global Health Studies certificate need to apply to the program in sophomore year and will be expected to complete interdisciplinary coursework to gain a broad understanding of global health research, practice, and leadership. For more information, see the program website.

HUMAN RIGHTS STUDIES

The Human Rights Studies program presents human rights as a rich and interdisciplinary field of study. The program aims to provide students with the analytical, conceptual, and practical skills necessary for human rights study; connect students to affiliate faculty and peers; support student research projects and internships; and offer guidance for post-graduate careers and studies related to human rights. Students who seek to earn a Human Rights Studies certificate need to apply to the program in sophomore year and will be expected to complete interdisciplinary coursework to gain a broad understanding of contemporary issues such as gender disparities, racial discrimination, climate change, global health, human trafficking, refugees, world poverty, and humanitarian intervention. For more information, see the program website.

Certificate Programs

Central to the mission of Yale College is ensuring a broad education rooted in the liberal arts and sciences. That education should provide both breadth and depth across a wide array of disciplines, and it should be responsive to the shifting landscape of those disciplines and their interrelationships. To encourage students to engage within and across departmental and disciplinary boundaries, Yale College offers both disciplines-based and skills-based certificates. A certificate is not a smaller version of a major; instead, it offers opportunities for students to deepen a skill or to bring disparate elements into focus. There are three types of certificates offered in Yale College: Advanced Language Certificates, Skills-Based Certificates, and Interdisciplinary Certificates. See *Certificates in Yale College*. Only students enrolled in a bachelor's degree program are eligible to earn a certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

International Experience

Experience abroad is an invaluable complement to the on-campus experience. Such experience may include course work at foreign universities, intensive language study, directed research, independent projects, internships, laboratory work, and volunteer service. To augment students' education in a globalizing world, Yale College provides a variety of international opportunities during term time, summers, and post-graduation, as well as a large and growing number of fellowships to financially support students abroad. Students can visit the Yale Study Abroad, Office of Career Strategy, and Yale Fellowships and Funding websites to explore options for study abroad, search for international internships and careers, and seek funding for study, research, and work experiences off campus.

SUMMER ABROAD

Summer courses abroad are offered through Yale Summer Session Programs Abroad and Yale in London. Students may also apply through Yale Study Abroad to earn credit from eligible outside summer study abroad programs. Students receiving financial aid are eligible for summer funding (one summer) through the International Study Award (ISA) program.

YEAR OR TERM ABROAD

In recognition of the special value of formal study abroad, Yale College allows juniors and second-term sophomores to earn a full year or term of credit toward the bachelor's degree through the Year or Term Abroad program. Participation in the program provides students the opportunity to approach academic study through a different cultural perspective. Students apply to Yale Study Abroad for approval of a program of study abroad. The pertinent application procedures and regulations are listed in the

Academic Regulations, section K, Special Academic Programs. Additional information is available from the Yale Study Abroad office.

YALE IN LONDON

The Yale in London program offers spring-term courses that explore the arts, politics, and culture in Britain through its diasporic and global histories. Based at the Paul Mellon Centre for Studies in British Art, located in central London, the program offers an opportunity to engage closely with London and the United Kingdom's museums, collections, and spaces. The program is open to all undergraduates, including seniors. Courses in the program are considered Yale course credits, so students who have already studied abroad and have exhausted their transfer credits can still participate in Yale in London. Further information is available on the program website, from the Yale in London office at the Yale Center for British Art, or by email to yaleinlondon@yale.edu.

YALE IN LONDON SUMMER PROGRAM

Yale in London offers two overlapping summer sessions at the Paul Mellon Centre for Studies in British Art in central London, each lasting six weeks. There are two courses in each session, which explore the arts, politics, and culture in Britain and its diasporic and global histories. The courses are open to all undergraduates, including seniors, and carry full Yale course credit, although enrollment in a Yale in London summer session does not count as a term of enrollment in Yale College. Course descriptions and further information are available on the program website, from the Yale in London office at the Yale Center for British Art, or by email to yaleinlondon@yale.edu.

THE MACMILLAN CENTER

The Whitney and Betty MacMillan Center for International and Area Studies at Yale is the University's focal point for promoting teaching and research on all aspects of international affairs, societies, and cultures around the world. It brings together scholars from relevant schools and departments to provide comparative and problem-oriented teaching and research on regional, international, and global issues. The MacMillan Center oversees six undergraduate majors: African Studies, East Asian Studies, Latin American Studies, Modern Middle East Studies, Russian and East European Studies, and South Asian Studies. Language training is integral to each of the majors. Further information about the MacMillan Center is available on the Yale MacMillan Center website.

Experiential Learning

Yale College recognizes that experiential learning is a valued and integral part of the Yale College academic experience, enabling students to make the transition from the classroom into their postgraduate professional careers. This experience can be acquired through a variety of means, including but not limited to summer internships, volunteer opportunities, independent projects, and research opportunities. Yale College has a number of resources available to help students identify the experiential opportunity that best complements and enhances their academic goals. The Office of Career Strategy and the Office of Fellowships are two helpful portals, available to all Yale College students. Students receiving financial aid may also be eligible for summer

funding through the Summer Experience Award and the International Study Award (ISA).

Yale Summer Session

Yale Summer Session offers courses in the arts, engineering, humanities, mathematics, biological and physical sciences, and the social sciences. While many Summer Session courses are offered on campus in New Haven, an increasing number are offered online, and several others are offered as part of programs abroad. Courses in Summer Session are equivalent in credit and satisfy the same distributional requirements as their academic year counterparts, but are offered in a more concentrated and intensive form. Yale College students receive credit in Yale College for work successfully completed in Yale Summer Session. There are no auditing privileges in Yale Summer Session. Further information is available from the Yale Summer Session office or on the Summer Session website.

Advising and Academic Resources

ADVISING

What students ultimately take away from their four years at Yale largely depends on the careful planning they apply to their programs of study. Entering students should not map out a fixed schedule of courses for the subsequent four years, but they should think ahead and make plans for the terms to come. There will be time and opportunity for students to revise such plans as their academic ideas develop.

Students have four years at Yale to explore a range of academic subjects and interests. They should think about those areas that interest them most. They should also take the time to learn about other fields that will broaden their horizons.

During the first year, students should consider the following suggestions:

- Take an introductory course or two in areas of special interest that might lead to the pursuit of a certificate or a different major.
- Fulfill one or more distributional requirements by taking a course in another broad area of the university (humanities, social sciences, sciences).
- Develop skills in writing and/or quantitative reasoning.
- Consider learning a new language.
- Consider taking a course in a field that is both intriguing and never before studied.

As students shape their educational goals, they should seek informed advice. For incoming students who have not yet developed relationships with academic advisers on campus, Yale College offers summer advising sessions and a constellation of advising linked to the residential colleges. As students progress in their studies, they may select as their adviser a member of the faculty in an intended or potential major to guide their course selection.

In addition to these advisers, students often seek advice about academic matters, internship and research opportunities, student life, study abroad, and post-graduation options from other offices on campus. Staff at the University Libraries, the Yale College Dean's Office, and the cultural centers are ready to support students in a variety of

endeavors, and the staff in the Study Abroad Office, Fellowship Programs Office, the Office of Career Strategy (including the Health Professions Advisory Program), and Yale Summer Session is available to provide focused advising.

Residential Colleges

There are fourteen residential colleges: Berkeley, Branford, Davenport, Timothy Dwight, Jonathan Edwards, Benjamin Franklin, Grace Hopper, Morse, Pauli Murray, Pierson, Saybrook, Silliman, Ezra Stiles, and Trumbull. Leading each one is a resident head of college, and in each college a resident dean advises students on both academic and nonacademic matters. Associated with the head and the dean as fellows of the college are other members of the University drawn from different departments and schools, many of whom serve as advisers to first-year students and sophomores in the college. In addition, a group of seniors in each residential college, known as first-year counselors, serves as peer advisers to first-year students. Additional information about advising resources in the residential colleges may be found on each college website and the Advising Resources website.

Academic Departments

In each academic department and for every undergraduate major, a director of undergraduate studies (DUS) oversees the curriculum, placement matters, and advising resources for the major. In small majors, the DUS also typically serves as the primary adviser for all students in the major; in large majors, other members of the faculty often assist the DUS in providing advice to students. Much information about course placement and prerequisites, as well as requirements for each major, may be found in Chapter III. Additional information about advising resources and faculty in a department or program may be found on the relevant department website.

ACADEMIC RESOURCES

Yale Poorvu Center for Teaching and Learning

The Yale Poorvu Center for Teaching and Learning (the Poorvu Center) provides an array of teaching, tutoring, writing, and technology-enabled learning programs distributed across the University. The center supports student learning and provides opportunities for students to develop as teachers, mentors, and leaders. Located in Sterling Memorial Library, the Poorvu Center includes community study space and a media studio. More information is available on the Poorvu Center website.

WRITING TUTORS AND WRITING PARTNERS

The Poorvu Center provides several ways for students to get help with writing. Each residential college has its own dedicated writing tutor. Tutors meet with students to discuss rough drafts of work in progress, research techniques, revision strategies, or other matters relevant to effective writing. Tutors offer free one-on-one help with any writing project: senior essays, course papers, applications, or anything intended for publication. The Writing Partners, another resource, are undergraduate and graduate students who offer a student's-eye view of writing and revision. Operating out of the Poorvu Center in Sterling Library, Writing Partners offer in-person, drop-in writing support daily. Students may also meet with Writing Partners online on select mornings and evenings. Finally, the Poorvu Center website offers writing handouts, model

papers, a list of student publications, a guide to writing with Turnitin, and information on using sources effectively.

STEM TUTORING & PROGRAMS

The Poorvu Center provides quantitative reasoning (QR) and science tutoring (Sc) for most relevant fields in Yale College. Several courses provide their own Course-Based Peer Tutors (CBPTs) and Undergraduate Learning Assistants (ULAs) who may help students as they work on problem sets or study for exams, who may review returned assignments, and who are there to provide more support for students with difficulties. Information about CBPTs and ULAs is available on individual course syllabi and the Canvas website. If a particular course does not have a CBPT/ULA, or if a student requires more help, the Residential College Math/Science Tutors offer drop-in hours that cover most science and QR topics. Finally, students who need more individual attention, in courses without CBPTs or ULAs, may apply for small-group tutoring. More information on all of these programs may be found on the Poorvu Center website.

Office of Educational Opportunity

The newly created Office of Educational Opportunity, launched on July 1, 2023, helps students more easily access the programs and resources that can foster their success at Yale. This office oversees and plans programs for Academic Strategies, FGLI Thrive, STEM Navigators, and the Disability Peer Mentor Program. For questions about any of these programs, contact Karin Gosselink (karin.gosselink@yale.edu), Assistant Dean for Educational Opportunity in Yale College.

ACADEMIC STRATEGIES PROGRAM

The Academic Strategies Program provides information, workshops, and individual mentoring to all undergraduate students to help them thrive as students at Yale. Strategies discussed include time management, cultivating faculty mentorship, managing a heavy reading load, exam study strategies, and more. Peer academic mentors are also available to help individual students develop and adopt skills central to active, empowered learning. Students may request to be matched with a mentor by emailing academicstrategies@yale.edu. Faculty and staff also may directly refer students to Lynda Paul (lynda.paul@yale.edu), Associate Director.

FGLI THRIVE FOR FIRST-GENERATION/LOWER-INCOME STUDENTS

Students who identify as first-generation and/or lower-income (FGLI) can find guidance and community through our FGLI Peer Mentorship Groups and explore our FGL supports through the FGL Community Initiative, a partnership between the OEO and the Office of Student Engagement. FGLI Peer Mentorship Groups offer peer support for first-year and sophomore FGLI students. Biweekly sessions expose students to key academic, extracurricular, and pre-professional resources. FGLI Thrive also organizes information sessions and events for the wider FGLI community. Students sign up in early September; for more information, contact Joshua Faires (joshua.faires@yale.edu).

STEM NAVIGATORS

STEM Navigators is a light-touch mentoring program that helps inform students about success strategies and opportunities in STEM. This program is designed to help first-

and second-year Yale undergraduates negotiate their early STEM courses, research, and other opportunities. Each week, participants receive an email from their STEM Navigator mentor that highlights STEM-related activities and advice. Students may also request to meet one-on-one with their assigned mentor. For more information, contact Karin Gosselink (karin.gosselink@yale.edu).

DISABILITY PEER MENTOR PROGRAM

The Disability Peer Mentor Program offers students with disabilities and neurodiverse students peer mentorship and access to professional learning support. It offers academic and other support programming for students with disabilities, including physical disabilities, learning differences, temporary disabilities, chronic illness, mental illness, and sensory disabilities. Students can meet with our staff Learning Specialist, Geoffrey Canales, to discuss how to adjust their existing learning strategies to the demands of pursuing college-level work with a disability. We also offer support groups for students with ADHD and chronic illness and one-on-one peer mentoring through the Disability Peer Mentor Program. For more information, or to refer a student to disabilities support, please contact Geoffrey Canales (geoffrey.canales@yale.edu).

Center for Language Study

The Center for Language Study (CLS), provides resources for language study at Yale. The CLS also provides support for speakers of other languages through its English Language Program. For undergraduates enrolled in a language course, the CLS offers peer tutoring in the target language. Students who seek to demonstrate advanced- or native-level proficiency in a language not taught at Yale may contact the CLS for a proficiency assessment, ideally during their first year. For students in Yale College and in the graduate and professional schools, the CLS offers specialized language programs such as Directed Independent Language Study (DILS) for the study of languages not taught at Yale, and the Fields program for discipline-specific language study at advanced levels. For professional school students, the CLS offers courses in language for special purposes, such as Spanish or Chinese for medical professionals. All language learners at Yale have access to CLS facilities, including its study rooms, distance facilities, and flexible learning spaces. For more information, including hours, a list of resources, and information about Yale's foreign language requirement and placement testing, see the Center website.

Student Accessibility Services

To ensure that all students have an equal opportunity to make the most of their Yale education, the Student Accessibility Services Office (SAS) facilitates individual accommodations for students with disabilities. SAS promotes equitable access to education and student life for students with disabilities and fosters a campus environment of belonging, inclusion, and respect. Students requesting accommodations should complete an Accommodation Request form to initiate the interactive process. Engagement with SAS is confidential. Generally, a student requiring reasonable accommodations needs to renew accommodations with SAS at the start of each term and should complete this step as soon as their schedule is finalized. At any time during a term, students with a newly diagnosed disability or recently sustained

injury requiring accommodations should contact SAS to discuss accommodation options. SAS may be reached at sas@yale.edu or by phone at (203) 432-2324.

Special Programs

DIRECTED STUDIES

Directed Studies (DS), a selective program for first-year students, is an interdisciplinary introduction to influential texts that have shaped many Western traditions, spanning from ancient cultures in Greece and the Near East to the present. Consisting of three integrated full-year courses in literature, philosophy, and historical and political thought, Directed Studies provides a coherent program of study that encourages students to put rich and complex texts into conversation with one another across time and disciplinary boundaries. From day one to the end of their first year, students in Directed Studies engage in critical thinking through learning to analyze challenging and urgent texts, participate meaningfully in seminar discussions, and write clear and persuasive analytic essays. Directed Studies has no prerequisites and provides a strong foundation for any major. Approximately ten percent of the first-year class is admitted each year to the program, which also satisfies Yale College distribution requirements in Humanities and Arts (HU), Social Sciences (SO), and Writing (WR). Students entering the program must enroll in all three courses and are expected to enroll for both semesters. Students participating in DS become members of a close-knit and supportive intellectual cohort that endures well beyond the end of the first year. Additional information is available on the program website.

THE DEVANE LECTURES

The DeVane Lectures are a special series of lectures that are open to the general public as well as to students and to other members of the Yale community. They were established in 1969 in honor of William Clyde DeVane, Dean of Yale College from 1939 to 1963. Details of the course are listed under DeVane Lecture Course in Subjects of Instruction. Supplementary meetings will be held for those students taking the lectures for credit.

FACULTY-LED ENSEMBLES

Yale's faculty-led performing ensembles offer qualified Yale students the opportunity to enhance their academic experiences through participation in the Yale Concert Band, Glee Club, Jazz Ensembles, and Symphony Orchestra. In addition to the preparation and performance of state-of-the-art music, participation in these ensembles provides opportunities to learn about the fine arts and their place in society and international cultures, and develop skills to become leaders in the arts. Through a robust series of activities (including international tours), students will work with and may become advanced performers, conductors, composers, arrangers, writers, archivists, historians, photographers, producers, media producers, critics, and teachers. Admission to ensembles is by audition, and participating students should enroll in the relevant Music department course affiliated with the ensemble each term. Some instruments are available for semester-long loans (see ensemble websites).

FIRST-YEAR SEMINAR PROGRAM

The First-Year Seminar program offers a diverse array of courses open only to first-year students and designed with first-year students in mind. Enrollment in seminars is limited to fifteen or eighteen students, depending on the nature of the course. Most seminars meet twice each week and do not, unless otherwise noted, presume any prior experience in the field. Roughly eighty first-year seminars across a wide range of subjects are offered every year, in both fall and spring terms. Students must apply for these seminars before the beginning of each term. A description of the program and application procedures can be viewed on the program website.

FRANCIS WRITER-IN-RESIDENCE

The Francis Writer-in-Residence in Yale College is a distinguished writer of nonfiction who teaches either one or two courses each academic year. He or she is actively engaged with undergraduate life and serves as an academic mentor through seminars, readings, meetings with students, and other activities.

ISEMAN PROFESSOR OF POETRY

The Frederick Iseman Professor of Poetry is a distinguished poet or a scholar who teaches poetry or dramatic poetry of any era. The Iseman Professor teaches the Iseman Seminar in Poetry and is actively engaged with undergraduate life, serving as an academic and literary mentor through readings, meetings, and other extracurricular activities.

RESERVE OFFICERS TRAINING CORPS (ROTC)

Yale hosts Naval and Air Force ROTC programs, which offer qualified Yale College students an opportunity to pursue their regular Yale degrees while also preparing for leadership positions in the United States Air Force, Space Force, Navy, or Marine Corps. Regardless of financial need, participating students may receive significant help in meeting the costs of a Yale education through national scholarships offered by each branch of ROTC. While most ROTC students in Yale College earned a scholarship while in high school, any student may enroll in ROTC courses and apply to join ROTC during their first year or sophomore year. Further information about the Air Force ROTC program can be found on the Yale AFROTC website or under Aerospace Studies in Subjects of Instruction. Further information about the Naval ROTC program (including the Marine Corps program) can be found on the Yale NROTC website or under Naval Science in Subjects of Instruction. Yale College students can participate in Army ROTC through a crosstown arrangement at the University of New Haven. Students not matriculated at Yale who are participating in the Air Force ROTC program as part of a crosstown arrangement are subject to Yale College's *Undergraduate Regulations*.

RESIDENTIAL COLLEGE SEMINARS

The Residential College Seminar program, instituted in 1968, is devoted to the development of innovative courses that fall outside traditional departmental structures. The instructors for the seminar program are drawn from the University community and from the region, including writers, journalists, artists, legal scholars, public health experts, and participants in government and the public sector. The Residential College Seminar program encourages innovative courses, and student committees in the

residential colleges play a significant role in selecting seminars, but all courses in the program must satisfy standard requirements for academic credit in Yale College and must be approved by the relevant faculty committees that oversee the curriculum. Each residential college sponsors at least one seminar each term. Additional seminars are occasionally sponsored directly by the program and are equally open to students from all residential colleges. Descriptions of the seminars are found on the program website.

ROSENKRANZ WRITER-IN-RESIDENCE

The Rosenkranz Writer-in-Residence in Yale College is a distinguished professional writer, chosen from fiction writers, playwrights, critics, journalists, screenwriters, essayists, poets, and social commentators. Both as a fellow of a residential college and as an instructor of one or two courses in each academic year, the Rosenkranz Writer-in-Residence meets formally and informally with students through classes and through readings and extracurricular activities.

STUDIES IN GRAND STRATEGY

Studies in Grand Strategy is a two-semester, calendar-year interdisciplinary seminar. The class investigates methods and materials for teaching and understanding grand strategy as a historical concept and as an active approach to geopolitics, statecraft, and social change. Each course, worth one credit, emphasizes connections between history and strategy, scholarship and real-world practice, leadership, and citizenship. The two-term seminar aims to educate students intending to pursue careers in a wide variety of fields and is part of the Brady-Johnson Program in Grand Strategy. Additional information can be found on the program website.

YALE JOURNALISM INITIATIVE

The Yale Journalism Initiative (YJI) empowers Yale students to pursue careers in journalism by bridging the gap between Yale's academic instruction and the dynamic—often opaque—world of professional journalism. The YJI team provides career guidance, organizes events with distinguished journalists, and offers programming to support students in their journalistic ambitions. YJI also provides internship funding to students who complete Yale's advanced journalism seminar, ENGL 467. The seminar is open to undergraduates and select graduate and professional students; application is required through the English department's selection process for creative writing classes. Students who complete the seminar may apply to become Yale Journalism Scholars, a distinction that denotes a deep commitment to the craft of journalism. For more information on the initiative or on becoming a Journalism Scholar, see the Journalism Initiative website.

Honors

GENERAL HONORS

The bachelor's degree *cum laude*, *magna cum laude*, or *summa cum laude* is awarded at graduation on the basis of a student's general performance in courses taken at Yale. At Commencement, General Honors are awarded to no more than 30 percent of the class. The bachelor's degree is awarded *summa cum laude* to no more than the top 5 percent of the graduating class, *magna cum laude* to no more than the next 10 percent of the graduating class, *cum laude* to no more than the next 15 percent of the graduating class.

Eligibility for General Honors is based on the grade point average (GPA) earned in courses taken only at Yale, with letter grades carrying the following values:

A 4.00	B- 2.67	D+ 1.33
A- 3.67	C+ 2.33	D 1.00
B+ 3.33	C 2.00	D- 0.67
B 3.00	C- 1.67	F 0.00

Marks of CR in courses taken on a Credit/D/Fail basis are not included in the calculation of grade point averages. Marks of W, for Withdrawal, carry no course credit, and do not figure in a grade point average.

DISTINCTION IN THE MAJOR

Distinction in the Major is conferred at graduation on any senior who, on nomination by the student's department or program, and with the concurrence of the Committee on Honors and Academic Standing, merits such an award for the quality of work completed in the major subject.

Distinction is awarded to students who have earned grades of A or A- in three-quarters of the credits in the major subject or program and who have earned a grade of A or A- on the senior departmental examination, senior essay, or senior project. All courses taken for the major are included in these calculations for Distinction in the Major. Grades of F and marks of CR in courses taken Credit/D/Fail are included as non-A grades. Marks of W, for Withdrawal, which carry no course credit, and marks of P, for Pass, do not figure in the calculation for Distinction.

PHI BETA KAPPA

Election to Phi Beta Kappa is based on the percentage of grades of A earned at Yale. Marks of CR in courses taken Credit/D/Fail are counted as non-A grades. Marks of P in courses that are graded only on a Pass/Fail basis, such as independent study courses, are not included in the calculations. Marks of W, for Withdrawal, carry no course credit, and do not figure in the calculation for Phi Beta Kappa. Grades earned outside Yale, including those earned during study abroad other than at Yale in London, are also not included in the calculation. Further information about the criteria for election and about the Yale chapter can be found on the Yale Phi Beta Kappa website.

PRIZES

For a list of the numerous prizes open annually to students in Yale College, consult the Yale Prizes website.

INTERRUPTION OR TEMPORARY SUSPENSION OF UNIVERSITY SERVICES OR PROGRAMS

Certain events that are beyond the University's control may cause or require the interruption or temporary suspension of some or all services and programs customarily furnished by the University. These events include, but are not limited to, epidemics or other public health emergencies; storms, floods, earthquakes, or other natural disasters; war, terrorism, rioting, or other acts of violence; loss of power, water, or other utility services; and strikes, work stoppages, or job actions. In the face of such events, the University may, at its sole discretion, provide substitute services and programs, suspend services and programs and/or issue appropriate refunds. Such decisions shall be made at the sole discretion of the University.

II. ACADEMIC REGULATIONS

Academic Regulations

As a condition of enrollment in Yale College, every student is required to comply with the academic regulations. Students are expected to familiarize themselves with these regulations, and an assertion of ignorance of their provisions cannot be accepted as a basis for an exception to them. No student or group of students should expect to be warned individually to conform to any of the regulations contained in this publication. Students are advised to pay special attention to all deadlines given in the academic regulations. Students who have questions or concerns about these regulations should consult with their residential college dean.

A. Requirements for the B.A. or B.S. Degree

To qualify for the bachelor's degree, B.A. or B.S., a student must successfully complete thirty-six term courses in Yale College or their equivalent. In doing so, the student must fulfill the distributional requirements of Yale College and the requirements of a major program. A student may normally complete no more than eight terms of enrollment in order to fulfill these requirements.

Yale College expects regular classroom attendance of all students. Accordingly, during terms in which undergraduates are enrolled and instruction is provided in-person, they may not be away from campus for a period exceeding two continuous weeks (14 calendar days) of class time without receiving advance permission from the Committee on Honors and Academic Standing. Students considering such a period of absence should contact their residential college dean at the earliest opportunity.

During the terms that students are enrolled and in residence in Yale College, they cannot be simultaneously enrolled, either full-time or part-time, in any other school or college at any other institution, with the exception of other Yale University schools that permit currently enrolled undergraduates to be admitted to programs that have been established within Yale College. Examples of such programs include the simultaneous award of the bachelor's and master's degree and the five-year B.A.-B.S./M.P.H. degree program in Public Health. Exceptions will also be made for Yale College students whose participation in the Reserve Officers Training Corps program requires enrollment in courses offered outside of Yale.

Students enrolled in the Eli Whitney Students program should consult section N, Eli Whitney Students Program.

Students who have already earned a bachelor's degree at Yale or at another institution are not eligible for degree enrollment in Yale College.

DISTRIBUTIONAL REQUIREMENTS

All students in Yale College must fulfill distributional requirements in order to qualify for the bachelor's degree. For a general introduction to the distributional requirements and a definition of the disciplinary areas and skills categories, refer to The Undergraduate Curriculum.

Students may meet the first-year and sophomore distributional milestones through *enrollment*, meaning that the course remains on the student's record in any form – with a “CR”, a “W” (“Withdrew after Midterm”), an “F”, or a passing letter grade. Students must, however, earn passing letter grades to fulfill their junior and senior distributional requirements.

1. Distributional requirements for the first, sophomore, and junior years Students must partially fulfill the distributional requirements during the first, sophomore, and junior years in order to be eligible for promotion. First-years and sophomores earn the distributional designation assigned to a course as long as they remain in the course beyond the midterm.

Distributional requirements for the first year Students must have enrolled for at least one course credit in two skills categories by the end of the second term of enrollment in order to be eligible for promotion to sophomore standing.

Students may elect no more than four course credits in a single department, and no more than six course credits in a single disciplinary area, except that a student taking a laboratory course may elect as many as seven course credits in the sciences.

Note that credit from outside Yale may not be applied toward the distributional requirements for the first year; accordingly, students who are permitted by the Committee on Honors and Academic Standing to repair a deficiency in these requirements over the summer following their first year must do so by means of enrollment in Yale Summer Session.

Distributional requirements for the sophomore year Students must have enrolled for at least one course credit in each of the three disciplinary areas and for at least one course credit in each of the three skills categories by the end of the fourth term of enrollment in order to be eligible for promotion to junior standing.

Distributional requirements for the junior year Students must have completed all of their skills requirements, and must have earned at least one course credit in each of the three disciplinary areas, by the end of the sixth term of enrollment in order to be eligible for promotion to senior standing.

2. Multiple distributional designations Although some courses may carry more than one distributional designation, a single course may be applied to only one distributional requirement. For example, if a course is designated both Hu and So it may be applied toward either the humanities and arts requirement or the social science requirement, but not both. Similarly, if a course is designated QR and Sc, it may be applied toward either the quantitative reasoning requirement or the science requirement, but not both. A course with multiple distributional designations, once applied toward one distributional requirement, may subsequently be applied toward a different distributional requirement. During the summer after each academic year, the University Registrar's Office optimizes the use of each student's completed courses toward fulfillment of the distributional requirements.

3. Language distributional requirement All students are required to engage in the study of a language while enrolled in Yale College.

Students who matriculate at Yale with no previous language training must complete three terms of instruction in a single language. This requirement is fulfilled by the completion of courses designated L1, L2, and L3.

Students who have taken the Advanced Placement examination or the International Baccalaureate higher-level examination in world languages should consult the Subjects of Instruction for each department's placement procedures.

Students who have studied a language before matriculating, but have not taken the Advanced Placement or the International Baccalaureate higher-level examination in that language, must take a placement exam offered by the appropriate language department or, for languages in which no departmental placement exam is offered, consult the appropriate director of undergraduate studies (DUS). The departmental test determines whether students place into the first, second, third, or fourth term of language study (courses designated L1, L2, L3, or L4), or whether they qualify for language courses beyond the fourth term of study (L5).

Students who place into the first term of a language must successfully complete three courses in that language, designated L1, L2, and L3.

Students who matriculate at Yale able to place into the second term of a language must successfully complete three courses in that language, designated L2, L3, and L4. Alternatively, they may successfully complete three courses in a different language at least through the level designated L3.

Students who matriculate at Yale able to place into the third term of a language must successfully complete two courses in that language, designated L3 and L4. Alternatively, they may successfully complete two or more courses in a different language at least through the level designated L3.

Students who matriculate at Yale able to place into the fourth term of a language must successfully complete one course in that language, designated L4. Alternatively, they may successfully complete one or more courses in a different language at least through the level designated L3. Students who have taken the Advanced Placement examination in world languages, and who present scores of 5, or who present scores of 6 or 7 on the International Baccalaureate higher-level examination, but who place into the L4 level on the Yale placement exam may fulfill the language requirement by successfully completing one course in the placement language at the level designated L4, or one or more courses in a different language at least through the level designated L2.

Students who matriculate at Yale able to place into the fifth term of a language must successfully complete one course in that language, designated L5 or a comparable course at the DUS's discretion. Alternatively, they may successfully complete one or more courses in a different language at least through the level designated L2.

Students whose secondary school transcript shows that the language of instruction was other than English, or who otherwise can demonstrate native proficiency in a language other than English through an assessment at the Center for Language Study, may fulfill the language requirement by successfully completing ENGL 114, 115, 120, 121, or 450. Alternatively, students in this category may fulfill the requirement by successfully completing one course in their native language designated L5 or a comparable course at the DUS's discretion, or by successfully completing one or more courses in a third language, neither English nor the language of their secondary school instruction, at least through the level designated L2.

In order to promote firsthand experience in other cultures and the learning of language in real-world settings, students are permitted to apply toward the satisfaction of the language requirement the completion of an approved study abroad program in a non-English language speaking setting if they have first completed or placed out of a language course designated L2. Students seeking to undertake study at another institution or program for this purpose must consult the relevant director of undergraduate studies in advance of their proposed study for advice about appropriate programs and courses and for information about the approval process. See section Q, Credit from Other Universities.

Introductory (L1/L2) language courses taken on approved non-Yale study abroad programs are eligible for credit toward the 36-course-credit requirement and major requirements; such introductory courses are not applicable toward the language requirement. Introductory (L1/L2) language courses taken on a Yale Summer Session Program Abroad are considered the same as other Yale College courses and, therefore, can be applied toward the language requirement as well as toward the 36-course-credit requirement and major requirements.

Study abroad opportunities are described under International Experience in The Undergraduate Curriculum. Intensive language courses provide the equivalent of a full year of instruction in a single term. A course designated L1–L2 fulfills both the L1 and the L2 levels of the language distributional requirement. Similarly, a course designated L3–L4 satisfies both the L3 and the L4 levels.

Not all of the languages offered in Yale College are offered at all levels, and it may not be possible to fulfill the language requirement in some of them. Languages currently offered in Yale College are Akkadian, American Sign Language, Arabic, Armenian, Bosnian-Croatian-Serbian, Burmese, Cherokee, Chinese, Czech, Dutch, hieroglyphic Egyptian, Finnish, French, German, ancient Greek, modern Greek, biblical Hebrew, modern Hebrew, Hindi, Hungarian, Indonesian, isiZulu, Italian, Japanese, Khmer, Kiswahili, Korean, Latin, Persian, Polish, Portuguese, Punjabi, Romanian, Russian, Sanskrit, Sinhala, Spanish, Tamil, classical Tibetan, modern Tibetan, Turkish, Twi, Ukrainian, Vietnamese, Wolof, Yiddish, and Yorùbá. Students wishing to fulfill the language requirement in a less commonly taught language should consult the DUS in the relevant department to verify that the appropriate level of study will be offered. Students who have intermediate- or higher-level proficiency in a language other than those listed here should consult the appropriate DUS or the director of the Center for Language Study to arrange for a placement examination.

Students who, for medical reasons, are not able to complete the language requirement may petition the Committee on Honors and Academic Standing for a partial waiver of the requirement. In granting such a waiver, the committee will normally require that a student complete four course credits in the study of a specific non-English-speaking culture.

For a chart showing the most common paths toward fulfillment of the language requirement, see the Center for Language Study page.

4. Courses taken on the Credit/D/Fail basis A student may not apply any course credit earned on the Credit/D/Fail basis toward satisfaction of the distributional requirements for the junior year nor for the distributional requirements for the bachelor's degree. An

exception is made for the language requirement, for which a student is required to earn a passing letter grade in only the final course in the L1-L5 language series.

5. Independent study courses A student may not apply any course credit earned through independent study courses toward the satisfaction of any of the distributional requirements. Students considering enrollment in Yale graduate or professional schools should carefully review the relevant entry in Section L, Courses in the Yale Graduate and Professional Schools.

6. Acceleration credits Acceleration credits may not be employed to satisfy the distributional requirements for the bachelor's degree, nor may they be employed to meet the distributional requirements for the first, sophomore, or junior years.

7. Course credit earned at Yale before matriculation Course credit earned in Yale Summer Session before a student's admission to Yale College, or in the Non-degree Students program while the student was enrolled as a secondary school student in the New Haven area, may be applied to the distributional requirements for the bachelor's degree and to those for the sophomore and junior years, but it may not be applied to the distributional requirements for the first year.

8. Courses in the graduate and professional schools It is the expectation that Yale College students, including candidates for the simultaneous award of the bachelor's and master's degrees, will fulfill their distributional requirements in courses taken in Yale College. Credit earned in a course offered in the Graduate School of Arts and Sciences or in one of the professional schools of the University may be applied toward the distributional requirements only if the course instructor has secured, in advance of the term in which the course will be given, approval from Yale College. Instructors interested in making such an advance arrangement can contact the Dean of Academic Affairs to be directed to the appropriate authority for such approval.

9. Course credit from outside Yale Course credit earned at another university may be applied toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years whether or not it is counted toward the 36-course-credit requirement for graduation. Credit from outside Yale may not be applied toward the distributional requirements for the first year. See section Q, Credit from Other Universities. Note particularly that Yale does not award course credit or distributional credit for courses completed at another college or university before the student graduated from secondary school.

10. Major programs Courses taken in fulfillment of a student's major requirements may be applied toward satisfaction of the distributional requirements for the first, sophomore, and junior years and toward the distributional requirements for the bachelor's degree.

11. Permission for a partial waiver of the distributional requirements for the first year If, with the permission of the residential college dean, a first-year student enrolls in a program of study for the first two terms of enrollment worth more than nine course credits, the dean may waive the year limit on the number of course credits that a student may elect in a single department or disciplinary area. In rare circumstances, a student may petition to postpone their first-year distributional requirements to the third term.

12. Permission to postpone fulfillment of the distributional requirements for the sophomore year A student may petition the Committee on Honors and Academic Standing for permission to fulfill the distributional requirements for the sophomore year in the fifth term of enrollment. Such a petition should explain the sound academic reasons why these requirements cannot be satisfied within four terms of enrollment and give an exact description of how they will be fulfilled in the fifth term. Students who have not fulfilled the distributional requirements for the sophomore year by the end of the fourth term of enrollment and who have not been granted permission by the Committee on Honors and Academic Standing to postpone their fulfillment will normally not be promoted to junior standing.

13. Permission to postpone fulfillment of the distributional requirements for the junior year In exceptional circumstances, a student may petition the Committee on Honors and Academic Standing for permission to fulfill the distributional requirements for the junior year in the seventh term of enrollment. Such a petition, which must include the written support of the residential college dean and, where applicable, that of the DUS in the student's major, should be filed no later than the date on which the student's course schedule is due in the sixth term of enrollment. It should explain the sound academic reasons why these requirements cannot be satisfied within six terms of enrollment and give an exact description of how they will be fulfilled in the seventh term. Students who have not fulfilled the distributional requirements for the junior year by the end of the sixth term of enrollment and who have not been granted permission by the Committee on Honors and Academic Standing to postpone their fulfillment will normally not be promoted to senior standing.

MAJOR REQUIREMENTS

The requirements of the various major programs are given under the heading for each department or program. Every major program includes a senior requirement, which may take the form of a senior essay, a senior project, or a senior departmental examination.

EIGHT TERMS OF ENROLLMENT

A student must complete the requirements for the bachelor's degree in no more than eight terms of enrollment. Terms spent on a Year or Term Abroad, or in the Yale College program at the Paul Mellon Centre in London during a spring term, are considered the equivalent of terms of enrollment in Yale College. Note, however, that course credits earned in terms spent on a Year or Term Abroad may not be applied to acceleration by the early accumulation of thirty-six course credits all earned at Yale. See section R, Acceleration Policies. (Attendance at the summer program at the Paul Mellon Centre in London or Yale Summer Session does not constitute a term of enrollment in Yale College.)

In exceptional circumstances, a student may petition the Yale College Committee on Honors and Academic Standing for permission to enroll for an additional term. Such a petition should be made no later than the beginning of a student's seventh term of enrollment; it should describe precisely, giving detailed information on specific courses, why it is impossible for the student to complete the requirements for a bachelor's degree within eight terms; and it should be accompanied by detailed, informative letters of endorsement from the student's DUS and residential college dean. When the request is

being made in whole or in part on medical grounds, documentation must be provided by a treating physician or therapist, by Student Accessibility Services, or by both. The Committee on Honors and Academic Standing cannot grant permission for a ninth term in order for a student to undertake an optional arrangement not necessary for the acquisition of a bachelor's degree, such as, for example, the completion of two majors, or enrollment in the Program for the Simultaneous Award of the Bachelor's and Master's Degrees, or completion of the entrance requirements for graduate or professional school. Students who have been permitted to take a reduced course load may be granted a tenth term of enrollment. A student given permission to enroll for a ninth or tenth term is eligible for scholarship assistance from Yale as in the student's previous terms. See "Financial Services" under "Regulations" in the Yale College online publication Undergraduate Regulations.

Graduation in fewer than eight terms of enrollment is possible: see section R, Acceleration Policies. Under no circumstances may a student graduate in fewer than six terms of enrollment, unless the student was admitted by transfer from another college or university. Transfer students should consult section M, Transfer Students. Eli Whitney students should consult section N, Eli Whitney Students Program.

B. Grades

LETTER GRADES

The letter grades in Yale College are:

A	Excellent	B+		C+		D+		F	Fail
A-		B	Good	C	Satisfactory	D	Passing		
		B-		C-		D-			

Undergraduates who enroll in graduate school courses are assigned letter grades (A-F).

CREDIT/D/FAIL OPTION

The opportunity to elect courses on a Credit/D/Fail basis has been provided by the Yale College Faculty in order to encourage academic exploration and to promote diversity in students' programs.

- Reporting of grades** In all courses (except for a few professional school courses), instructors report letter grades for all students. If the student has chosen the Credit/D/Fail option in a course, the registrar converts grades of A, A-, B+, B, B-, C+, C, and C- into the notation CR, which is entered on the student's transcript. Grades of D+, D, D-, and F are entered on the transcript as reported. A student may not be required to disclose to the instructor of a course whether the student has enrolled in the course for a letter grade or under the Credit/D/Fail option.
- Eligibility** All courses, other than independent study courses, that are offered in Yale College during the fall and spring terms are available for election under the Credit/D/Fail option. (See "Independent Study Courses," below, for information on the grading of such courses.)
- Total number of course credits** A student has up to six opportunities to convert a course credit to the Credit/D/Fail option, with two of these opportunities expiring

if unused during their first two terms of enrollment. Note that some courses earn .5 credits and some earn 1.5 credits.

4. **Number of courses and course credits in a term** As many as two course credits may be elected under the Credit/D/Fail option in a term; thus in an academic year a student may earn as many as four course credits on the Credit/D/Fail option. In each term, a student must elect at least two courses, representing at least two course credits, for letter grades or the mark of Pass, in any combination.

For students enrolled in the Eli Whitney Students program, who are permitted to enroll in as few as three course credits in a calendar year and thus sometimes enroll in only one course credit in a term, different limits apply. An Eli Whitney student enrolled in four or more course credits in a term may elect up to two course credits that term under the Credit/D/Fail option; an Eli Whitney student enrolled in three or 3.5 course credits in a term may elect up to 1.5 course credits that term under the Credit/D/Fail option; and an Eli Whitney student enrolled in two or 2.5 course credits in a term may elect up to one course credit that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in fewer than two course credits in a term may elect no course credits that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in two or more but fewer than four course credits in a term may elect no more than one course credit that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in four or more course credits in a term is bound by the limits given in the paragraph immediately above.

5. **Distributional requirements** A student may not apply any course credit earned with a grade of Credit (CR) toward satisfaction of the distributional requirements for the junior year, or toward satisfaction of the distributional requirements for the bachelor's degree. An exception is made for the language requirement, for which a student is required to earn a passing letter grade in only the final course in the L1-L5 language series.
6. **Requirements of the major** The program description of each major specifies whether or not courses taken on the Credit/D/Fail basis count toward the requirements of that major.
7. **Credit/year course sequences** A credit/year course sequence may be taken under the Credit/D/Fail option for one term while the other term of the yearlong sequence is taken for a letter grade. For credit/year course sequences in which a student receives a separate letter grade for each of the two terms, each term will be governed by the enrollment option the student elected for that term. For credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, the enrollment option that the student elects for the second term governs both terms of the course sequence; that is, students will receive either the mark of CR for both terms or a letter grade for both terms, depending on the option elected for the second term.
8. **Course schedules** Students enroll in all courses without selecting any for the Credit/D/Fail option. They may subsequently select that option in any Yale College course – other than those independent study courses graded on a Pass/Fail basis – by the last day of classes, as published in the Yale College Calendar with Pertinent Deadlines. After the last day of classes, election of the Credit/D/Fail option is not permitted. As indicated above, in a given term a student may elect as many as (but

- no more than) two course credits on the Credit/D/Fail basis; and must elect at least two courses, representing at least two course credits, for letter grades or the mark of Pass, in any combination.
9. **Conversion back to a letter grade** Once a student converts a course to the Credit/D/Fail mode, this change cannot be reversed.
 10. **Acceleration credit** Work completed under the Credit/D/Fail option cannot yield acceleration credit.
 11. **Prizes and honors** Marks of CR are included as non-A grades in the calculations for some prizes, for Distinction in the Major, and for election to Phi Beta Kappa, but marks of CR are not included in the calculation for General Honors. See Honors in The Undergraduate Curriculum.
 12. **Courses in the graduate and professional schools** Courses in the Graduate School of Arts and Sciences and in the professional schools of the University are not available on the Yale College Credit/D/Fail option. Some courses in certain professional schools of the University are, however, graded on a Pass/Fail basis only, and grades for undergraduates in these courses are recorded as CR or F. Such credits are counted in the total earned on the Credit/D/Fail basis that a student is permitted to offer in a term as well as the total offered toward the requirements of a bachelor's degree. Marks of CR in professional school courses are included in the calculations for Distinction in the Major as non-A grades. Marks of CR in professional school courses are not included in the calculation for General Honors. See "General Honors" and "Distinction in the Major" under Honors in The Undergraduate Curriculum.

INDEPENDENT STUDY COURSES

Independent study courses, other than senior essays or projects and other exempted courses as explained below, are graded on a Pass ("P")/Fail ("F") basis, with the additional requirement that the instructor of record submit a substantive report that both describes the nature of the independent study and evaluates the student's performance in it. These reports will be shared with the student and the director of undergraduate studies (DUS) in the department or program in which the course is offered, and kept in the office of the student's residential college dean.

Senior projects and courses deemed by a department or program to be a constituent of the senior requirement are evaluated with a letter grade. Additionally, the department or program offering a particular independent study course may deem that such a course should be exempted from Pass/Fail grading for a particular student because the course meets an important requirement in the major. In such a case, the DUS in the department or program that will be applying the course toward its major requirements may petition the Committee on Honors and Academic Standing to permit the student's work in the course to be evaluated with a letter grade. Such a petition should be filed by the date on which the student's schedule is due in the term in which the student is enrolling in the course, and should provide sound academic reasons for the exception. Such petitions may not be accepted after the date of midterm in the term in which the course is being taken.

GENERAL REGULATIONS CONCERNING GRADES AND TRANSCRIPTS

1. **Record of courses** A transcript is the record of courses in which a student has enrolled during the student's progress in completing the requirements of the bachelor's degree. All grades appear on the transcript, but not all grades are counted in the calculation of grade point average (GPA). These include passing grades earned in the first term of a credit/year course sequence in which the second term is not completed. If a student remains in a course after the date of midterm, the student is considered to have been enrolled in that course; therefore, if a student withdraws from the course after midterm and before the first day of the reading period, the mark of W (Withdraw) appears on the transcript in association with the course. See paragraph 4 below.
2. **Equal value of courses** Passing grades contribute equally, to the extent to which they carry course credit, toward the 36-course-credit requirement for graduation. A grade of D in a course, for example, does not need to be balanced with a higher grade in some other course.
3. **Change of a grade** A grade, once submitted by the instructor of a course to the registrar, may not be changed except by vote of the Yale College Committee on Honors and Academic Standing on petition of the instructor, unless it is the result of a clerical error made in the instructor's computation or in transcription of a grade.
4. **Deadlines for withdrawal from courses** If a student has elected a full-term course on the course schedule but formally withdraws from it before midterm, as published in the Yale College Calendar with Pertinent Deadlines, the student's transcript will contain no indication of that course after the withdrawal has been recorded by the registrar. If a student has elected a half-term course on the course schedule but formally withdraws from it by the relevant deadline published in the Yale College Calendar with Pertinent Deadlines, the student's transcript will contain no indication of that course after the withdrawal has been recorded by the registrar. See section F, Withdrawal from Courses.

If a student enrolled in a full-term course formally withdraws from it after midterm but before the first day of the reading period, the student's transcript will record the designation W (Withdraw) for the course. In credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, a student who completes the first term but does not subsequently enroll in the second term, or who subsequently withdraws from the second term before the second term is completed, will have the designation W (Withdraw) recorded for the first term of the sequence.

If a student enrolled in a half-term course formally withdraws from it after the deadline for the course to be removed from the transcript, but by the last date a withdrawal is permitted from the course, the student's transcript will record the neutral designation W (Withdraw) for the course. See the Yale College Calendar with Pertinent Deadlines for both dates in each term.

The mark of W is a neutral designation indicating simply that the student has been enrolled in, but has withdrawn from, a course; while the course carries no credit toward the degree, the W implies no evaluation of a student's work and carries no

implication whatsoever of failure. Withdrawal from a course after the last day of classes, as published in the Yale College Calendar with Pertinent Deadlines, is not possible. See section F, Withdrawal from Courses.

5. **Incomplete work and postponed final examinations** A student who has received permission for a mark of Temporary Incomplete in a course, or who has been authorized to take a makeup final examination in a course, is allowed the specified period of time to repair the deficiency in the course. If the deficiency is not repaired by a satisfactory performance within the stipulated time, then the designation TI (Authorized Temporary Incomplete) or ABX (Authorized Absence from Final Examination) is automatically converted by the registrar to the grade of F. See section H, Completion of Course Work, “Postponement of Final Examinations” and “Work Incomplete at the End of Term.”
6. **Withdrawal from Yale College** Whether a student withdraws from Yale College for personal, academic, or financial reasons, the entry placed in each case on the student’s transcript is the word “Withdrew” together with the date of the withdrawal. When a student is withdrawn for disciplinary reasons, the entry placed on the student’s transcript is the word “Suspended” together with the date of the suspension.
7. **Majors, concentrations, and certificates** A transcript may show as a student’s major subject only a designation approved for that purpose by the Yale College Faculty. Major designations are listed under Majors in Yale College. Additionally, transcripts show clearly defined major concentrations and certificates. Certificates are listed under Certificates in Yale College.
8. **Access to grades** Access to recorded grades is available online to students in any Yale College course for which they have completed or actively declined to complete the online course evaluation form through the Yale Hub. Students have the opportunity to grant online access to their grades to certain other parties through the Proxy Management menu in the Student Information System.

C. Course Credits and Course Loads

CREDIT VALUE OF COURSES

Most courses in Yale College are term courses that carry one course credit if completed with a passing grade. There are, however, some variations:

1. **Double-credit courses** Certain courses in Yale College, including intensive language or research courses, award two course credits for a single term’s work.
2. **Yearlong course sequences** There are some yearlong course sequences in which two course credits are awarded upon the satisfactory completion of both terms of the sequence; other course sequences, including some research and laboratory courses, give one or four course credits for the successful completion of the full year’s work. A student who fails the first term of a yearlong course sequence may continue the sequence only with the instructor’s written permission, and will receive course credit only for the successful completion of the second term’s work. A student who satisfactorily completes the first term of a yearlong course sequence may receive course credit routinely for that term’s work, except where noted otherwise in the course listing.

The completion of the first term only of an introductory modern language earns credit whether or not a subsequent term of that language is completed. Neither instructors nor departments have the authority to make an exception to this rule.

3. **Laboratory courses** Some laboratory courses carry no separate credit toward the degree; others carry a full course credit for a term's work; and still others carry one-half course credit.
4. **Half-credit courses** All courses that carry 0.5 or 1.5 course credits and that are not bound by the credit/year restriction count toward the 36-course-credit requirement for the bachelor's degree.

NORMAL PROGRAM OF STUDY

A student in Yale College normally takes four or five term courses, or their equivalent, for each of eight terms.

1. Minimum course load

- a. Prior to midterm, a student must be enrolled in a program of study worth at least three course credits.
- b. After midterm and before the first day of reading period, a student may drop two course credits by withdrawing from one or more courses and receiving the neutral designation W (Withdraw) in those courses. A student may not carry a schedule of courses that will earn fewer than two course credits and a W in a term.
- c. Note: In rare circumstances, urgent medical needs require that students take only two course credits. In such cases, and with the endorsement of Yale Health and Student Accessibility Services, as a reasonable accommodation, returning students (not first term students) may petition the Yale College Committee on Honors and Academic Standing for permission to enroll in two course credits prior to the start of term or drop to two course credits at any point in the term while still remaining in good academic standing.

2. **Course loads requiring permission** A three-course-credit program of study or a six-course-credit program of study requires the permission of the residential college dean. It is assumed that any student who requests permission to carry six or more course credits does not intend to drop any of them. Permission for a program of six course credits will normally not be given to a student who is not in academic good standing.
3. **Seven course credits in a term** Students must petition the Yale College Committee on Honors and Academic Standing through their dean's office for permission to take a program worth seven credits in a term. In the petition, the student must explicitly state an intention to complete all the courses proposed.
4. **Independent study** Opportunities for independent study exist in many programs and departments under various designations: directed reading or research; individual reading or research; independent research or study; independent or special projects; individual instruction in music performance; independent, individual, or special tutorials; and the senior essay or project, among others. Note that course credit earned in such study may not be used toward fulfillment of the distributional requirements, and students may not enroll in independent study courses in the graduate or professional schools. Students may not receive academic

course credit for paid research assignments; they may not be paid for any work performed to meet academic requirements or that carries academic course credit. Approval for any such particular course is given by the department or program; however, approval for an independent study course is also required from the Yale College Committee on Honors and Academic Standing if certain limits are exceeded. A student must petition the Committee for permission to enroll in more than one such course credit in any one term before the senior year, or in more than two such course credits in any one term during the senior year. Permission is also required for a student to enroll in more than three such course credits in the first six terms of enrollment; included in this total are any independent study courses completed in Yale Summer Session that are applied to the Yale College transcript. In the petition the student must give sound academic reasons for exceeding these limits, and provide evidence that the additional work in independent study will not be done at the expense of the breadth and depth of study being pursued in regular Yale College courses. MUSI 345 and MUSI 445 do not count toward the above limits on independent study enrollment.

Students admitted to the Program for the Simultaneous Award of the Bachelor's and Master's Degrees are not required to seek permission from the Committee on Honors and Academic Standing to enroll in independent study courses when that enrollment exceeds the limits above and such work is required for the completion of that program.

D. Promotion and Good Standing

REQUIREMENTS FOR PROMOTION

1. To be promoted to sophomore standing after two terms of enrollment, a student must have earned at least eight course credits or the equivalent and have fulfilled the distributional requirements for the first year.
2. To be promoted to junior standing after four terms of enrollment, a student must have earned at least sixteen course credits or the equivalent and is expected to have fulfilled the distributional requirements for the sophomore year.
3. To be promoted to senior standing after six terms of enrollment, a student must have earned at least twenty-six course credits or the equivalent and is expected to have fulfilled the distributional requirements for the junior year.

REQUIREMENTS FOR ACADEMIC GOOD STANDING

At the conclusion of each term of enrollment, a student must have earned enough course credits to be in academic good standing.

1. At the end of the first term at Yale, a student must have earned at least four course credits.
2. At the end of the second term, a student must have earned at least eight course credits.
3. At the end of the third term, a student must have earned at least twelve course credits.
4. At the end of the fourth term, a student must have earned at least sixteen course credits.

5. At the end of the fifth term, a student must have earned at least twenty-one course credits.
6. At the end of the sixth term, a student must have earned at least twenty-six course credits.
7. At the end of the seventh term, a student must have earned at least thirty-one course credits.

Regardless of the number of credits accumulated, a student is not in academic good standing if the student's record shows three grades of F in a term or over two or three successive terms. "Successive terms" means successive terms in which the student enrolls, whether or not broken by a withdrawal or by a leave of absence. See section I, Academic Penalties and Restrictions, "Dismissal for Academic Reasons" and "Makeup of Course Deficiencies for Promotion or Academic Good Standing." The term in which a student takes a medical leave of absence is not counted as a term of enrollment under this policy.

E. Course Enrollment

Students may enroll in courses only by entering courses onto their registration worksheet in Yale Course Search during the registration period, or during the add/drop period, according to the dates listed in the Yale College Calendar with Pertinent Deadlines. Class attendance does not constitute enrollment. The course schedule is an important record of a student's enrollment plans, and students are responsible for the timely and accurate entering and maintaining of course schedule information during the registration and add/drop periods. The course elections that a student indicates on a course schedule or course change notice will appear on the student's transcript unless the student formally withdraws from a course before the relevant deadline, as listed in the Yale College Calendar with Pertinent Deadlines. See section F, Withdrawal from Courses.

The following rules govern students' enrollment in courses during the fall and spring terms of the academic year:

1. **Registration period** For both fall and spring terms, all students must enroll in at least three course credits before the published deadline listed in the Yale College Calendar with Pertinent Deadlines. Continuing students enroll in the prior term; new and reinstated students are notified of their registration dates for the fall term and enroll for the spring term with continuing students.
2. **Add/drop period** At, or near, the beginning of each term, the registration system opens for all students to adjust their course enrollment. Final course selections and adjustments must be completed by the published deadline listed in the Yale College Calendar with Pertinent Deadlines. It is the student's responsibility to obtain all necessary permissions before the deadline.
3. **Addition of a new course after the add/drop period** The addition of a new course after the add/drop period is not permitted save by exceptional action of the Committee on Honors and Academic Standing. Students who seek an exception should consult immediately with their residential college dean. Permission to elect a new course after the add/drop period must be requested by completing a course change notice that includes a petition and the written approval of the course

instructor. The petition should explain in detail why the course is necessary to the student's schedule and why the student was unable to elect the course by the end of the add/drop period. Timeliness is an essential feature of any request to add a course to the course schedule; a delay in consulting with the dean or in submitting a complete petition is normally grounds for denial. A fee of \$5 will be charged for the processing of an approved course change notice on which the election of a new course is requested. A student may not elect a new course after midterm, as published in the Yale College Calendar with Pertinent Deadlines, unless such election is made to correct a clerical error on the course schedule. A change of level in courses in which the subject is taught in an ordered progression, for example in languages or mathematics, is not considered the addition of a new course. Such a change may be made with the approval of the instructors involved (and, if necessary, with the added permission of the director of undergraduate studies in the subject). Similarly, a change of section in the same course is not considered the addition of a new course.

4. **Overlapping meeting times** A student may not elect courses with meeting times that overlap. If, for good cause, a student is obliged to elect two courses that overlap in meeting times, the student must supply the residential college dean at the beginning of the term with the written permission of both instructors, along with confirmation that the scheduled final exams as given in Yale Course Search do not themselves overlap. The student must also petition the Committee on Honors and Academic Standing, through their college dean's office, explaining why the student must enroll in both courses in the current term and how the student will meet all the requirements for both courses. No more than two courses may overlap, and the length of the overlap permitted depends on the course format as described below:

(a) Two synchronous courses may have a small and insignificant overlap in meeting times (i.e., no more than 15 minutes once per week, including travel time), with permission from the instructors of both courses, via petition to the residential college dean, so long as the final exams do not overlap.

(b) One asynchronous course may overlap with one synchronous course, including for the full class meeting time, with the permission of both instructors, via petition to the residential college dean, so long as the final exams do not overlap.

(c) Two asynchronous courses may overlap with each other, including for the full class meeting time, with the permission of both instructors, via petition to the residential college dean, so long as the final exams do not overlap.

Failure to file a complete and timely petition may result in the loss of credit for both courses.

5. **Courses requiring permission** Some courses require permission from the instructor to enroll; others require permission from the director of undergraduate studies. It is the responsibility of the student to secure the appropriate permission before they can be registered in a course.
6. **Courses that do not require permission** Courses that do not require permission for enrollment may nevertheless be limited in their enrollment (i.e., "capped") at the beginning of the term, depending upon, for example, the number of teaching

assistants available, the size of the appropriate meeting space, or other instructional needs.

7. **Prerequisites** Students are expected to have met the prerequisites published in course descriptions. If a student wishes to elect a course for which prerequisites are indicated but has not met those prerequisites, it is the student's responsibility to secure the permission of the instructor and, where appropriate, the director of undergraduate studies before enrolling. The registrar may drop the student from the class if the student has not met the prerequisites for enrollment.
8. **Teaching evaluations** For the advancement of teaching at Yale College, anonymous teaching evaluations are made available through the Yale Student Information System (SIS). Students are expected to participate in this evaluation process for any eligible Yale College course in which they are enrolled. Students who withdraw from a course after midterm are invited but not required to participate.
9. **Selection of a less advanced course in the same subject** In certain subjects, such as mathematics, languages, and the sciences, knowledge of the subject is acquired in an ordered progression. That is, the concepts and skills introduced in one course are necessary, or prerequisite, for mastery of the material in subsequent courses in that field. Occasionally a student, having completed an intermediate or advanced course in a subject, may take a less advanced one in that same subject. In such a case, although the student cannot receive course credit for both courses, each course will appear on the student's transcript with the grades earned; however, the student will receive course credit only for the more advanced course. A student may sometimes be permitted to complete an intermediate or advanced course without having first completed a less advanced course in a subject; in such a case, the student does not receive course credit for the less advanced course by virtue of having completed the more advanced course.
10. **Repeated enrollment in the same course** Courses may not be repeated for credit, except for courses marked "May be taken more than once" or "May be repeated for credit." In such cases, the repeated course earns no additional distributional credit. On rare occasions, a student may take the same course over again, or may take a course with the same content as another course the student has already passed. In such cases, the student receives credit for the course only once. Should a student take the same or an equivalent course twice, each course with its grade appears on the transcript. The student receives course credit for the higher grade if one is earned; in such an event, course credit is not given for the lower grade. Note, however, that both grades are included in the calculation of a student's grade point average (GPA) and in the calculation for General Honors.
11. **Academic credit and paid positions** Students may not receive academic course credit for paid research assignments; they may not be paid for any work performed to meet academic requirements or that carries academic course credit.
12. **Placement in language courses** Students placed by a language program or by their score on the Advanced Placement examination into a particular level of a language may not earn course credit for the completion of a course in that language at a level lower than the placement. For example, a student placed into the third term (L3) of a language earns no course credit for the completion of an L1 or L2 course in that language. Should a student complete a language course at a level lower than the

placement, the lower-level course with its grade appears on the transcript but earns no credit toward graduation.

13. **Use of vertebrate animals** If the satisfactory completion of a course will require the use of vertebrate animals in experiments, the student must be notified of that requirement at the first meeting of the course. If a student objects on ethical grounds to participating in the animal usage in question, it is the student's responsibility to discuss the matter with the faculty member in charge and not to enroll in the course if no alternative acceptable to the faculty member can be arranged.
14. **Field trips** If the satisfactory completion of a course will require participation in a field trip, students should understand that there are inherent risks, including the risks of travel, involved in such an activity. If a student objects to assuming these risks, it is the student's responsibility to discuss the matter with the faculty member in charge and not to enroll in the course if no alternative acceptable to the faculty member can be arranged. Yale College's policies regarding field trips can be found at the Yale College Academic Field Trip Policies website.
15. **Fieldwork** If a student is conducting fieldwork away from the Yale campus, under the supervision of a faculty member, he or she should discuss the inherent risks of such work and pre-departure guidelines with the supervising faculty member or director of undergraduate studies.

F. Withdrawal from Courses

Students are permitted to withdraw from courses for which they have enrolled in a term until 5 p.m. (ET) on the last day of classes before the reading period in that term. Withdrawal from a course can be accomplished only by the submission of a course change notice through the office of the residential college dean. A fee of \$5 will be charged for the processing of an approved course change notice on which withdrawal from a course is requested. Formal withdrawal is important, because failure to receive credit for courses in which students are enrolled will be recorded as F on their transcripts and may open them to the penalties described in section I, Academic Penalties and Restrictions, "Academic Warning" and "Dismissal for Academic Reasons."

1. **Transcripts** Each course listed on a student's course schedule appears on the student's transcript unless the student withdraws from the course by midterm. See paragraph 3, below.
2. **Permission** All course withdrawals require the permission of the residential college dean.
3. **Deadlines for withdrawal from courses** If a student formally withdraws from a full-term course by midterm, as published in the Yale College Calendar with Pertinent Deadlines, then after the registrar has recorded the withdrawal, the transcript will contain no indication of that course. If a student formally withdraws from a half-term course by the relevant deadline published in the Yale College Calendar with Pertinent Deadlines, then after the registrar has recorded the withdrawal, the transcript will contain no indication of that course.

If a student formally withdraws from a full-term course after midterm but before 5 p.m. (ET) on the last day of classes before the reading period, the transcript will record the course and show the neutral designation W (Withdrew) for the course.

If a student enrolled in a half-term course formally withdraws from it after the deadline for the course to be removed from the transcript, but by the last date a withdrawal is permitted from the course, the student's transcript will record the neutral designation W (Withdrew) for the course. See the Yale College Calendar with Pertinent Deadlines for both dates in each term. The deadlines apply to all courses, whether or not a particular course observes the reading period.

A change of level in courses in which the subject is taught in an ordered progression, as, for example, in languages or in mathematics, is not considered a course withdrawal and does not result in the recording of a W (Withdrew).

After these deadlines, withdrawal from a course is not permitted. An exception will be made only for a student who is approved for a medical leave of absence after the beginning of the reading period but by the last day of the final examination period; in such a case the student will be permitted to withdraw from a course with a mark of W (Withdrew).

4. **Withdrawal from a credit/year sequence** For those credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, withdrawal from the sequence after the first term is completed but before the second term is completed will result in the recording of a mark of W (Withdrew) for the first term.
5. **Lack of formal withdrawal** If, when grades are due, the instructor of a course notifies the registrar that a student has not successfully completed a course from which the student has not formally withdrawn, then a grade of F will be recorded for that course on the student's transcript. See section B, Grades, "General Regulations Concerning Grades and Transcripts." See also section H, Completion of Course Work, "Work Incomplete at the End of Term" and "Postponement of Final Examinations."
6. **Withdrawal and Leave of Absence from Yale College** A student who is withdrawn or on leave of absence, including medical leave of absence, from Yale College may not attend classes or complete work that was assigned in the term in which the leave or withdrawal occurred, even if the deadline for such assignments was previously extended by the instructor or by the residential college dean.
7. **Transcripts of students withdrawn from Yale College or approved for a medical leave of absence** If a student withdraws from Yale College by midterm, the transcript will not show that the student has been enrolled in any full time courses during that term. If a student withdraws from Yale College after midterm, but before 5 p.m. (ET) on the last day of classes before the reading period, the transcript will record the student's courses with the designation W (Withdrew). If a student withdraws from Yale College after the beginning of the reading period, the transcript will show the student's courses with grades of F unless an instructor reports a passing grade for the student in any of the courses. The only exception is for a student who is approved for a medical leave of absence after the beginning of the reading period but before the end of the term; see paragraph 3, above.

G. Reading Period and Final Examination Period

1. **Due dates for course work** It is expected that instructors will require all course assignments, other than term papers and term projects, to be submitted at the latest

by the last day of reading period. Term papers and term projects are to be submitted at the latest by the last day of the final examination period. For the dates of the reading period and final examination period, consult the Yale College Calendar with Pertinent Deadlines. Instructors do not have the authority to give permission for these deadlines to be extended; only the residential college dean has this authority. See section H, Completion of Course Work, “Work Incomplete at the End of Term.” Even if an extended deadline should be announced by the instructor, a grade reflecting work submitted after the end of the term cannot be accepted unless a Temporary Incomplete was authorized by the student’s residential college dean.

2. **Reading period** The Yale College Faculty established the reading period between the end of classes and the beginning of final examinations in order to provide a period of about a week during which students might conclude their course work and prepare for final examinations. The instructor of each course determines whether or not that course observes the reading period. A course that does not observe the reading period is identified in the course listings by the abbreviation “RP” at the end of the course description or by a phrase such as “Meets RP” or “Meets during reading period.”

The assumption underlying the faculty’s institution of the reading period was that no additional assignments would be required during the reading period in a course observing it, but that students would use the reading period in their own way to consolidate and augment the work of the course. Such being the case, no final examination may be administered during the reading period. A final examination in a course, whether or not the course observes the reading period, must be administered during the final examination period. No take-home final examination may be due during the reading period. An instructor may, however, set the due date for a term paper or project during the reading period.

3. **Final examinations** Yale College expects every course to conclude with a regular final examination or with a substitute for such an examination. The substitute should be in the nature of a final examination in that it requires the student to demonstrate proficiency in the discipline and subject matter of the course. Substitutes may include, for example, an oral presentation or examination, a term essay, or the last of a series of hour tests administered during the last week of classes. Final examinations normally last either two or three hours but, in either case, students are permitted to take an additional half-hour before being required to turn in their answers. This additional time is given for improving what has already been written, rather than for breaking new ground.
4. **Scheduling of final examinations** The University Registrar’s Office has assigned a specific time and date for the administration of final examinations in most courses in Yale College. The time of the final examination is determined by the meeting time of a course during the term. If the meeting time of a course is changed from that originally published, the time of the examination is defined by the new meeting time. If a course is published with no scheduled examination but the instructor subsequently decides to offer a final examination, it must be administered at the time defined by the meeting time of the course. The schedule of final examinations may be found in General Information under the heading Final Examination Schedules.

5. **Date of administering final examinations** Since the final examination schedule has been carefully designed to make efficient use of the entire final examination period and to minimize overcrowding of students' schedules, a final examination must be administered on the date and at the time specified. On occasion instructors have administered final examinations at times different from those assigned. Such an arrangement is allowed under the following conditions: (a) that two different and distinct final examinations be administered; (b) that one of these examinations be administered at the regularly specified time within the final examination period; (c) that the alternative examination be administered at a regular examination starting time during the final examination period; and (d) that no student be required to obtain permission to take the alternative examination.
6. **Take-home final examinations** Take-home final examinations are sometimes substituted for regular final examinations. If a course has been assigned a final examination date, a take-home examination for that course is due on the scheduled examination day. If a course has not been assigned a final examination date, a take-home examination for the course is due on the day specified in the final examination schedule by the meeting time of the course. See Final Examination Schedules. If a course does not meet at a time covered by the final examination schedule, a take-home examination may not be due during the first three days of the final examination period. No take-home examination may be due during the reading period.
7. **Due dates for term grades** An instructor is required to submit term grades promptly after the completion of a course. For due dates, consult the Yale College Calendar with Pertinent Deadlines.

In submitting term grades, the instructor is expected to apply appropriate penalties for missed or incomplete work unless the late submission of the work has been authorized by the student's residential college dean or by the Committee on Honors and Academic Standing. If an instructor reports a mark of Incomplete for which there has been no authorization by the college dean, the Incomplete will be recorded by the University Registrar's Office as a grade of F.

8. **An hour test at the end of term instead of a final examination** Some instructors do not give final examinations of the usual two-and-one-half-hour or three-and-one-half-hour length, but instead terminate their courses with an hour test that is the last in a succession of hour tests administered during the term.

For courses that do not observe the reading period, this hour test may be administered during the reading period, since, in such courses, regular class meetings are scheduled to extend through the reading period. A course that does not observe the reading period may also administer the hour test during the final examination period at the time specified in the final examination schedule.

For courses that do observe the reading period, the hour test may not be administered during the reading period, but may be administered only during the last week of classes or during the final examination period at the time specified in the final examination schedule.

9. **Senior departmental examinations** In those major programs requiring a senior departmental examination, that examination is scheduled on the two weekdays preceding the final examination period in the fall and spring terms.

In a department or program in which a two-day written senior departmental examination is administered on those days, seniors may, with the written consent of the appropriate instructors, be excused from final examinations in as many as two courses in the major in the term in which they take the departmental examination. In a department or program in which the senior departmental examination takes place on only one of the two scheduled days, a senior may, with the written consent of the instructor, be excused from the final examination in one course in the major in the term in which the departmental examination is taken. If the senior departmental examination takes place before the scheduled days, or if a senior essay or senior project takes the place of the examination, a student may not omit a final examination.

H. Completion of Course Work

SUBMISSION OF COURSE WORK TO INSTRUCTORS

Students in Yale College are expected to take personal responsibility for the timely delivery to their instructors of all course work, including examinations, in the manner and format prescribed by the instructors. Students who submit course work in a manner other than in person and directly to an appropriate individual should confirm as soon as possible after the submission that the work has been received. Students who submit work electronically should also confirm, before the work is due, that they are sending correct and readable files, and they should take appropriate measures (e.g., by copying themselves on any emailed submissions; taking computer screenshots; checking their submission status if using Canvas or Gradescope) to confirm that they submitted their work to the instructor on time.

LATE OR POSTPONED WORK

There are three kinds of late or postponed work: (1) work late during term time; (2) work incomplete at the end of term (i.e., the last day of Reading Period); and (3) postponed final examinations. When students know in advance that they must miss or postpone work for a legitimate reason, as described in “Work Missed During the Term” and in “Postponement of Final Examinations” below, they should inform the instructor and the residential college dean as soon as possible.

WORK MISSED DURING THE TERM

A student's residential college dean may give confidential permission for a student to make up work missed or delayed because of an incapacitating physical or mental health condition, the death of a family member, or a comparable emergency. The residential college dean also has authority to give permission to make up work missed in person because of the observance of religious holy days and because of participation in intercollegiate varsity athletic competition. This permission is conveyed by means of a special form which, upon approval by the college dean, is sent to the student's instructor. Students participating in events of intramural or club sports, as differentiated from varsity events sponsored by the Department of Athletics, are not eligible for a postponement of work by the dean on account of those events.

In all other cases of work missed during the term, permission to make up course work can only be secured directly from the instructor of the course. Instructors have full discretion and authority to grant or deny requests for extensions for work due during

the term for any reason. This permission may not, however, extend beyond the last day of Reading Period, except for term papers and term projects. See “Work Incomplete at the End of Term” below.

WORK INCOMPLETE AT THE END OF TERM

Only the residential college dean has authority to give confidential permission to a student to submit work, other than term papers or term projects, in a course after the last day of Reading Period. The college dean may give such permission because of an incapacitating physical or mental health condition, the death of a family member, or a comparable emergency. In such cases, the college dean may authorize a mark of Temporary Incomplete for a period not to exceed one month from the beginning of the final examination period. Note that the mark of Temporary Incomplete refers to unfinished course work that was originally due in the closing weeks of the term, and not to assignments (such as lab reports, problem sets, reading responses, etc.) originally due prior to the closing weeks of the term. Note also that the mark of Temporary Incomplete does not refer to a final examination missed for any reason; see “Postponement of Final Examinations” below.

The residential college dean, in authorizing a mark of Temporary Incomplete, will stipulate the date on which the student’s late work will be due and the date on which the instructor is expected to submit a course grade to the registrar. The college dean may not set this second date later than one month after the beginning of the final examination period. If the student’s work has not been completed in time for the instructor to report a grade to the registrar by the deadline stipulated, then the instructor will submit a grade for the student that reflects the absence of the missing work, or the registrar will convert the mark of Temporary Incomplete to a grade of F. See section B, Grades, “General Regulations Concerning Grades and Transcripts,” and section F, Withdrawal from Courses.

Permission for a mark of Temporary Incomplete to last beyond one month from the beginning of the final examination period can be granted only by the Yale College Committee on Honors and Academic Standing. Such an extension may be given only for a brief period of time, usually one to two weeks, and only in response to extraordinary circumstances, usually of a medical nature. A petition for such permission must be submitted at the earliest possible date. In considering such requests, the Committee on Honors and Academic Standing takes into account the original deadline for submission of the work and the date on which a petition is delivered to the committee.

USE OF COMPUTERS AND POSTPONEMENT OF WORK

Technological problems, such as computer failures or corrupt files, normally do not qualify for extensions or other accommodations. Students should exercise reasonable prudence to safeguard materials, including backing up data in multiple locations and at frequent intervals and making duplicate copies of work files. Any computer work should be completed well in advance of the deadline in order to avoid last-minute technological problems. A student who experiences a computer-related problem while completing an assignment should immediately contact the course instructor for guidance.

POSTPONEMENT OF FINAL EXAMINATIONS

Only the residential college dean may authorize postponement of a final examination. The residential college dean may give such confidential permission because of an incapacitating physical or mental health condition, the death of a family member, or a comparable emergency. The residential college dean also has authority to give such permission because of the observance of religious holy days and because of participation in intercollegiate varsity athletic competition. Finally, the college dean may authorize postponement of a final examination if a student has three examinations scheduled during the first two full days of the final examination period, or three examinations scheduled consecutively in the final examination schedules.* The postponement of a final examination for any other reason requires the permission of the Committee on Honors and Academic Standing. A student's end-of-term travel plans are not a basis for the postponement of a final examination. See Final Examination Schedules and section G, Reading Period and Final Examination Period, paragraph 4.

* The final examination schedules indicate three examination sessions, or time slots, per day: one in the morning, one in the afternoon, and one in the evening. Some of these time slots contain examinations; others do not. A college dean may postpone an examination if a student has three examinations scheduled within any four consecutive time slots, whether or not each of those time slots has an examination assigned to it. See Final Examination Schedules. Occasionally an instructor may arrange an option for an alternative final examination in addition to the regularly scheduled examination. See section G, Reading Period and Final Examination Period, paragraph 5. Such an optional arrangement cannot be the basis for a postponement of an examination if three of a student's final examinations would thereby acquire "consecutive" status.

It is normally the expectation that when a student begins a final examination but does not complete it, the student will receive credit only for the work completed on the examination. If, however, a student becomes unable to complete an examination because of a sudden and serious illness or other emergency during the examination, the student may request authorization from the residential college dean to take a makeup final examination. In such a case, the student must explain their departure to the instructor, or to some other person proctoring the examination, before leaving the room, and must contact the residential college dean and Yale Health as appropriate as soon as possible thereafter.

Instructors generally administer makeup final exams. Makeup examinations for the fall term should be scheduled by the end of the second week of classes in the spring term. Makeup examinations for underclass students who miss final examinations in the spring term should be scheduled by the end of the second week of classes in the following fall term. Students who will not be enrolled at these times—whether because they are on leave of absence or on a Year or Term Abroad, or because they have withdrawn from Yale—must contact their residential dean's office in advance of the second week of classes about alternative arrangements. The registrar automatically records a grade of F in a course for a student who fails to take an officially scheduled makeup examination in that course at the appointed time, unless the student is able to earn a passing grade without taking the final examination.

Permission to postpone a final examination does not authorize a student to submit other work late in that course. See “Work Incomplete at the End of Term,” above.

I. Academic Penalties and Restrictions

CUT RESTRICTION

Regular classroom attendance is expected of all students. While Yale College enforces no general regulation concerning attendance, instructors of individual courses may require it of all students. This is particularly the case in discussion groups, seminars, laboratories, and courses in languages.

A student who, in the opinion of the instructor and of the residential college dean, has been absent from a course to an excessive degree and without excuse may at any time be placed on Cut Restriction in that course or in all courses. A student on Cut Restriction who continues to be absent from a course may, with the concurrence of the college dean and the Committee on Honors and Academic Standing, be excluded from it without credit. See “Exclusion from Courses” below.

EXCLUSION FROM COURSES

Any student may, because of excessive absences or unsatisfactory work, be excluded from a course without credit at any time upon the recommendation of the instructor or department concerned to the residential college dean and the Committee on Honors and Academic Standing. If the exclusion occurs after midterm and before the first day of the reading period, the student’s record will show a mark of W for the course.

ACADEMIC WARNING

Academic Warning is an indication that a student’s scholastic record is unsatisfactory. Students on Academic Warning who do not pass all of their courses in the term in which they are on Academic Warning will be dismissed for academic reasons. No matter how many course credits a student has earned, Academic Warning is automatic in the following cases: (a) failure in one term to earn more than two course credits; (b) a record that shows two grades of F in one term; (c) in two successive terms, a record that shows a grade of F for any course. The college deans attempt to give written notification of Academic Warning to students whose records show these deficiencies, but such students should regard themselves as being on warning even in the absence of written notification. A student permitted to continue in Yale College with fewer than the number of course credits ordinarily required for academic good standing may be placed on Academic Warning, and in such a case the student will be notified that he or she has been placed on warning. See section D, Promotion and Good Standing, “Requirements for Academic Good Standing.” The Committee on Honors and Academic Standing may at its discretion disqualify a student on Academic Warning from participation in recognized University organizations.

DISMISSAL FOR ACADEMIC REASONS

1. **Failure in three classes** A record that shows three grades of F in a term or over two or three successive terms will normally result in the student’s dismissal from Yale College. “Successive terms” means successive terms in which the student enrolls, whether or not broken by a withdrawal or by a leave of absence. While Yale Summer Session grades are recorded on the Yale College transcript, they are not

counted towards this total, because attendance at Yale Summer Session does not constitute a term of enrollment in Yale College.

2. **Failure to meet requirements for good standing or promotion** A student who has not, at the end of a term, met the minimum requirements for academic good standing, or a student who has failed to meet the minimum standards for promotion, may be dismissed unless permitted by the Committee on Honors and Academic Standing to repair the deficiency. See section D, Promotion and Good Standing, and “Makeup of Course Deficiencies for Promotion or Academic Good Standing” below. A student who is short by more than two credits of the minimum requirements for academic good standing or promotion, even if the student has no grades of F, will be dismissed.
3. **Students on Academic Warning** A record that shows a grade of F for a student who is on Academic Warning in that term will result in that student’s dismissal for academic reasons. See “Academic Warning” above.
4. **Reinstated students** A student reinstated to Yale College after an academic withdrawal who does not, in the first or second term following reinstatement, pass all the courses completed in that term will be dismissed for academic reasons. See section J, Time Away and Return.
5. **Unsatisfactory academic record** In addition, at any point during the year a student may be dismissed from Yale College if in the judgment of the Yale College Committee on Honors and Academic Standing the student’s academic record is unsatisfactory.

MAKE UP OF COURSE DEFICIENCIES FOR PROMOTION OR ACADEMIC GOOD STANDING

A student who has failed to satisfy the requirements for promotion or for academic good standing, if permitted to continue by the Committee on Honors and Academic Standing, must repair the deficiency promptly. Such deficiencies are to be repaired before the opening of the next fall term by work in summer school. The institution to be attended and the courses to be taken require the approval of the residential college dean. See section Q, Credit from Other Universities. Only in extraordinary circumstances will a student be allowed to repair a deficiency by carrying an additional course during the following academic year. Course deficiencies may not be repaired under any circumstances by the application of acceleration credits.

J. Time Away and Return: Postponement, Leave of Absence, Medical Leave of Absence, and Withdrawal

POSTPONEMENT

1. **Newly admitted students** may ask to postpone their matriculation by one year. One-term postponements are not permitted, as new students must begin in a fall term. Requests for postponements are ordinarily approved. For more details, see Important Information for Students Considering Postponed Matriculation on the Undergraduate Admissions website.

2. **Petition for Postponement:** Admitted students who wish to postpone matriculation should make their request to the Yale Office of Undergraduate Admissions office by May 1; they will be asked to provide a brief statement about their plans for the year of postponement. Late requests will be reviewed up until the fifteenth day of the fall term.
3. **Finances:** Depending on the timing of the postponement request, there may be financial consequences, including a substantial housing relinquishment fee. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a postponement. The office will help answer questions students may have regarding if and how their postponement might affect financial aid and help identify any impacts to their financial obligations (including student loan information).
4. **Campus Access:** Students who postpone will be considered guests or visitors on Yale’s campus and must follow all relevant university policies regarding guests and visitors. Students living in on-campus housing at the time of taking a postponement are expected to move out within a few days, usually within 72 hours. If invited to stay on campus by other students, they must abide by the three-day limit on guests. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations.
5. **Email Access:** Students who postpone after activating their Yale College email accounts will ordinarily retain access during their postponement year.
6. **Residential College Affiliation:** Students who postpone after the assignment of a residential college will ordinarily retain that affiliation when they return.
7. **Parental Notification:** Yale College assumes that students who postpone matriculation will inform their parents or guardians that they intend to do so. Ordinarily, the Admissions Office does not notify parents or guardians that a student has postponed but may do so if they believe that such notification is appropriate.
8. **Activity While on Leave:** Students who postpone matriculation are expected to be constructively occupied and to maintain a satisfactory standard of conduct during their postponement year. Note that they may not enroll full-time in a degree-granting program at another institution. Students who choose to pursue part-time studies at other institutions should bear in mind that any credits earned will not necessarily count towards their Yale degree.
9. **Matriculation after Postponement:** Students who postpone will automatically be included in the following year’s admitted class.

LEAVE OF ABSENCE

Students in Yale College may ask to take up to four terms of leaves of absence. Requests for leaves of absence are ordinarily approved, provided that the student departs in academic good standing at the end of a term and returns at the beginning of a term. See “Requirements for Academic Good Standing” in “Section D, Promotion and Good Standing” in the Yale College Academic Regulations.

1. **Petition for a Leave of Absence:** Students who wish to take a leave of absence must petition the Committee on Honors and Academic Standing through

their residential college dean. For a fall term leave of absence, students must submit a petition by May 1; late requests will be accepted up to 5:00 p.m. (EST) on the fifteenth day of the fall term. For a spring term leave of absence, petitions must be received by 5:00 p.m. (EST) on the fifteenth day of the spring term. The form to request a leave of absence is available at <https://forms.sis.yale.edu/url/YCLeaveofAbsence>.

2. **Activity While on Leave:** Many students engage in focused activities while on leave (e.g., part-time coursework, volunteering, employment, and so on) but this is not required.
3. **Finances:** Depending on the timing of the leave of absence request, there may be financial consequences, including a substantial housing relinquishment fee. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a leave. The office will help answer questions students may have regarding if and how their leave might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students taking a leave of absence who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
4. **Total Terms of Leave:** Students are eligible for a total of four terms of leave of absence. These terms need not be taken consecutively. (Note that, as a COVID-19 accommodation, leaves taken during academic years 2020-21 and 2021-22 do not count against the total terms of leave. Medical leaves of absence also do not count against this total.) Students who do not return from leave after a fourth term will be withdrawn for personal reasons.
5. **Accelerated Students:** Students taking an accelerated degree by use of acceleration credits who have had four terms of leave of absence may receive a fifth term of leave if the fifth term of leave is needed to bring the student’s pattern of attendance into conformity with the pattern of attendance stipulated for an accelerated degree. See “Enrollment requirements, including required patterns of attendance” in “Acceleration Policies” in the Yale College Academic Regulations.
6. **Campus Access:** Students on leave may be present on Yale’s campus as guests or visitors and must follow all relevant university policies as such. Students living in on-campus housing at the time of taking leave are expected to move out within a few days, usually within 72 hours. If invited as a guest in the dorms by other students, they must abide by the three-day limit. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations. Students on leave may usually participate in undergraduate activities and registered student organizations as a guest but may not hold leadership positions or participate in university sponsored or funded international travel.
7. **Email and Library Access:** Students on leave retain remote library privileges and email access.

8. **Campus Employment:** Students on leave may hold student employment jobs; they may also work at Yale in other employment categories.
9. **Disciplinary Violations:** A leave of absence does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
10. **Parental Notification:** Yale College assumes that students who take leaves of absence will inform their parents or guardians that they intend to do so. Ordinarily, residential college deans do not notify parents or guardians that a student has taken a leave of absence but may do so if they believe that such notification is appropriate.
11. **Health Coverage:** Students on a leave of absence are eligible to enroll in the Yale Health Affiliate Coverage for Students for up to two terms following their leave. This enrollment is not automatic. Students are responsible for completing and submitting the appropriate enrollment forms and full payment to Yale Health Member Services by September 15 for the full year or fall term, and by January 31 for the spring term. See “Leave of Absence” under “Health Services” in the Yale College Undergraduate Regulations. Application forms and details about medical coverage while on a leave of absence may be obtained from the Member Services Department of Yale Health.
12. **Canceling a Leave of Absence:** Students may cancel a leave of absence for either term as late as 5:00 p.m. (EST) on the first day of classes in the term for which the leave has been requested. The form to cancel a leave of absence is available at <https://forms.sis.yale.edu/url/YCCancelLOA>. (Given this deadline, students who request a leave during the first fifteen days of the term may not subsequently cancel that request.) The deadlines for payment of the term bill and the penalties for late payment apply. The deadlines for payment of the term bill and the penalties for late payment apply. See “Payment of Fees” under “Financial Services” in the Yale College Undergraduate Regulations.

RETURNING FROM A LEAVE OF ABSENCE

1. Students on a leave of absence are automatically reinstated. They ordinarily return from a leave of absence at the beginning of the term specified in their leave petition to the Committee on Honors and Academic Standing, but they may extend their leave by additional terms if they wish, up to the total terms of eligible leave as described above. Returns must always be at the start of term.
2. To return from leave, students must notify their residential college dean no later than the first day of the term in which they wish to return.
3. Students who are required to live on campus, or who wish to do so, must be in contact with their dean well in advance of their return from leave to make those arrangements.
4. Note: A student on a leave of absence from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.

MEDICAL LEAVE OF ABSENCE

Yale College is committed to supporting the health and well-being of all members of its campus community. Yale recognizes that students may experience medical situations that significantly limit their ability to function successfully and safely in their role as students. A medical leave of absence permits students to take a break from Yale and their studies at any point in a term, regardless of their academic standing, so that they may address medical concerns and later return to Yale to pursue their educational goals. When they wish to return, students on medical leaves of absence participate in a medical clearance process as described below. The Associate Dean of Residential College Life (time.away@yale.edu) in the Office of Student Affairs is available as a non-evaluative, informational, year-round resource to students considering a medical leave of absence and those on a medical leave of absence. Students may also find it helpful to consult with Student Accessibility Services.

1. **Petition for a Medical Leave of Absence:** Students who wish to take a medical leave of absence should consult with their residential college dean, who will guide them through the process. Students are also welcome to consult with the Associate Dean of Residential College Life (time.away@yale.edu) in the Office of Student Affairs. Students may wish to discuss the full range of options, including potential accommodations that might allow them to remain enrolled, with their residential college dean; a consultation with Student Accessibility Services may also be helpful. Students who wish to pursue a medical leave of absence should also discuss the process for returning to their studies with their dean. The form to initiate a medical leave of absence is available at <https://forms.sis.yale.edu/url/YCMLOA>.
 - a. To request a medical leave of absence, students meet with a Yale Health clinician – the Chief of Student Health, the Chief of Mental Health and Counseling, or one of their official designees – who will conduct an individual assessment to determine if a medical leave of absence is appropriate. Students under the care of a non-Yale Health clinician may ask their external clinician to submit medical documentation in order to inform the assessment of the Yale Health clinician. To arrange the meeting, students should email either studenthealth.chief@yale.edu or mhc.chief@yale.edu.
 - b. If the Yale Health clinician determines that a medical leave of absence is appropriate, they will do so in writing, including the basis for the decision, a recommended length of leave, and any conditions the student must satisfy before a return, including, but not limited to, completing the medical clearance process for return. The Chief of Student Health, the Chief of Mental Health and Counseling, or one of their official designees will generally provide the student with a recommended duration of leave, which will ordinarily be based primarily on the student's (or their representative's) request and any assessment from the student's treating provider, unless there is a reasonable basis to look beyond that request and/or assessment.
 - c. With the support of the Yale Health clinician, the student may submit a medical leave of absence request to the residential college dean. The dean will forward this request to the Committee on Honors and Academic Standing (CHAS)

for approval, which will ordinarily be granted. A student may revoke a leave by contacting their residential college dean in writing within three (3) days of CHAS's approval. This revocation period may not be waived.

- d. In the unlikely event that a request for a medical leave of absence is not granted, the student will have seven (7) days from the date of notification to appeal the decision in writing to the Dean of Yale College. The appeal should include the student's reasons for wanting a medical leave of absence, along with any supporting clinical documentation that the student wishes to be considered.
 - e. Students on other forms of time away (leaves and withdrawals) may also petition for a medical leave of absence, even if their time away has already begun.
2. **Involuntary Medical Leave of Absence:** In rare circumstances the Dean of Students may require a student to take a medical leave of absence. This action would only be taken after an individualized assessment concludes that (i) there is a significant risk to the student's health or safety or to the health or safety of others, or the student's behavior severely disrupts the University environment, and (ii) that no reasonable accommodations can adequately reduce that risk or disruption. This standard is not met solely because a student has a particular diagnosis or is receiving a particular treatment.
 - a. The Chief of Student Health or the Chief of Mental Health and Counseling will conduct the individualized assessment. That assessment will include, where possible, input from the student or the student's treating provider. The Chief of Student Health or the Chief of Mental Health and Counseling will strongly consider input from the student's treating provider unless there is a reasonable basis to discount it. If the Chief of Student Health or the Chief of Mental Health and Counseling conclude that a student should be placed on an involuntary medical leave of absence, they will make that recommendation to the Dean of Students, including an explanation and a recommendation for the length of the leave. A student may also be placed on an involuntary medical leave of absence if they refuse to cooperate with efforts deemed necessary by Yale Health and the Dean of Students to make the assessment discussed above.
 - b. The Dean of Students will review the relevant information and determine if an involuntary leave of absence is necessary. The circumstances of each student's situation are assessed individually, with attention to the possibility that reasonable accommodations would permit the student to continue to participate in Yale's academic and residential community.
 - c. The Dean of Students' decision to place a student on an involuntary medical leave of absence will be in writing and will include the basis for the decision, a timeline for student's departure from campus, a recommended length of leave, and any conditions the student must satisfy before a return, including but not limited to completing the medical clearance process. It will also include information about the appeal process. The Dean of Students will ordinarily not impose reinstatement conditions unrelated to the circumstances that led to the leave, but may do so when a student is withdrawn for academic and/or disciplinary reasons or when a student is away for more than four terms.

- d. A student who is required to take a medical leave of absence will have seven (7) days from the date of notification to appeal the decision in writing to the Dean of Yale College. During the appeal process, they are expected to comply with the leave of absence requirements.
3. **Considering Options While in In-Patient Treatment Settings:** In a medically appropriate time and manner, students in these settings will be provided options for next steps, including but not limited to returning to campus, seeking accommodations, and/or requesting a medical leave of absence. Yale College administrators are available to answer questions about any of these options.
4. **Coursework in Process:** Students on medical leaves of absence may not attend classes or submit additional coursework as of the date of their leave. Ordinarily, they are withdrawn from any courses in process. See “Withdrawal and Leave of Absence from Yale College” under “Withdrawal from Courses” in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a passing grade based on the work already completed. See “Work Incomplete at the End of Term” under “Completion of Coursework” in the Yale College Academic Regulations.
5. **Representative:** Students may designate an advisor to assist them in explaining the process and help the student make decisions in any part of the medical leave and appeals process. But an advisor may not act in lieu of the student unless required by law.
6. **Duration of Medical Leaves of Absence:** The recommendation for the length of the leave will be individualized and based on a clinical assessment. Students may remain on a medical leave of absence for as long as they wish. Students may also request to return early, before the recommended date, or choose to extend their leave beyond the initial recommendation. Yale students typically remain away for at least one full term, not including the term in which the leave occurred, before returning to Yale College, but this length will vary based on individual circumstances. The medical leave is intended to allow students to achieve the level of sustained stability needed to support a successful return, and students are encouraged to take the time they need.
 - a. Note: When new students take medical leave without completing their initial fall term, they will remain in the new student category. When they return, they must do so in a fall term and participate in all new student activities, including the Camp Yale orientation programs. They are not eligible for spring term reinstatement.
 - b. Note: *Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited four-year Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the

requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete course work will have their Student Share waived for the year in which they are reinstated.

7. **Activity While on Leave:** Students on medical leaves of absence are expected to receive appropriate medical treatment for the condition(s) that resulted in the leave. Many students also find it helpful to engage, when possible, in other focused activities—e.g., part-time coursework, volunteering, employment, and so on—but this is not required in most situations. Students are encouraged to prioritize medical treatment.
8. **Finances:** The financial consequences of the medical leave of absence will depend on the timing, and on whether the student purchased tuition insurance. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a leave. The office will help answer questions students may have regarding if and how their leave might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students taking a medical leave of absence who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
9. **Campus Access:** Except as set forth in ¶ 15 below (Yale Summer Session Classes), students on medical leave may be present on Yale’s campus as guests or visitors and must follow all relevant university policies. Students living in on-campus housing at the time of a medical leave of absence are expected to move out within a few days, usually within 72 hours. Special considerations regarding moving out may arise when students are in in-patient treatment settings. Yale evaluates any such considerations on a case-by-case basis. If invited as a guest in the dorms by other students, they must abide by the three-day limit. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations. Students on leave may usually participate in undergraduate activities and registered student organizations as a guest but may not hold leadership positions or participate in university sponsored or funded international travel.
10. **Email, Library, and Other Access:** Students on leave ordinarily retain remote library privileges and email access for three years from the date of their leave. Students will generally also have access to certain other services, such as the Office of Career Strategy, if reasonably possible.
11. **Campus Employment:** Students on leave may hold student employment jobs; they may also work at Yale in other employment categories.
12. **Disciplinary Violations:** A leave of absence does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
13. **Parental Notification:** Residential college deans ordinarily notify parents or guardians when a student goes on a medical leave of absence. See Parental Notification for full details.
14. **Health coverage:** Students going onto a medical leave of absence who are already enrolled in the Yale Health Hospitalization/Specialty Coverage have

the option to enroll in the Yale Health Affiliate Coverage for Students for one year. This enrollment is not automatic. The Time Away Resource will offer assistance. Students are responsible for completing and submitting the appropriate enrollment forms and full payment to Member Services within 30 days of going on leave. Some financial support may be available for students whose YHH/SC plan was covered by their financial aid. Application forms and details about medical coverage while on a medical leave of absence may be obtained from the Member Services Department of Yale Health.

15. **Yale Summer Session Classes:** Students on a medical leave of absence are eligible to enroll in Yale Summer Session. Students on a medical leave of absence are eligible to apply for Yale Study Abroad summer opportunities. See Yale Study Abroad for full details.
16. **Denial Of Access:** Notwithstanding any of the foregoing, Yale College may restrict a student's access to campus, classes, and/or services if it determines that (i) there is a significant risk to the student's health or safety or to the health or safety of others, or the student's behavior severely disrupts the University environment, and (ii) that no reasonable accommodations can adequately reduce that risk or disruption.

RETURNING FROM A MEDICAL LEAVE OF ABSENCE

Medical leaves are intended to give students time to receive treatment and focus on their health and wellbeing. The medical clearance process by which students return is intended to allow students to demonstrate that they will be able to adequately monitor their own health and function effectively in the autonomous student environment at Yale, without risk to their health or significant disruptions to others in the campus community. The goal is for students to be able to return to campus and be successful in their academic, co-curricular, and extra-curricular pursuits. The medical clearance process will therefore usually be limited to a determination regarding whether the conditions that led to the leave have been sufficiently addressed for the student to return with or without reasonable accommodations based on an individualized assessment.

1. **Timing of Return:** Students wishing to return from medical leave may request to do so when they feel ready. This may be in keeping with the timeline recommended when they went on leave but need not be and Yale will not approve or deny requests solely based on the recommended duration of the leave. There is no limit to the number of terms a student may be on medical leave.
 - a. Returns must be at the start of a fall or spring term. New students who have not yet completed an initial term may only return at the start of a fall term, and must participate in all new student activities, including the Camp Yale orientation programs.
 - b. Note: Enrollment in Yale Summer Session does not require reinstatement. Yale Study Abroad summer opportunities do require medical clearance. See Yale Study Abroad for full details.
 - c. Note: A student on medical leave from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale

College Executive Committee or the University-Wide Committee on Sexual Misconduct.

2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests will be considered in appropriate circumstances, but Yale College cannot guarantee that it will be able to render a decision on any late request before the start of the term.
3. **Materials to be Submitted:**
 - a. Online *Reinstatement Request* form. Email reinstatement@yale.edu to request form.
 - b. Brief statement (approximately 500–750 words) describing the circumstances that led to the medical leave, the treatment received while on leave and any other activities the student deems relevant, and the student's own sense of their readiness to return to Yale College.
 - c. Name and contact information for the clinician who will be submitting a medical letter.
 - d. *For students who have been away for more than four terms:* Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
4. **Medical Letter:** This should be sent directly from the clinician to the appropriate chief in Yale Health, either the Chief of Student Medicine or the Chief of Mental Health and Counseling. That letter ordinarily should include:
 - a. The clinician's credentials and clinical setting;
 - b. The nature of their work with the student, including the duration and frequency of their contact;
 - c. Any observed progress in the student's recovery from the medical condition that led to the leave of absence;
 - d. The clinician's assessment of the student's clinical status and their readiness to successfully resume academic and university life;
 - e. The justification for their assessment of the student's readiness.
5. **Meeting:** Once the materials, including the medical letter, have been received, a meeting will be scheduled with the Chief of Student Health, the Chief of Mental Health and Counseling, or their official designee. The meeting will ordinarily involve a discussion about the circumstances that led to the leave, the student's readiness to return, and accommodations and resources that may be available to the student upon their return. The Chief of Student Health or the Chief of Mental Health and Counseling, or their official designee, will then provide a recommendation to the Committee on Reinstatement as to whether the student is ready to successfully resume academic and university life.

6. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided and will strongly consider the opinion of the student's treating provider unless there is a reasonable basis to discount it. The Committee on Reinstatement will then make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student accordingly.
 - a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment (beyond the standard eight terms) as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for any additional terms.
 - b. If a student is not cleared for return, the Committee will provide a written explanation to help the student understand the reasons behind their decision and will recommend steps the student might take to be more successful in future requests. It is rare for a student to need to make multiple requests, but there is no limit to the number of times a student may request a return.
7. **Appeals Process:** The vast majority of students are cleared to return on their initial request. Students who are cleared to return are generally expected to meet the same academic and overall standards as other students unless the student is simultaneously on an academic withdrawal. Students who are not cleared to return may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than ten (10) days from the date on which the student is notified of the decision.

PUBLICATION OF DATA

Yale publishes the number of students who take medical leaves of absence each term, the number of requests for reinstatement from such leaves each term, and the number of such requests that are granted or denied each term. See Statistics on Students Taking, and Returning From, Medical Leave of Absence for full details.

WITHDRAWAL

There are four types of withdrawal: academic, disciplinary, financial, and personal.

ACADEMIC WITHDRAWAL

Students may be withdrawn for academic reasons on a variety of grounds. See "Dismissal for Academic Reasons" in "Section I, Academic Penalties and Restrictions" in the Yale College Academic Regulations.

1. **Duration of Academic Withdrawals:** Students who are withdrawn for academic reasons must remain away for at least one fall term and one spring term, in either order, not including the term in which the withdrawal occurred. They may choose to stay away longer. They may also choose to apply for early reinstatement, which may be granted in rare circumstances.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-

year, Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.

2. **Campus Access:** Students on academic withdrawal may be present on Yale's campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on academic withdrawal may usually participate in undergraduate activities and registered student organizations as guests but may not hold leadership positions or participate in university sponsored or funded international travel.
3. **Email and Remote Library Access:** Academically withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library access is periodically reset to include only active students, dropping students who are withdrawn.
4. **Campus Employment:** Students on academic withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
5. **Yale Summer Session Classes:** Students on an academic withdrawal are eligible to enroll in Yale Summer Session.
6. **Finances:** The financial consequences will depend on the timing of the withdrawal. See "Rebates of Undergraduate Charges" under "Financial Services" in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
7. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
8. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
9. **Health coverage:** Students on withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM AN ACADEMIC WITHDRAWAL

An academic withdrawal provides students with the opportunity both to address whatever circumstances prevented them from meeting their academic obligations and to repair certain academic deficiencies. The reinstatement process allows students to demonstrate that they are prepared to return to academic, co-curricular, and extra-curricular pursuits. *Note that students may be reinstated only once after an academic withdrawal; subsequent academic withdrawals are permanent.*

1. **Timing of Return:** Students wishing to return from an academic withdrawal may request to be reinstated when they feel prepared to reengage with their academic obligations. Students who are withdrawn for academic reasons are normally away for two full terms of enrollment. Requests to return early will be considered but are granted only in exceptional circumstances. There is no time limit on how long a student may remain withdrawn.
 - a. Returns must be at the start of a fall or spring term. (Enrollment in Yale Summer Session does not require reinstatement.)
 - b. Note: A student withdrawn from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.
2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
3. **Materials to be Submitted:**
 - a. Online Reinstatement Request form. Email reinstatement@yale.edu to request form.
 - b. A brief statement (approximately 500-750 words) describing the circumstances that led to the academic withdrawal, the activities pursued while away, and the student's own sense of their readiness to return to Yale College.
 - c. For students who have been away for more than four terms: Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
4. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
 - a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these

additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.

- b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee's decision and recommended steps they might take to be more successful in future requests.
5. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.
6. **Academic Requirements Following Reinstatement:** Students who are reinstated from an academic withdrawal must pass all of their courses in their first two semesters back. They may withdraw from courses in progress (see "Withdrawal from Courses" in the Yale College Academic Regulations) but they may not fail any courses in which they remain enrolled.

DISCIPLINARY WITHDRAWAL (SUSPENSION)

Students who are found to have violated the undergraduate regulations or other university policies may be withdrawn by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct. See the Yale College Undergraduate Regulations.

Under limited circumstances, students may also be withdrawn by the Dean of Yale College or their delegate. See "Emergency and Administrative Suspensions" in the Yale College Undergraduate Regulations. These suspensions are usually followed by a disciplinary hearing but can be lifted earlier by action of the dean or a delegate of the dean, or by the disciplinary committee after a preliminary review.

1. **Duration of Disciplinary Withdrawal:** The length of a disciplinary withdrawal is set by the disciplinary committee. Students may choose to stay away longer.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session (if the term of suspension is complete) or at another accredited, four-year, Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.
2. **Coursework in Process:** Withdrawn students may not attend classes or submit additional coursework as of the date of withdrawal. Ordinarily, they are withdrawn from any courses in process. See "Withdrawal and Leave of Absence from

Yale College” under “Withdrawal from Courses” in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a grade based on the work already completed. See “Work Incomplete at the End of Term” under “Completion of Coursework” in the Yale College Academic Regulations. If grades are not already submitted, it will be up to the student to determine if they wish to accept the grade for work completed.

3. **Campus Access:** Students withdrawn for disciplinary reasons are prohibited from being on campus without the advance written permission of their residential college dean, or the dean of students. They may not participate in undergraduate activities or registered student organizations.
4. **Email and Remote Library Access:** Students withdrawn for disciplinary reasons lose access to their email and to library services.
5. **Campus Employment:** Students on disciplinary withdrawal may not hold student employment jobs but may work remotely for Yale in other employment categories.
6. **Yale Summer Session Classes:** Students on a disciplinary withdrawal may not enroll in YSS classes.
7. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
8. **Disciplinary Violations:** A disciplinary withdrawal does not preclude students from being charged with additional disciplinary violations of the Undergraduate Regulations in relevant circumstances.
9. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is disciplinarily withdrawn.
10. **Health coverage:** Students on withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A DISCIPLINARY WITHDRAWAL

Students who wish to return from a disciplinary withdrawal must fulfill any requirements set by the disciplinary board.

1. **Timing of Return:** Students wishing to return from a disciplinary withdrawal may request to do so when they feel ready, once the period of the required withdrawal has passed. Requests to return early will not be considered. There is no time limit on how long a student may remain withdrawn.
 - a. Returns must be at the start of a fall or spring term.
 - b. Note: A student with additional pending disciplinary charges will not be eligible for Yale College reinstatement, re-enrollment, or a Yale College degree

until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.

2. **Reinstatement Requirement:** The disciplinary board may or may not require participation in the reinstatement process.
 - a. If the disciplinary board has not required a student to go through the reinstatement process, the student may return by notifying their residential college dean no later than the first day of the term in which they wish to return.
 - b. Students who are required to live on campus, or who wish to do so, must be in contact with their dean well in advance to make those arrangements. Students who are required to go through the reinstatement process should follow the instructions below.
3. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
4. **Materials to be submitted:**
 - a. Online Reinstatement Request form. Email reinstatement@yale.edu to request form.
 - b. Brief statement (approximately 500–750 words) describing the circumstances that led to the disciplinary withdrawal, the activities pursued while away, and the student's own sense of their readiness to return to Yale College.
 - c. For students who have been away for more than four terms: Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
 - d. Documentation of having met any additional requirements imposed by the disciplinary board.
5. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
 - a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.
 - b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee's decision and recommended steps they might take to be more successful in future requests.
6. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean

of Yale College no later than seven (7) days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.

FINANCIAL WITHDRAWAL

University regulations require that all financial obligations to the University be paid as a condition of enrollment. Students who have not paid or made arrangements for payment of their term fees by the due date will be placed on financial withdrawal. See “Payment of Fees” under “Financial Services” in the Yale College Undergraduate Regulations. Students whose financial situations have changed should reach out to the Office of Financial Aid for a reassessment of their aid level.

1. **Duration of Financial Withdrawals:** The financial withdrawal is lifted as soon as the student’s financial obligations have been settled.
2. **Campus Access:** Students on financial withdrawal may be present on Yale’s campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on financial withdrawal may usually participate in undergraduate activities and registered student organizations as guests but may not hold leadership positions or participate in university sponsored or funded international travel.
3. **Email and Remote Library Access:** Financially withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library access is periodically reset to include only active students, dropping students who are withdrawn.
4. **Campus Employment:** Students on financial withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
5. **Yale Summer Session Classes:** Students on financial withdrawal may not enroll in YSS classes.
6. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
7. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.

8. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
9. **Health Coverage:** Students on financial withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A FINANCIAL WITHDRAWAL

Students are automatically reinstated once their financial obligations have been settled.

PERSONAL WITHDRAWAL

Students may withdraw from Yale College for personal reasons at any time in the term.

1. **Petition for Personal Withdrawals:** Students should consult with their residential college dean, who can help them consider all options to determine whether a personal withdrawal is appropriate. In some cases, students considering a personal withdrawal may instead request a medical leave of absence or other accommodations. The consultation with the dean should include a discussion of the reinstatement requirements. If the student decides to pursue the personal withdrawal, they should submit a request in writing to their dean, who will forward it to the Committee on Honors and Academic Standing. Requests for personal withdrawals are ordinarily approved, but may be denied if the student is seeking to avoid an academic withdrawal.
2. **Automatic Recategorization into Personal Withdrawal Status:** Most personal withdrawals are requested by students but some are the result of inaction. Students in academic good standing who fail to register in a term will be withdrawn for personal reasons, as will students who do not return after reaching the limit of four terms of leaves of absence. (Medical leaves of absence do not have a term limit.)
3. **Coursework in Process:** Withdrawn students may not attend classes or submit additional coursework. Ordinarily, they are withdrawn from any courses in process. See “Withdrawal and Leave of Absence from Yale College” under “Withdrawal from Courses” in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a grade based on the work already completed. See “Work Incomplete at the End of Term” under “Completion of Coursework” in the Yale College Academic Regulations. If grades are not already submitted, it will be up to the student to determine if they wish to accept the grade for work completed.
4. **Duration of Personal Withdrawals:** Students on withdrawal for personal reasons usually must remain away for at least one fall term and one spring term, in either order, not including the term in which the withdrawal occurred. They may choose to stay away longer. They may also choose to reapply for early reinstatement, which may be granted in rare circumstances.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, and to receive grades

of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.

5. **Campus Access:** Students on personal withdrawal may be present on Yale's campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on personal withdrawal may usually participate in undergraduate activities and registered student organizations as guests but may not hold leadership positions or participate in university sponsored or funded international travel.
6. **Email and Remote Library Access:** Personally withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library access is periodically reset to include only active students, dropping students who are withdrawn.
7. **Campus Employment:** Students on personal withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
8. **Yale Summer Session Classes:** Students on a personal withdrawal are eligible to enroll in Yale Summer Session.
9. **Finances:** The financial consequences will depend on the timing of the withdrawal. See "Rebates of Undergraduate Charges" under "Financial Services" in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
10. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
11. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
12. **Health Coverage:** Students on personal withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A PERSONAL WITHDRAWAL

1. **Timing of Return:** Students wishing to return from a personal withdrawal may request to do so when they feel ready. Requests to return early will be

considered but are granted only in exceptional circumstances. There is no time limit on how long a student may remain withdrawn.

- a. Returns must be at the start of a fall or spring term. (Yale Summer Session classes do not require reinstatement.)
 - b. Note: A student withdrawn from Yale College with pending disciplinary charges will not be eligible for to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.
2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
3. **Materials to be submitted:**
- a. Online *Reinstatement Request* form. Email reinstatement@yale.edu to request form.
 - b. Brief statement (approximately 500–750 words) describing the circumstances that led to the personal withdrawal, the activities pursued while away, and the student's own sense of their readiness to return to Yale College.
 - c. *For students who have been away for more than four terms:* Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
4. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
- a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.
 - b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee's decision and recommended steps they might take to be more successful in future requests.
5. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven (7) days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.

U.S. MILITARY SERVICE REINSTATEMENT POLICY

Students who interrupt their studies to perform U.S. military service are subject to a separate U.S. military leave reinstatement policy.

In the event that a student withdraws or takes a leave of absence from Yale College on or after August 14, 2008, in order to serve in the U.S. military, the student will be entitled to guaranteed reinstatement under the following conditions:

1. Students must have served in the U.S. Armed Forces for a period of more than thirty consecutive days.
2. Students must give advance written or verbal notice of such service to their residential college dean. In providing the advance notice students do not need to indicate whether they intend to return. This advance notice need not come directly from the student, but, rather, can be made by an appropriate officer of the U.S. Armed Forces or official of the U.S. Department of Defense. Notice is not required if precluded by military necessity. In all cases, this requirement of giving notice can be fulfilled at the time the student seeks reinstatement, by submitting an attestation that the student performed the service.
3. Students must not be away from the University to perform U.S. military service for a period exceeding five years (this includes all previous absences to perform U.S. military service but does not include any initial period of obligated service). If a student's time away from the University to perform U.S. military service exceeds five years because the student is unable to obtain release orders through no fault of the student, or the student was ordered to or retained on active duty, such students should contact their residential college dean to determine if they remain eligible for guaranteed reinstatement.
4. Students must notify Yale within three years of the end of the U.S. military service of their intention to return. However, students who are hospitalized or recovering from an illness or injury incurred in or aggravated during the U.S. military service have up until two years after recovering from the illness or injury to notify Yale of their intent to return.
5. Students may not have received a dishonorable or bad conduct discharge or have been sentenced in a court-martial.

A student who meets all of these conditions will be reinstated for the following term unless the student requests, in writing, a later date of reinstatement. Any student who fails to meet one of these requirements may still be eligible for reinstatement under Yale's general reinstatement policy but is not guaranteed reinstatement. Upon returning to Yale, such students will resume their education without repeating completed course work for courses interrupted by U.S. military service. They will have the same enrolled status last held and will be in the same academic standing. For the first academic year in which such students return, they will be charged the tuition and fees that would have been assessed for the academic year in which they left the institution. Yale may charge up to the amount of tuition and fees that other students are assessed, however, if veterans' education benefits will cover the difference between the amounts currently charged other students and the amount charged for the academic year in which the student left. In the case of students who are not prepared to resume their studies with the same enrollment status and academic standing as when they left or who will not

be able to complete the program of study, Yale will undertake reasonable efforts to help such students become prepared. If, after reasonable efforts, Yale determines that the student remains unprepared or will be unable to complete the program, or Yale determines that there are no reasonable efforts it can take, Yale may deny reinstatement.

REBATES OF UNDERGRADUATE CHARGES

For information on financial rebates on account of withdrawal from Yale College, consult the section “Financial Services,” under “Regulations,” in the Yale online publication *Undergraduate Regulations*.

K. Special Academic Programs

YEAR OR TERM ABROAD

In recognition of the value of international study, Yale College encourages students to spend an academic year or a term studying on an approved program abroad. In order to participate in a Year or Term Abroad, students must have secured both approval from the Yale Study Abroad and admission from an accredited study abroad program.

A term abroad may be taken only during the second term of the sophomore year or either the first or second term of the junior year; students may combine any two of these three terms for a year abroad. Students must enroll in Yale courses for the final term of enrollment. Students may only enroll abroad as a senior if attending the Yale in London program.* Students are not eligible to participate in a Year or Term Abroad when on disciplinary probation or during a leave of absence. Students are limited to a maximum of two terms abroad for Yale graduation credit transfer and financial aid transfer.

Students in any major may apply. Students must be in academic good standing at the start of an approved year or term abroad and be able to return to enrollment at Yale in academic good standing. See section D, Promotion and Good Standing, “Requirements for Academic Good Standing.” Students must have at least a B average at the time of their application. Applicants with a cumulative GPA below 3.0 are asked to submit an additional short essay that addresses their academic performance at Yale and outlines specific strategies for maintaining academic good standing abroad. The transcript should demonstrate progress toward raising the GPA in the terms before the intended year or term abroad. Applicants should ensure that they also meet the GPA requirement of their intended study abroad program(s).

Students seeking to study abroad in a country where the primary language is not English are required to take at least one course studying the language of the host country.

The credit application for a Year or Term Abroad is available on the Yale Study Abroad website. A complete application includes all of the following: the application for credit, including a statement concerning the proposed course of study; a recommendation form from the student’s director(s) of undergraduate studies; and a recommendation form from the student’s residential college dean. Students on Yale financial aid must also submit a Year or Term Abroad Budget for Financial Aid application to Student Financial Services. Approval from Yale Study Abroad is contingent upon the Yale Travel Policy and the student’s acceptance into a program

or university abroad. Students must complete additional pre-departure requirements before arrival in the host country.

Application deadlines are listed in the Yale College Calendar with Pertinent Deadlines and on the Study Abroad website.

Applications for programs or universities abroad are available directly from the sponsoring institutions. Information about specific programs and contact information for past Yale participants are available on the Yale Study Abroad website. Note that application deadlines differ from program to program and usually also differ from the Yale Study Abroad deadline. Students are responsible for meeting the deadlines set by the programs they seek to attend, whether those deadlines fall before or after the Yale Study Abroad deadline.

At a minimum, programs must involve full-time work at the university level and must be undertaken during the host program's regular academic year. Students should note that programs in the Southern Hemisphere are subject to a different academic calendar, one of which may include the months of June, July, and August. Students should choose from the list of designated programs available on the Yale Study Abroad website. Students applying to enroll in programs not on the designated list must meet with a study abroad adviser to discuss the program and submit a petition application by the stated deadline. Yale Study Abroad evaluates programs primarily on the quality and structure of their academic offerings as well as the host country's eligibility under the Yale Travel Policy. Study abroad advisers are available to assist students in selecting an appropriate program.

1. **Course credit from a Year or Term Abroad** Students on a year abroad who complete a full program of study for the equivalent of two terms of enrollment at Yale may earn up to nine course credits. Students on a term abroad who complete a full program of study for the equivalent of one term of enrollment at Yale may earn up to four and a half course credits (with the exception of Cambridge or Oxford, for which students earn five credits for attending during Yale's spring term). What Yale Study Abroad considers a full program of study varies from program to program due to differences in academic credit systems. Students should consult with a study abroad adviser to ensure that they are enrolled in a full program abroad.
2. **Other course credit from outside Yale** Approved Year or Term Abroad enrollment is the only arrangement by which students may apply more than two outside credits toward the thirty-six course credits required for the bachelor's degree.* Students receiving credit for a year abroad may not apply any other credits from outside Yale toward the 36-course-credit requirement. Students receiving credit for a term abroad may apply up to two other course credits from outside Yale toward the 36-course-credit requirement. Because the maximum number of outside credits allowed is nine, students who have previously transferred one or two outside credits are normally eligible only for one term abroad. Students who wish to take a year abroad, but who are ineligible by virtue of having already transferred one or two outside credits may, with the exception noted below†, request that the University Registrar remove such credit from the transcript by petitioning the Committee on Honors and Academic Standing through their dean's office. If that petition is approved, the Registrar will remove the relevant outside course credit, but the

course title will remain on the transcript. Accordingly, this course work may also continue to be applied toward major and distributional requirements.

3. **Evidence of course work** The approved study abroad program or university must submit to Yale Study Abroad such evidence of the student's achievement as transcripts or other official academic records.
4. **Grades** No credit will be awarded for a course in which the grade earned was lower than a C- or its equivalent in other grading scales. Nor will credit be awarded for a course taken on a Pass/Fail option, if the student had the choice of taking the course for a letter grade.
5. **Distributional requirements and major requirements** In addition to applying credits earned on a year or term abroad toward the 36-course-credit requirement, students may, with appropriate permissions, apply these course credits toward fulfillment of distributional requirements and some of the requirements of their major programs. Instructions on applying such credit toward the distributional requirements are available on the Fulfilling Requirements While Away page; petitions for credit toward major requirements should be directed to the relevant director of undergraduate studies. Students interested in fulfilling requirements through study abroad course work should be prepared to provide on their return to Yale copies of all course work and syllabi.
6. **Academic regulations** Because a year or term abroad counts as the equivalent of two or one terms of enrollment in Yale College, the academic regulations of Yale College pertain to enrollment abroad. Students must earn a sufficient number of credits abroad to remain in academic good standing. Failure to do so will result in academic warning or dismissal for academic reasons. See section I, Academic Penalties and Restrictions. Withdrawal from an approved program abroad has the same consequences as withdrawal from Yale College.
7. **Canceling a Year or Term Abroad** Students who have received permission to study abroad but later decide not to do so must notify Yale Study Abroad and their residential college dean in writing of their change of plans, and then either enroll as usual in Yale College or apply for a leave of absence before the deadline. See section J, Time Away and Return. In some cases, such students will have to withdraw from Yale College if the deadline for requesting a leave has passed, or if they have already taken two terms of leave, or if the deadline for enrolling in courses in Yale College has passed. Under no circumstances can a Year or Term Abroad be converted retroactively to a leave of absence. Similarly, a leave of absence cannot be converted retroactively to a Year or Term Abroad.
8. **Enrollment in Yale College after a Year or Term Abroad** After returning from a year or term abroad, students must enroll in Yale College for at least two terms. Students who have accelerated should speak with their residential college dean about the possible need to decelerate. See section R, Acceleration Policies.
9. **Financial aid** Students who have been approved to study abroad and who receive financial aid from Yale are eligible for aid while abroad. Information about financial aid support can be found on the Student Financial Services website.

* Study during the spring term at the Paul Mellon Centre for Studies in British Art in London (Yale in London) is equivalent to enrollment in Yale College and is not considered a Term Abroad. Application to the Yale in London program should be

made directly to that office at the Yale Center for British Art. For details, see the British Studies program description.

† Students on promotion hold who employ outside course credits to repair a credit deficiency cannot subsequently have those credits removed from their transcript for any reason and are thus ineligible to take a year abroad.

LIMIT ON RESIDENTIAL COLLEGE SEMINARS

The number of Residential College Seminars is limited and the demand for them is great. A student may therefore take no more than four residential college seminars and no more than one in a single term. Permission to exceed these limits must be secured in advance from the Yale College Committee on Honors and Academic Standing; such permission will be given only if the student can demonstrate that the integrity or coherence of the student's academic objectives would suffer without it.

COURSES IN YALE SUMMER SESSION

There is no limit on the number of Yale Summer Session courses, on-campus or online, that a Yale College student may offer toward the requirements for the bachelor's degree. All courses completed by Yale College students in Yale Summer Session will be entered on the Yale College record, and those taken for a grade will be included in the calculation of the student's eligibility for General Honors and Distinction in the Major. This includes courses taken by admitted Yale College students after their admission to, and prior to their first term of enrollment in, Yale College. Courses outside of a student's major, successfully completed in Yale Summer Session, may be counted toward the requirements of the student's major program with the permission of the student's director of undergraduate studies. Yale Summer Session courses within the student's major count toward the major. Courses taken for a grade may also be counted toward fulfilling distributional requirements.

Yale Summer Session courses selected as Credit/D/Fail will count toward the four-course-credit limit on Credit/D/Fail courses for the bachelor's degree. Marks of CR are included in the calculations for some prizes, for Distinction in the Major, and for election to Phi Beta Kappa as non-A grades, but marks of CR are not included in the calculation for General Honors. Courses taken on a Credit/D/Fail basis may not be counted toward fulfilling distributional requirements for the junior year nor toward satisfaction of the distributional requirements for the bachelor's degree. For details on the Credit/D/Fail option in Yale Summer Session, see the Student Handbook on the Yale Summer Session website.

Attendance at Yale Summer Session does not constitute a term of enrollment in Yale College. Thus a student accelerating by one term by use of acceleration credits may not offer attendance at Yale Summer Session as one of the required seven terms of enrollment in Yale College.

A student accelerating by the early accumulation of thirty-six course credits may count credits earned in Yale Summer Session toward such acceleration. See section R, Acceleration Policies, "Acceleration by the Early Accumulation of Thirty-Six Course Credits."

There are no auditing privileges in Yale Summer Session.

Students are advised to refer to the Yale Summer Session website for Yale Summer Session's academic regulations, as well as other deadlines, policies, and procedures.

YALE IN LONDON SUMMER PROGRAM

Courses in the summer program at the Paul Mellon Centre for Studies in British Art in London carry full Yale course credit, but enrollment in the Yale in London summer program does not constitute a term of enrollment in Yale College. (Attendance at the Yale College program at the Paul Mellon Centre in London during a spring term does count as a regular term of enrollment.) Thus a student accelerating by one term by use of acceleration credits may not offer attendance at the summer program at the Paul Mellon Centre in London as one of the required seven terms of enrollment in Yale College.

A student accelerating by the early accumulation of thirty-six course credits may count credits earned in the summer program at the Paul Mellon Centre in London toward such acceleration. See section R, Acceleration Policies, "Acceleration by the Early Accumulation of Thirty-Six Course Credits."

FIELDS & DIRECTED INDEPENDENT LANGUAGE STUDY

Through the Center for Language Study, students may apply to two special language programs: (1) Directed Independent Language Study (DILS), to study a language not taught in a department at Yale; and (2) the Fields program, for discipline-specific language study at advanced levels. For both programs, the selection process is competitive; students submit an application to the committee, which considers the strength of the applicant's academic or professional reasons for their proposed course of study. Students are expected to be self-motivated and to spend significant time on their DILS or Fields study. During the program, students meet with an educated native speaker—a language partner—for two hours per week of conversation, while also studying the language on their own. In consultation with their language partner and the program manager, students devise their own plan of study and locate study materials, including conventional textbooks and web-based language materials. Students are tested at the end of their program using a nationally recognized oral proficiency examination. In Fields, students are also tested at entrance to confirm advanced proficiency. Both programs are open to undergraduates, graduate students, and professional school students. Language study through DILS and Fields is not eligible for course credit, does not satisfy the Yale College language requirement, does not appear on transcripts, and cannot be applied toward the Advanced Language Certificate. Interested students should apply at cls.yale.edu/dils and cls.yale.edu/fields.

AUDITING

Auditors are not permitted in courses taught in Yale College except for persons in one of the categories described below.

Category 1. Students enrolled full time in Yale College or in one of the graduate or professional schools of the University. In this case, students should contact the instructor directly for permission; with approval of the instructor, no form or additional permission is needed.

Category 2. Current members of the Yale faculty and emeritus faculty. In this case, the permission of the instructor is the only requirement; no form or additional permission is needed.

Category 3. Spouses of full-time Yale faculty members, or of emeritus faculty, or of students enrolled full time in the University. In these cases, the permission of both the instructor and the Director of the Yale College Auditing Program (academic.affairs@yale.edu) is required.

Category 4. Employees of the University and their spouses, in accordance with applicable personnel policies. In these cases, the permission of the instructor, the employee's supervisor, and the Director of the Yale College Auditing Program (academic.affairs@yale.edu) is required.

Category 5. Spouses of postdoctoral associates and fellows. In these cases, permission of both the instructor and the Director of the Yale College Auditing Program (academic.affairs@yale.edu) is required.

Category 6. Yale University alumni and their spouses. In these cases, permission of both the instructor and the Director of the Yale College Auditing Program (academic.affairs@yale.edu) is required, and an auditing fee will be charged.

Those in Categories 1 and 2 should contact the instructor of the course directly; only those in Categories 3, 4, 5, and 6 must complete an auditing form. The form for Categories 3, 4, and 5 (affiliate auditing) is available at the Yale Affiliate Auditing Program website; the form for Category 6 (alumni) is available at the Yale Alumni Auditing Program website.

No other persons are permitted to audit courses in Yale College, except for alumni eligible for the Alumni Auditing program. The Alumni Auditing program is administered separately from the general auditing program, and different rules may apply.

Yale NetIDs cannot be assigned to auditors. Alumni auditors pay a fee, which allows access to classroom sessions and to the Canvas class website, but only to course materials that are published to Canvas and available without Yale NetID access. Accordingly, many course resources (e.g., streaming video, library databases, "Zoo" computer labs, etc.) are not available to auditors. Before paying their auditing fee, and in order to make an informed decision about auditing a course, alumni auditors are encouraged to ask instructors whether such NetID-based resources will be used. More information is available at the Yale Alumni Auditing Program website.

All auditors are responsible for any additional course-based fees; those fees are paid directly to the sponsoring school, and not to the Yale College Auditing Program Office. Course fees can be found in the course description via Yale Course Search.

Persons auditing courses with limited laboratory or computer facilities must secure the explicit permission of the instructor to do so, and should understand that regularly enrolled students must at all times have priority in using such facilities. Computer or language laboratory facilities should be employed by auditors only during times when they are not in heavy demand, and in certain courses charges for computer use may be

necessary. General access to the campus computing network may not be available to auditors.

It is the usual expectation that an auditor does not take tests or examinations or write papers for a course for evaluation by the instructor. Occasionally, however, an auditor may wish to do such work and may request the instructor to evaluate it. If the instructor wishes to cooperate with the auditor in this way, the instructor does so on a voluntary basis and not as an obligation.

The University Registrar's Office does not keep a record of courses audited. It is not possible, therefore, for a student's transcript to show that a course has been audited, or for a transcript to be issued that records the auditing of a course.

The Yale College Auditing Program Office oversees only the auditing of undergraduate courses. To audit courses in Yale Graduate or Professional schools, contact those school registrars directly.

Persons interested in auditing an undergraduate course should review the Yale Alumni Auditing Program website or the Yale Affiliate Auditing Program website.

L. Special Academic Arrangements

COMBINED BACHELOR'S AND MASTER'S DEGREE PROGRAMS IN THE PROFESSIONAL SCHOOLS

Well-qualified students may be able to structure their undergraduate programs so as to become eligible for a master's degree in Environmental Management or Environmental Science, Global Affairs, Music, or Public Health after one additional year of graduate study at Yale. For more information see the respective program descriptions in Subjects of Instruction or on the respective websites.

COMPLETION OF DEGREE REQUIREMENTS AT THE END OF A FALL TERM

Students who at the end of a fall term complete the requirements for graduation may be of three kinds: (1) those who complete such requirements in eight terms of regular enrollment; (2) those who have accumulated thirty-six course credits or more, all earned at Yale, in fewer than eight terms of regular enrollment; and (3) students admitted by transfer to Yale College and students whose admission to Yale College was deferred until a spring term. Note that acceleration credits may not yield a completion of degree requirements at the end of a fall term; see section R, Acceleration Policies. The following rules apply to students of these three kinds.

1. **Notification by the student** Students must, by the last day of the add/drop period, in their final term of enrollment, complete a Petition to Complete Degree Requirements at the End of a Fall Term to notify the Committee on Honors and Academic Standing through their residential college dean's office that the fall term will be that student's last term of enrollment. Notification must include written certification from the student's director of undergraduate studies that the student will have completed all the requirements of the major program by the end of the fall term, and from the student's residential college dean that the student will

have fulfilled the distributional requirements by that time. Failure to observe the deadline will result in the students being charged a fine of \$20.

2. **Award of degrees and diplomas** Students who complete degree requirements at the end of a fall term are awarded their degrees and their diplomas at Commencement at the conclusion of the spring term of that academic year and are considered to be members of the class that graduates at that Commencement. General Honors and Distinction in the Major are also awarded at that time. If a student who completes degree requirements at the end of a fall term wishes to participate in the Commencement exercises held in the previous academic year, however, the student may do so with the permission of the residential college head and dean. Such might be the case, for example, for students who because of a leave of absence did not qualify for graduation with the class in Yale College with which they entered as a first-year. Such a student would not receive the degree or diploma until the May of the academic year in which degree requirements were completed.
3. **Health coverage** A student whose last term of enrollment is a fall term is eligible, upon application and payment of a fee, for continued coverage by Yale Health during the subsequent spring term, just as if the student were on leave of absence for that term. Such coverage extends to July 31. See section J, Time Away and Return.

COURSES IN THE YALE GRADUATE AND PROFESSIONAL SCHOOLS

When a course is open to undergraduate as well as either graduate or professional school students, a Yale College student may enroll under either number, but courses in the graduate and professional schools are not available on the Yale College Credit/D/Fail option; see section B, Grades, “Credit/D/Fail Option.”

A student may request to elect a graduate or professional school course, other than those designated independent study, by entering the course on the Course Schedule Selection Form. Students who wish to elect a professional school course (except for the School of Management) must also complete an additional form available on the University Registrar’s Office website. This additional form must be completed by the student, signed by the course instructor, and must also be signed by the appropriate agent of the dean or the registrar of the school in which the course is offered. Students who wish to elect a School of Management course should visit the School of Management website.

Requests should be made as early as possible in the term in which enrollment is sought and not later the last day of add/drop period. In recognition of the need to have a student’s schedule of courses finalized promptly, forms that are submitted after this date or that are incomplete will normally not be approved. Exceptions require action of the Committee on Honors and Academic Standing, in response to a petition from the student, and incur a \$5 daily processing fee.

Note that systems for the award of course credit in the professional schools differ and that not all courses in these schools yield a full course credit in Yale College. Once all materials for a request to elect a professional school course are received by the Office of the University Registrar, a review will be made and the student will be informed as to whether the course will earn Yale College course credit and, if so, how much.

Courses that earn no Yale College credit will normally not be entered on the Yale College transcript.

Note also that Yale College students are not permitted to enroll in independent study courses in the Graduate School of Arts and Sciences or in any of the professional schools of the University, unless already accepted into the program for the simultaneous award of the bachelor's and master's degrees. Enrollment in graduate or professional school courses does not typically earn credit toward Yale College distributional requirements (see Section A, Distributional Requirements, no 8).

Options for Undergraduates	Yale College Courses	Graduate/Professional School Courses
Can I enroll under the Credit/D/Fail option?	Yes, see Section B, Credit/D/Fail Option	No
Can I take an independent study course?	Yes, see Section C, Normal Program of Study	No, unless already accepted into the simultaneous degree program; see Section L, Courses in the Yale Graduate and Professional Schools
Can I earn credit toward distributional requirements?	Yes, see Section A, Distributional Requirements	No, unless instructor has secured approval from Yale College in advance of the start of term; see Section A, Distributional Requirements, no. 8

A student may offer toward the 36-course-credit requirement for the bachelor's degree as many as four course credits earned in professional schools of the University. Courses taken in the Graduate School of Arts and Sciences are not included in this four-credit restriction.

The deadlines and regulations of Yale College are binding on all students, including candidates for the simultaneous award of the bachelor's and master's degrees, in regard to courses in which they are enrolled in the Graduate School of Arts and Sciences and the professional schools of the University. These include the deadlines and regulations pertaining to withdrawal from courses, late or postponed work, and work incomplete at the end of term. An exception in deadline may be made in a course offered in a professional school of the University in which the academic calendar differs from that of Yale College. A request for such an exception must be grounded in compelling academic reasons, and must be made in writing by the instructor of the course to the student's residential college dean in advance of the deadline in question. Instructors of courses in the Graduate School and in the professional schools of the University are expected to use the Yale College grading system when they report grades for undergraduates who have completed their courses.

CURRICULAR COMBINATIONS AND COURSE OVERLAP ALLOWANCES

Specific combinations of majors, two majors, multidisciplinary academic programs, skills-based and interdisciplinary certificates, and simultaneous degrees enable students to configure combinations that will best serve the purposes of a liberal arts education. By establishing limits comprised of three combinations of curricular options, students are better able to organize their interests into coherent sets of courses.

The following combinations of three are allowed without special permissions: one major and two certificates; one major, one multidisciplinary academic program, and one certificate; two majors and one certificate or one multidisciplinary academic program; a simultaneous Bachelor's and Master's Degree (B.A./M.A. or B.S./M.S.) and one certificate or multidisciplinary academic program or a second major. Students may, in special circumstances, petition the Committee on Honors and Academic Standing for permission to earn an additional combination.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of a major, two majors, a multidisciplinary academic program, a certificate, or a simultaneous degree. Students may not apply the same course credit toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

DOUBLE CREDIT FOR A SINGLE-CREDIT COURSE

Two course credits for a course in Yale College normally carrying one course credit may be awarded to a student under the following conditions:

1. **Deadline** Permission must be requested by midterm, as published in the Yale College Calendar with Pertinent Deadlines.
2. **Petition and approvals** The student's petition must be approved by the instructor of the course, the director of undergraduate studies in the instructor's department, and the Committee on Honors and Academic Standing. The petition should include a detailed syllabus and an explanation of how the student's proposed work represents at least twice the normal expectations of the course.
3. **Distributional requirements** When a petition for double credit is approved for a course that fulfills a distributional requirement, the additional credit may not be applied toward the distributional requirement, although it may be applied toward the 36-course-credit requirement for graduation.
4. **Multiple courses** A student may make use of this arrangement rarely, and no more than once or twice.

SIMULTANEOUS AWARD OF THE BACHELOR'S AND MASTER'S DEGREES

Students of distinguished ability in a limited number of departments may undertake graduate work that will qualify them for the simultaneous award of the bachelor's and master's degrees at the end of their senior year. The simultaneous degree can be conferred only in a single department or program and only in departments or programs that confer both degrees. For example, a student may not complete a bachelor's degree in Economics and a master's degree in Political Science, nor may a student combine a bachelor's degree in a multi-departmental major (e.g.,

Ethics, Politics, and Economics) with a master's degree in one of its constituent departments. A student pursuing a simultaneous degree may, however, complete two separate undergraduate majors as long as one of the undergraduate majors is in the same department as the master's degree. Currently, the following departments offer the simultaneous degree option: American Studies; Biomedical Engineering; Chemistry; Classics; Computer Science; East Asian Studies; Earth and Planetary Sciences; English Language and Literature; French; History; History of Art; Italian; Linguistics; Mathematics; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; Music; Political Science; and Statistics and Data Science. For more information about this program, contact the relevant Director of Undergraduate Studies or the Director of Academic and Educational Affairs.

1. **Eligibility** Applicants cannot be considered for admission unless by the end of their fifth term of enrollment they have achieved at least two-thirds A or A– grades in all of their course credits, as well as in all of the course credits directly relating to their major. Some participating departments have additional eligibility requirements, and students should consult the relevant director of undergraduate studies for this information. Because the Eli Whitney Students program is for enrollment for the degree of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) only, students in that program are ineligible for the simultaneous award of the bachelor's and master's degrees.

Prior to admission to the program, students enrolling in a course that carries both an undergraduate and a graduate number should do so under the graduate number if they wish to apply that course toward the graduate school requirements.

2. **Application** Students must apply to their department for admission to the program through their director of undergraduate studies and must complete the online application no later than the last day of classes in their fifth term of enrollment in Yale College. The proposal should provide evidence of eligibility, reasons for pursuing the simultaneous degree, and plans for completing the program requirements. If the department acts favorably on the student's application, it is forwarded with the formal approval of the director of undergraduate studies and of the director of graduate studies to the Director of Academic and Educational Affairs (joel.silverman@yale.edu) in the Yale College Dean's Office, where a joint committee of Yale College and the Graduate School acts upon the department's nomination and notifies the student of acceptance into the program.
3. **Program requirements** Specific requirements for the award of degrees will be determined by each department. Normally a student is expected to complete the requirements of the undergraduate major in addition to eight or more course credits in the Graduate School; some departments, including the English and French departments, may require only seven course credits in the Graduate School. For all students in the program, graduate work must not be entirely concentrated in the final two terms.

Students may not enroll in Yale College for more than eight terms in order to qualify for the simultaneous award of both degrees. It is possible to earn both degrees in fewer than eight terms, but not by the use of acceleration credits. Upon acceptance into the program, a student who has accelerated by the use of acceleration credits will automatically be decelerated, and may not, so long as

the student remains in the simultaneous degree program, subsequently employ the credits to accelerate. While some participating departments may allow up to two overlapping term courses to apply to the requirements of both the major and the master's degree, and while students are not prohibited from additionally completing a second major, students may not apply two overlapping term courses toward the completion of both the simultaneous degree and toward completion of the two majors; only one such overlap is permitted.

4. **Requirements for the master's degree** To qualify for the master's degree, students must normally complete eight term course credits in the Graduate School with grades of A or A- in at least two term courses (or in one year course) and with a B average in the remaining ones. Students in those departments with a language requirement for the Ph.D. degree will be required to demonstrate proficiency in one of the specified languages.
5. **Approval of course schedules** Following notification that they have been accepted into the Program for the Simultaneous Award of the Bachelor's and Master's Degrees, students should have their course schedules approved each term both by the director of undergraduate studies and by the director of graduate studies.
6. **Independent Study** Students who have been admitted into the program may enroll in independent study courses in the graduate or professional school if the director of graduate studies verifies that such courses are applicable to the degree requirements for the master's degree.

SPECIAL TERM COURSES

With the approval of the Yale College Committee on Honors and Academic Standing, a student may arrange with a member of the faculty to take a Special Term Course, or individual tutorial, for credit toward the bachelor's degree, provided that certain requirements are met. First, the material of the proposed course must be appropriate to the qualifications of the student and it must be otherwise unavailable in the Yale University curriculum. If the subject can be pursued through independent study in an existing tutorial course in a department (e.g., AMST 471 or CGSC 473), the student must apply for enrollment in that course through the director of undergraduate studies. Second, the instructor of the proposed special course must hold a teaching appointment in the University. Third, the student must describe in detail the nature of the proposed course work and submit a syllabus.

Requests for Special Term Courses should be made to the Committee on Honors and Academic Standing, 25 SSS, on forms available from the residential college deans. The application form must be completed by the student and then approved and signed by the proposed instructor and the director of undergraduate studies of the instructor's department. A request for a Special Term Course should be made during the term immediately preceding the term during which the course is actually to be taken. An application will not be accepted by the committee after the second week of the term for which a course is proposed. It is expected that Special Term Courses will be taken for a letter grade. A student may not apply credit earned in a Special Term Course toward satisfaction of any of the distributional requirements.

TWO MAJORS

A student must petition the Committee on Honors and Academic Standing for permission to complete the requirements of two major programs. The Petition to Complete the Requirements of Two Majors is available on the University Registrar's Forms & Petitions site. A student contemplating the completion of two majors should bear in mind that doing so will almost invariably limit the opportunities for a wider distribution of studies over different subjects.

Each major must be completed independently of the other, with no more than two term courses overlapping. Prerequisites in either major are not considered to be overlapping courses. Other than such prerequisites, all courses taken in a major—including those taken in excess of the minimum requirements of the major—are counted in the consideration of overlapping courses unless such courses are in excess of the minimum requirements for both majors. Overlapping courses may not include the senior essay or senior project, unless the essay or project is unusually substantial and represents at least the equivalent of the minimum essay or project requirement of the one major in addition to the minimum essay or project requirement of the other major. If a single senior essay or project is approved for the two majors, no additional overlap in course credits is permitted. A joint senior project may earn no more than 3 course credits.

It is not possible to offer as two majors a combined major with one of its component majors. For example, a major in Economics and Mathematics cannot be joined with a second major in either Economics or Mathematics. Similarly, a student completing a major that permits the inclusion of a concentration of courses from another major or program cannot also major in that second major or program. For example, a major in Sociology with Psychology cannot have a second major in Psychology. A Special Divisional Major may not be offered as one of two majors.

A petition for two majors should show clearly how the requirements for each of the two programs will be met, and petitioners should consult the appropriate directors of undergraduate studies. The completion of two majors does not result in the award of two degrees; a student who completes a major that leads to the award of the B.A. degree and another major that leads to the award of the B.S. degree may choose the degree to be conferred. A petition to complete the requirements of two majors should be made only after the student's plans are definite, but no later than the due date for course schedules in the student's final term of enrollment. Petitions submitted after this deadline will be accepted only by exceptional action of the Committee on Honors and Academic Standing and will be fined \$50.

A student may not petition for permission to complete the requirements of more than two major programs.

M. Transfer Students

The following regulations apply to students admitted to Yale College by transfer from other colleges and universities:

1. **Degree requirements** In order to graduate from Yale College, transfer students must fulfill all the requirements for the bachelor's degree. They must thus earn a total of the equivalent of at least thirty-six course credits, that total consisting

of the number of credits awarded for their work at their previous institutions combined with the number of course credits subsequently earned at Yale. They must also complete the requirements of a major program in Yale College and fulfill the distributional requirements for the bachelor's degree.

2. **Terms of enrollment at Yale** Transfer students are expected to enroll in Yale College for the number of terms designated at the time of the final credit evaluation made of their work at previous institutions. Under no circumstances may a transfer student complete fewer than four terms of enrollment in Yale College or earn fewer than eighteen course credits at Yale. Transfer students are not eligible for the award of acceleration credit or for acceleration by use of acceleration credits.
3. **Transfer of credits** A preliminary evaluation of transferable credits is made at the time of the student's admission. Final determination of transfer credits is completed when all official transcripts from a student's previous institutions have been received.
4. **Additional terms at Yale** Students who must remain at Yale beyond the terms designated in the final determination of transfer credits must petition the Committee on Honors and Academic Standing for permission to do so. Such a petition will be considered only if it is impossible for the student to complete the requirements for the bachelor's degree in the designated number of terms. See section A, Requirements for the B.A. or B.S. Degree, "Eight Terms of Enrollment." A student given permission to enroll at Yale for an additional term, if the term represents more than the equivalent of eight terms of enrollment at the college level, is eligible for scholarship assistance from Yale for the additional term.
5. **Transcripts** A transfer student's Yale transcript indicates the institutions from which the student transferred to Yale, the number of course credits earned there, and the titles of courses taken. It does not list the grades earned at the transfer student's previous colleges or universities. A transfer student who needs a record of studies completed before admission to Yale must secure a transcript from the previous institutions.
6. **Course credit from outside Yale** Transfer students may receive up to two course credits for work completed outside Yale after matriculation and may receive credit for a Year or Term Abroad according to the guidelines of section Q, Credit from Other Universities, and section L, Special Academic Arrangements, "Year or Term Abroad," provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
7. **Distributional requirements** Transfer students are not bound by the distributional requirements for the first year, sophomore year, or junior year, but they must fulfill the distributional requirements for the bachelor's degree. Once accepted for admission, transfer students should consult with the director of the transfer program in order to ascertain their status with regard to the distributional requirements. Transfer students who matriculate at Yale with no previous language training must complete three terms of instruction in a single language. This requirement is fulfilled by the completion of courses designated L1, L2, and L3. Transfer students who matriculate at Yale with prior language training or with prior, approved college-level language courses should consult with the director of the transfer program about the language requirement.

8. **Credit/D/Fail** Transfer students have up to four opportunities to convert a course credit to the Credit/D/Fail option.
9. **Attendance at Yale before enrollment** Once a student has been accepted for admission as a transfer student, the student may not attend Yale as an Eli Whitney student or a non-degree student before his or her first term of enrollment at Yale.

N. Eli Whitney Students Program

The Eli Whitney Students program is designed to meet the needs of students who may not be able to attend college full-time by allowing nonresident students to enroll full-time or part-time in Yale College. Students are eligible to enroll in the program if they do not already hold a bachelor's degree and if they have a five-year gap at least in their post-secondary school education or have been out of high school for five or more years by the time of their matriculation at Yale.

The Eli Whitney Students program is for enrollment for the degree of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) only; students in the program are therefore ineligible for the simultaneous award of the bachelor's and master's degrees.

1. **Academic requirements** The Eli Whitney Students program normally is to be completed in a period not exceeding seven years from initial enrollment. In any calendar year, an Eli Whitney student must have completed three course credits to remain in academic good standing. Eli Whitney students are required to meet all of the academic obligations of any course in which they enroll and all requirements of their degree program.
2. **Academic Warning, and dismissal for academic reasons** Academic Warning is an indication that a student's scholastic record is unsatisfactory. Academic Warning will be automatic for Eli Whitney students who do not complete three course credits in any calendar year, as well as in the following cases: (a) failure in one term to earn at least one course credit; (b) a record that shows two grades of F in one term; (c) in two successive terms, a record that shows a grade of F for any course. A record that shows a grade of F for an Eli Whitney student who is on Academic Warning in that term will result in that student's dismissal for academic reasons.
3. **Degree requirements** To qualify for the bachelor's degree through the Eli Whitney Students program, Eli Whitney students must fulfill all the requirements for the bachelor's degree. They must thus earn a total of the equivalent of at least thirty-six course credits. Eli Whitney students must enroll in Yale College for at least four terms, earning by attendance in the Eli Whitney Students program at least eighteen of the required thirty-six credits. As many as eighteen course credits earned at another college or university or in the Non-degree Students program at Yale may be transferred toward the requirements for the bachelor's degree. Such transfer credit will be awarded for academic courses that were taken at an accredited institution and that were similar in content to Yale courses. Grades of A or B are expected, and no more than one-quarter of courses accepted for transfer toward the requirements for the degree may have grades of C. Eli Whitney students also must complete the requirements of a major program in Yale College and fulfill the distributional requirements for the bachelor's degree. See Majors in Yale College and The Undergraduate Curriculum under Major Programs.

4. **Distributional requirements** Eli Whitney students are not bound by the distributional requirements for the first year, sophomore year, or junior year, but must nonetheless fulfill the distributional requirements for the bachelor's degree. Once accepted for admission, Eli Whitney students should consult with the director of the Eli Whitney Students Program in order to ascertain their status with regard to the distributional requirements. Eli Whitney students who matriculate at Yale with no previous language training must complete three terms of instruction in a single language. This requirement is fulfilled by the completion of courses designated L1, L2, and L3. Eli Whitney students who matriculate at Yale with prior language training or with prior, approved college-level language courses should consult with the director of the Eli Whitney Students Program about the language requirement.
5. **Credit/D/Fail** Eli Whitney students have up to four opportunities to convert a course to the Credit/D/Fail option. As many as two credits may be elected under the Credit/D/Fail option in a term. Thus, in an academic year, a student may earn as many as four credits on the Credit/D/Fail option. Because Eli Whitney students are permitted to enroll in as few as three course credits in a calendar year, and thus sometimes enroll in only one course credit in a term, special limits apply. An Eli Whitney student enrolled in four or more course credits in a term may elect up to two course credits that term under the Credit/D/Fail option; an Eli Whitney student enrolled in three or 3.5 course credits in a term may elect up to 1.5 course credits that term under the Credit/D/Fail option; and an Eli Whitney student enrolled in two or 2.5 course credits in a term may elect up to one course credit that term under the Credit/D/Fail option. An Eli Whitney student enrolled in fewer than two course credits in a term may not elect any course credits that term under the Credit/D/Fail option.
6. **Registration and enrollment** Eli Whitney students enroll in courses as described in section E, Course Enrollment, and according to the deadline stipulated in the Yale College Calendar with Pertinent Deadlines. Students are permitted to enroll for a full course load, up to 5.5 course credits each term, with the possibility of a greater term load if appropriate permissions are secured. See section C, Course Credits and Course Loads, "Normal Program of Study." Eli Whitney students are eligible to enroll in Directed Studies or First-Year Seminars only in certain limited conditions. Students should consult with the director of the Eli Whitney Students program in order to ascertain their eligibility.
7. **Tuition and financial aid** Eli Whitney students are not to be charged in excess of the maximum full tuition rate in any given term. Yale employees enrolled in the Eli Whitney Students Program are entitled to a tuition reduction as determined by the Office of Human Resources. Tuition must be paid in full to the Office of Student Financial Services before registration. Eli Whitney students are eligible to apply for financial aid. For more information about tuition and financial aid, see Financial Aid for Eli Whitney Students.
8. **Facilities and services** Eli Whitney students are entitled to use the library system together with the other facilities that are required for the courses in which they are enrolled, such as laboratories, computers, and the like. They are also eligible for services through the Center for International and Professional Experience. Eli Whitney students are entitled to purchase gymnasium memberships and

Yale Health coverage. Students in the Eli Whitney program are not eligible for undergraduate housing and they may not serve as first-year counselors.

9. **Regulations** Eli Whitney students are governed by the academic regulations of Yale College, wherever appropriate, and by the rules contained in the Yale online publication *Undergraduate Regulations*. In disciplinary matters, Eli Whitney students are subject to the jurisdiction of the Yale College Executive Committee.
10. **Leave of absence and withdrawal** See section J, *Time Away and Return*. All regular deadlines and policies apply.
11. **Transcripts** An Eli Whitney student's Yale transcript indicates the institutions from which the student transferred to Yale, the number of course credits earned there, and the titles of courses taken. It does not list grades earned at the student's previous colleges or universities. An Eli Whitney student who needs a record of studies completed before admission to Yale must secure a transcript from the previous institutions.
12. **Course credit from outside Yale** Students enrolled in the Eli Whitney Students program may receive up to two course credits for work completed outside Yale after matriculation, according to the guidelines of section Q, *Credit from Other Universities*, provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
13. **Year or Term Abroad** With the approval of the director of the Eli Whitney Students program and the Committee on the Year or Term Abroad, students enrolled in the Eli Whitney Students program may undertake study outside the United States for a Year or Term Abroad. An Eli Whitney student must comply with all deadlines and requirements of the Committee on the Year or Term Abroad. See section L, *Special Academic Arrangements*, "Year or Term Abroad." To be eligible to apply, an Eli Whitney student must have accumulated, before enrolling abroad, at least twelve course credits but no more than twenty-two course credits toward the 36-course-credit requirement. Study abroad must involve full-time work at the university level. Eli Whitney students must enroll for at least two terms in Yale College after their return from study abroad.
14. **Yale students** No person who was ever a regular student in Yale College may enter the Eli Whitney Students program before the lapse of five years after withdrawing from Yale College. A person who in the past has withdrawn from Yale College without graduating and who wishes to return to Yale as a candidate for the bachelor's degree as an Eli Whitney student must make application to the Eli Whitney Students program and fulfill all of its requirements for the bachelor's degree, including the requirement that at least eighteen course credits must be earned while the student is enrolled in the Eli Whitney Students program. Once a former Yale College student has entered the Eli Whitney Students program, that student may pursue the bachelor's degree only through the Eli Whitney Students program.

Further information and application forms for the Eli Whitney Students program are available from the Undergraduate Admissions Office's Eli Whitney Students Program website.

O. Non-degree Students Program

The Non-degree Students program is designed to meet the needs of students with specific and defined educational goals, which may include personal or professional enrichment, exploration of new fields, or preparation for career changes. Normally, students are admitted for a period of one to two terms; students wishing to extend their enrollment must reapply through the Admissions Office.

The Non-degree Students program offers nonresident students who are unable to attend college full time the opportunity to enroll in Yale College courses for credit. The Non-degree Students program is open to graduates of Yale College, and is also open to academically qualified persons who have attended other colleges and universities or who have not continued their education beyond high school. Like all Yale College students, students in this program are required to comply with the academic regulations. Students not matriculated at Yale but participating in one of Yale's Reserve Officers Training Corps (ROTC) programs under a cross-town arrangement are registered as non-degree students. As such, they are subject to Yale College undergraduate regulations as a condition of their participation in Yale's ROTC program.

Non-degree students may enroll in from one to five course credits in any academic term. Non-degree students may not take more than a total of eighteen course credits in the Non-degree Students program.

1. **Academic requirements** Non-degree students are required to meet all of the academic obligations of any course in which they enroll. At the end of a term, the record of any non-degree student who does not have at least a C average for that term will be reviewed and that student may not be permitted to enroll in a subsequent term. To remain in academic good standing, a student is furthermore expected to complete at least one course per term. Withdrawal from all courses in any given term may jeopardize good standing and enrollment in a subsequent term. Students who plan not to enroll in courses in any given term must apply for a leave of absence on or before the fifteenth day of the term in question. A leave of absence may be granted for no more than two terms. Any student who does not enroll in courses in a term and does not apply for a leave of absence may be removed from the program.
2. **Enrollment and registration** Non-degree enrollment may begin in either the fall or the spring term. All non-degree students register for courses with the Office of Academic Affairs. In general, admission to limited-enrollment courses is not available to non-degree students. Auditing is not permitted in the Non-degree Students program. Non-degree students are not eligible for enrollment in individual tutorial courses; nor are they eligible, while in the Non-degree Students program, for enrollment in courses in the graduate or the professional schools. Those interested in enrolling in such courses should apply directly to the Graduate School of Arts and Sciences or to the particular professional school in whose courses they wish to enroll.
3. **Credit/D/Fail option** Non-degree students who wish to elect a course under the Credit/D/Fail option must make a compelling case for that election in a petition to the Director of Academic and Educational Affairs at least one week prior to the last

day of classes in that term. Non-degree students may take no more than one course in a term using the Credit/D/Fail option, and must be enrolled in at least one other course worth a minimum of one course credit during the same term. A maximum of two courses may be taken Credit/D/Fail during a student's time in the Non-degree Students program.

4. **Tuition** The tuition for non-degree students per course credit can be found on the Admissions, Non-degree Students Program website. Yale employees and their spouses are entitled to a tuition reduction; questions about this employee benefit should be directed to the Office of Human Resources, 203-432-5552. Tuition must be paid in full to the Office of Student Financial Services before registration. Yale provides no financial assistance for non-degree students. Students withdrawing from a course may be eligible for a refund of all or a portion of the tuition fees, in accordance with the tuition refund policy: (1) a student who drops a course for any reason on or before the last day of the add/drop period will be refunded the tuition fees paid for that course; (2) a student who drops a course for any reason after the add/drop period but on or before the day of midterm will be refunded one-half the tuition paid for that course; (3) a student who drops a course after midterm will not be refunded any portion of the tuition. Fees for late submission of course schedules apply as outlined in section E, Course Enrollment. Late tuition payments will be accepted no later than the course schedule deadline date (see the *Yale College Calendar with Pertinent Deadlines*). Any student who has not completed payment in full for courses by this deadline will not be permitted to enroll for that term.
5. **Facilities and services** Non-degree students are entitled to use the library system and other facilities that are required for the courses in which they are enrolled, such as laboratories, computers, and the like. For a fee, they are entitled to purchase gymnasium memberships and Yale Health coverage. Non-degree students are not eligible for undergraduate housing or dining hall meal plans, and they may not serve as first-year counselors.
6. **Regulations** Non-degree students are governed by the academic regulations of Yale College and by the rules contained in the Yale online publication Undergraduate Regulations. In disciplinary matters, non-degree students are subject to the jurisdiction of the Yale College Executive Committee.
7. **Yale students** Students who have withdrawn from Yale College or who did not complete degree requirements within the number of terms of enrollment for which they were admitted may not return to Yale College to complete degree requirements as non-degree students. This rule includes former Yale College students who are currently employees of the University. Students on leave of absence may not be admitted to the Non-degree Students program.
8. **Yale graduates** Graduates of Yale College who have received the bachelor's degree after eight terms of regular enrollment are eligible to apply as non-degree students either on a full-time or on a part-time basis. But Yale College graduates who have taken degrees after fewer than eight terms of regular enrollment are eligible to apply as non-degree students only on a full-time basis until they have completed the equivalent of eight terms of enrollment in Yale College. Thus a student who took a seven-term degree must be a full-time student for the first term in which he or she is a non-degree student, but may be a part-time non-degree student in a subsequent term. For example, a student who has completed degree requirements

at the end of a fall term after eight terms of regular enrollment is eligible to apply as a non-degree student either on a full-time basis or on a part-time basis during the subsequent spring term, but a student who has completed degree requirements at the end of a fall term after seven terms of regular enrollment is eligible to apply as a non-degree student during the subsequent spring term only on a full-time basis. Please note that any courses taken by a former Yale College student in the Non-degree Students program will appear on the undergraduate transcript.

9. **Transfer students** Students who have been accepted for admission as transfer students may not attend Yale as non-degree students before their first term of enrollment at Yale.
10. **Yale employees** Yale employees require permission of their supervisors to apply.

Further information and application forms are available at the Non-degree Students Program website.

P. Visiting International Student Program

The Yale Visiting International Student Program (Y-VISP) invites selected undergraduate students from Y-VISP partner institutions to pursue full-time study in Yale College during one term or one academic year. Y-VISP students maintain a full course load and are fully integrated members of Yale College life inside and outside of the classroom. Y-VISP is managed by the program's associate director and the Y-VISP Steering Committee. Additional information is available on the Yale Visiting International Student Program website.

Q. Credit from Other Universities

A student may not employ course credits earned at another college or university to reduce the expected number of terms of enrollment in Yale College. Under the conditions described below, a student may apply as many as two course credits earned at another college, university, or academic program toward the 36 course credit requirement for graduation from Yale College. Before undertaking such outside study, the student should consult the residential college dean about both the institution to be attended and the course to be taken there.

1. **Approval of credit** In order for credit to be given for courses taken elsewhere, all of the following conditions must be met:
 - a. The Director of Academic and Educational Affairs must approve the award of credit at Yale for the course.
 - b. A student who has studied at an American university, or abroad on a program sponsored by an American university, must provide the office of the residential college dean with an official transcript of the work completed. A student who has enrolled in a program that is not sponsored by an American university should supply an official transcript if the sponsoring institution issues transcripts; if it does not, then the student must furnish an official certificate of enrollment, showing if possible the course or courses completed.
 - c. Students seeking outside credit should be prepared to furnish a copy of the course syllabus, as well as essays and examinations written in the course. In some cases, a letter from the instructor of the course may be required, or the

student may be asked to pass an examination on the material of the course. Such information may be particularly necessary in the case of study at a foreign university.

- d. Study undertaken in the United States must be at a four-year regionally accredited institution that grants a bachelor's degree in the arts and sciences. Extension schools usually do not meet these requirements, and so courses taken at extension schools normally do not qualify for credit. Foreign study must be completed at a university or other approved institution. Credit may be awarded only for work done while a student was officially enrolled at such an institution, and cannot be given for any work completed independently of such formal enrollment.
 - e. A grade of A or B is expected; a grade of C is acceptable. Credit cannot be given for a mark of Credit on a Credit/D/Fail option, or for a grade of Pass on a Pass/Fail option, if the student had the choice of taking the course for a letter grade.
 - f. In order for credit to be given for a course completed at another college or university, the course must carry a value of at least three semester credit hours; if the course is taken at an institution on the quarter system, it must carry a value of at least four-and-one-half quarter units.
 - g. In order for credit to be given for a course completed at another college or university, the course must offer weekly contact with the instructor, and the length of term (from the first to the last day of classes) must be at least four consecutive weeks.
2. **Year or Term Abroad** Yale Study Abroad oversees credit transfer from approved Year or Term Abroad programs. Credits earned on a Year or Term Abroad count toward the 36 course credit graduation requirement and appear on the Yale transcript with the mark TR ("transfer credit"). Grades from a Year or Term Abroad are not listed on the Yale transcript and are not factored into the Yale cumulative GPA. However, students will receive an official transcript from their study abroad program with the grades listed. Yale Study Abroad reviews these grades for transfer credit eligibility. Students are eligible to earn up to 4.5 transfer credits for a term abroad and up to 9 transfer credits for a full year abroad. Students receiving transfer credit may also apply such credit toward the distributional requirements for the bachelor's degree or toward a requirement of the student's major program (see paragraph 7, "Distributional requirements" and paragraph 9, "Major requirements"). For more information, see section K, Special Academic Programs, "Year or Term Abroad."
 3. **Non-Yale Summer Abroad** Students who wish to receive credit for summer study abroad with non-Yale programs must meet the eligibility requirements and apply for approval through Yale Study Abroad. No more than two credits earned at another institution may be applied toward the 36 course credit graduation requirement. Courses in Yale Summer Session are not considered outside courses, and there is no limit on the number of such courses that a student may offer toward the requirements of the bachelor's degree; see section K, Special Academic Programs, "Courses in Yale Summer Session." Similarly, courses taken in the Yale College program at the Paul Mellon Centre in London are Yale courses and do not count as outside credit. Students should note that the application process for Yale Summer Session Programs Abroad differs and often has an earlier deadline

than the Non-Yale Summer Abroad credit application. Information about the application process, including a list of designated programs, is available on the Yale Study Abroad website. Students receiving credit for summer study abroad may also apply such credit toward the distributional requirements for the bachelor's degree or toward a requirement of the student's major program (see paragraph 7, "Distributional requirements" and paragraph 9, "Major requirements").

4. **Residential College Seminars** Residential College Seminars are, by definition, courses that extend beyond the Yale College curriculum. They are not used as comparables for credit for outside courses, whether in Year or Term Abroad or for other considerations for outside credit.
5. **Work done while in secondary school** Course credit or distributional credit cannot be given for any college or university course taken while the student was still enrolled in secondary school. Work done after graduation from secondary school but before matriculation at Yale may be accepted on recommendation from the Director of Academic and Educational Affairs. As a regular exception to this rule, students who earned credits while still enrolled in secondary school as members of the Non-degree Students program in Yale College or as students in Yale Summer Session may apply such credits toward the requirements of the bachelor's degree.
6. **Limit of two course credits** Credit cannot be given for more than two course credits earned at another institution. An exception of one additional course credit may be made only by action of the Committee on Honors and Academic Standing upon the student's petition, normally after the final term of enrollment, or in cases where a student is thereby fulfilling the language requirement in a language not offered at Yale (see paragraph 8, "The language requirement and courses taken elsewhere," below). In no case may a student bring in more than three outside graduation course credits, with the exception of an approved Year or Term Abroad.
7. **Distributional requirements** With permission, course credit earned at another college or university may be applied toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years whether or not it is counted toward the 36-course-credit requirement for graduation; instructions on applying such credit toward the distributional requirements are available on the Fulfilling Requirements While Away on the Yale Study Abroad website. Credit from outside Yale may not be applied toward the distributional requirements for the first year. Yale also does not award credit toward distributional requirements for courses completed at another college or university before the student graduated from secondary school, nor for online courses completed outside Yale, except in cases where a student is fulfilling the foreign language requirement in a language not offered at Yale (see paragraph 13, "Online courses," below).
8. **The language requirement and courses taken elsewhere** Students who have taken a course in a language at another institution, either in the United States or through a program abroad, and who wish to offer that course toward fulfillment of the language distributional requirement must secure the approval of the relevant director of undergraduate studies. While the approval process varies across departments, in no case can it be completed until an official transcript of the work has been received and reviewed by the department. Typically, an additional assessment of the student's work will be necessary, especially with respect to the level (e.g., L3 through L5) that has been achieved by the outside study. Such

assessment might include a written or oral examination or both, a review of the course syllabus and written assignments, or other methods of evaluation. Some departments maintain a list of programs that have been previously evaluated, in which case the approval process is often simplified. Students are therefore strongly encouraged to consult the relevant department before undertaking language study elsewhere. For languages not offered at Yale, students should seek guidance from the Center for Language Study about the possibility of fulfilling the language requirement in that language through outside credit. Introductory (L1/L2) language courses taken on approved non-Yale study abroad programs are eligible for credit toward the 36-course-credit requirement and major requirements; such introductory courses are NOT applicable toward the language requirement. Introductory (L1/L2) language courses taken on a Yale Summer Session Program Abroad are considered the same as other Yale College courses and, therefore, can be applied toward the language requirement as well as toward the 36-course-credit requirement and major requirements.

9. **Major requirements** At the discretion of the director of undergraduate studies in a student's major, work done at another institution may be counted as fulfilling a requirement of the student's major program. This may be done whether or not a course is credited toward the 36-course-credit requirement.
10. **Transfer students and Eli Whitney Program students** Transfer students and students in the Eli Whitney Program may receive up to two course credits for work completed outside Yale after matriculation and may receive credit for a Year or Term Abroad according to the guidelines of section M, Transfer Students, section N, Eli Whitney Students Program, and section K, Special Academic Programs, "Year or Term Abroad," provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
11. **Internships, field studies, and the like** Course credit cannot be given for such programs as internships, field studies, or workshops, but these experiences may be included as a component of a full, regular, academic course of instruction, certified by a transcript from an accredited four-year institution granting a bachelor's degree.
12. **Independent study** Course credit cannot be given for independent study courses taken at another university except for independent study courses taken as part of a designated study abroad program with the approval of Yale Study Abroad.
13. **Online courses** Online courses from other universities may be eligible for Yale credit under limited conditions. The course must include regular, synchronous interaction with the instructor, as well as regular feedback. For online courses offered during the summer, such courses may not be comparable to a course offered online through Yale Summer Session. Online courses may not be used by students to repair a deficiency for promotion (see section I, Academic Penalties and Restrictions, "Makeup of Course Deficiencies for Promotion or Academic Good Standing"), and may not be applied toward a distributional requirement, with the exception that online courses in a language not offered at Yale may be applied toward the language requirement (see paragraph 8, "The language requirement and courses taken elsewhere," above).
14. **Yale transcript** Outside courses may be entered on a student's Yale transcript only if they are applied to the 36-course-credit requirement, the distributional requirements, and/or the requirements of a major program. Such courses must

be entered on the Yale transcript if they are to be applied toward any of these requirements. Except for transcripts of transfer students and students in the Eli Whitney Students Program — on which see section M, Transfer Students, or section N, Eli Whitney Students Program — courses that are applied toward the 36-course-credit requirement are listed by title with indication of the credit units earned, but without grades. Courses that are applied only toward the distributional requirements are listed without grades and with the designation “for distributional credit only.” Courses that are applied only toward the requirements of a major program are listed without grades and with the designation “for credit toward the major only.” Once a course has been entered on a student’s Yale transcript at the student’s request, or as a consequence of reinstatement, the entry may not subsequently be removed at the student’s request.

15. **Acceleration** See section Q, Acceleration Policies.

† Students on promotion hold who employ outside course credits to repair a credit deficiency cannot subsequently have those credits removed from their transcript for any reason and are thus ineligible to take a year abroad.

R. Acceleration Policies

ACCELERATION BY THE EARLY ACCUMULATION OF THIRTY-SIX COURSE CREDITS

A student may accelerate progress toward graduation by accumulating thirty-six course credits in fewer than eight terms of enrollment.

1. **Outside credit** Students may apply up to two outside course credits toward acceleration by the early accumulation of thirty-six course credits.
2. **Patterns of attendance** While students employing acceleration credits in order to acquire an accelerated degree are required to attend Yale in certain patterns of attendance (see “Acceleration by Use of Acceleration Credits,” paragraph 4, below), no particular pattern of attendance is required from a student accelerating by the early accumulation of thirty-six course credits all earned at Yale.
3. **Six or seven terms of enrollment** Either a six-term degree or a seven-term degree may be acquired by the accumulation of thirty-six course credits; graduation after fewer than six terms of enrollment in Yale College by such an early accumulation of course credits is not permitted.
4. **Notification by the student** A student intending to accelerate through the early accumulation of thirty-six course credits must notify the Committee on Honors and Academic Standing of that intention by the last day of the Add/drop period in the student’s final term of enrollment. Such notification is made by submission of the required form to the office of the residential college dean and must include written certification from the student’s director of undergraduate studies (DUS) that the student will have completed all of the requirements of the major program, and from the residential college dean that the student will have fulfilled the distributional requirements by the conclusion of that term. Failure to submit this notification by the above deadline will result in the student being charged a fine of \$100.

5. **Deceleration** A student may subsequently decelerate and take an eight-term degree. A reversion to an eight-term degree will not affect a student’s academic good standing or eligibility for eight terms of financial aid.

ACCELERATION BY USE OF ACCELERATION CREDITS

For the definition of acceleration credits and the criteria for their award, see the Table of Acceleration Credit. For the sake of equity and fairness, no exceptions can be made to the regulations governing the use of acceleration credits. Inquiries about acceleration may be addressed to the residential college dean or to the University Registrar’s Office (registrar@yale.edu), 246 Church Street.

1. **Eligibility** The following charts list the number of total credits needed to accelerate by one or two terms during a given term of enrollment:

Acceleration by One Term	Minimum Total Credits	Minimum Yale Course Credits	Activated Acceleration Credits
In the third term	12	8	4
In the fourth term	16	12	4
In the fifth term	21	17	4
In the sixth term	26	22	4

Acceleration by Two Terms	Minimum Total Credits	Minimum Yale Course Credits	Activated Acceleration Credits
In the third term	17	8	9
In the fourth term	21	12	9
In the fifth term	26	17	9

2. **Application deadline** Application to accelerate is made by submission of the required form to the office of the residential college dean. The deadline for applying for acceleration is the last day of classes in the respective term of enrollment given in the eligibility charts above. As a special exception, a student accelerating by one or two terms who wishes to complete a term of study abroad as early as during the third term of enrollment would have to petition to accelerate before the third term of enrollment. Such a student should consult with the residential college dean. The absolute and final deadline for applying for acceleration by one term is the last day prior to the start of classes in the seventh term of enrollment. The absolute and final deadline for applying for acceleration by two terms is on the last day prior to the start of classes in the sixth term of enrollment.
3. **Course credit requirement for graduation** A student accelerating by two terms must earn at least twenty-seven course credits at Yale, and a student accelerating by one term must earn at least thirty-two course credits at Yale. Therefore, with the exception of credit earned through enrollment in the Year or Term Abroad program, a student accelerating by use of acceleration credits may not apply any credit earned at another college or university toward the 36-course-credit requirement for the bachelor’s degree.
4. **Enrollment requirements, including required patterns of attendance** A student intending to accelerate by two terms must complete six terms of full-time enrollment in Yale College. Those six terms may be in any pattern of enrollment as long as the student’s sixth and final term of enrollment is a spring term.

A student intending to accelerate by one term must complete seven terms of full-time enrollment in Yale College. Those seven terms may be in any pattern of enrollment as long as the student's seventh and final term of enrollment is a spring term.

A student accelerating by two terms may not combine acceleration credits and course credits to graduate in fewer than six terms; six terms of enrollment is the minimum as well as the maximum requirement for acceleration by two terms. Likewise, a student accelerating by one term may not combine acceleration credits and course credits to graduate in fewer than seven terms; seven terms of enrollment is the minimum as well as the maximum requirement for acceleration by one term.

5. **Deceleration** A student accelerating by two terms or one term may subsequently apply to decelerate by submitting the required form to the office of the residential college dean. A student who is considering whether to decelerate should consult with the residential college dean as soon as possible. A student accelerating by two terms who subsequently decides to accelerate by only one term must meet the requirements for acceleration by one term. A student accelerating by two terms or one term may subsequently decide to decelerate completely and take an eight-term degree. Two-term accelerants who choose to decelerate in their sixth term, thereby requiring a reinstatement of their original class year, will be assessed a fee of \$50. Since by definition an eight-term degree is not an accelerated degree, such a student will lose the use of acceleration credits. A reversion to an eight-term degree will not adversely affect a student's academic good standing or eligibility for eight terms of financial aid.
6. **Reacceleration** A student who has declared an intention to decelerate and to relinquish the use of acceleration credits is permitted to accelerate again through the use of acceleration credits as long as the student meets the eligibility requirements and application deadline for one or two terms of acceleration given in paragraphs 1 and 2 above.

GENERAL RULES RELATING TO THE USE OF ACCELERATION CREDITS

1. **Notification** The chief responsibility for ascertaining eligibility and for meeting the deadline to apply for acceleration rests with the students themselves. However, the University Registrar's Office will make reasonable efforts to inform students, at the beginning of the third term of enrollment, of their eligibility to accelerate by one or two terms.

It is not the responsibility of the University Registrar's Office or Yale College to remind students who have declared an intention to accelerate of the rules on the pattern of attendance stipulated for the use of acceleration credits. Students who are accelerating are themselves responsible for planning to meet these rules, and if a student's pattern of attendance does not conform to them, it will be concluded that the student has decided to relinquish the use of acceleration credits and not to accelerate. Such a student will be automatically decelerated.

2. **Interruption of studies by leave or withdrawal** Terms of enrollment need not be consecutive. A student accelerating by one or two terms has the same privileges of leave of absence or withdrawal that a nonaccelerating student has.

- a. **A fifth term of leave of absence** A student taking an accelerated degree by use of acceleration credits who has had four terms of leave of absence may receive a fifth term of leave if it is needed to bring the student's pattern of attendance into conformity with the pattern of attendance stipulated for an accelerated degree. See section J, Time Away and Return.
3. **Withdrawal** If a student withdraws from a term after the fifteenth day of the term, the uncompleted term counts as a term of enrollment, both in the determination of the student's eligibility to accelerate and in the calculation of the number of terms in which the student has been in attendance at Yale. As an exception to this rule, if an accelerating student withdraws from Yale College without having successfully completed a term, the student has the option of not counting the uncompleted term as one of the six or seven terms of enrollment.
4. **Enrollment in Yale Summer Session or the Yale in London summer program** Attendance at Yale Summer Session or the summer program at the Paul Mellon Centre in London does not constitute a term of enrollment. Thus a student accelerating by one term may not offer attendance at Yale Summer Session or the summer program at the Paul Mellon Centre in London as one of the required seven terms of enrollment in Yale College. Course credits earned by attendance at these summer programs, however, may be applied toward the requirements for the bachelor's degree by accelerating students, provided that such students meet the conditions specified for acceleration by one or two terms. See also section K, Special Academic Programs, "Courses in Yale Summer Session" and "Yale in London Summer Program."
5. **Course credit from outside Yale** A student accelerating by two terms must earn at least twenty-seven course credits at Yale, and a student accelerating by one term must earn at least thirty-two course credits at Yale. Therefore, an accelerating student may not apply any credit earned at another college or university, other than those earned on a Year or Term Abroad as described in no. 6, below, toward the 36-course-credit requirement for the bachelor's degree. A student, whether accelerating or not, may be permitted to apply course credits earned at another college or university toward the requirements of the student's major program or toward any of the distributional requirements other than those for the first year. See section Q, Credit from Other Universities.

Please note that attendance at the Yale College program at the Paul Mellon Centre in London during the spring term counts just as if it were a term of enrollment at Yale College in New Haven. Attendance at the Paul Mellon Centre during the summer, however, does not count as a term of enrollment. See section K, Special Academic Programs, "Yale in London Summer Program."

6. **Year or Term Abroad** A Year Abroad counts as two terms and a Term Abroad counts as one term of enrollment in Yale College. Credits earned on a Year or Term Abroad count as the equivalent of Yale course credits.

Note that after a Year or Term Abroad all students must attend two subsequent terms in Yale College; see section K, Special Academic Programs, "Year or Term Abroad." In many cases, a student must relinquish the use of acceleration credits and decelerate in order to take a Year or Term Abroad. As a special exception, a student accelerating by one or two terms who wishes to complete a term of study abroad as early as during the third term of enrollment would have to petition to

accelerate before the third term of enrollment. A student who wishes to accelerate and to take a Year or Term Abroad should consult with the residential college dean and the Office of International and Summer Programs (OISP) at the earliest opportunity.

An accelerating student who wishes also to complete a Year or Term Abroad must conform to one of the following schemes:

Terms of Acceleration	Total Terms at Yale	Total Terms on YA/TA	Acceleration Credits	Minimum Course Credits Earned at Yale	Maximum Course Credits Earned on YA/TA
1	6	1	4	28	4
1	5	2	4	23	9
2	5	1	9	23	4
2	4	2	9	18	9

8. **Distributional requirements** Acceleration credits may not be employed to meet the distributional requirements for the first, sophomore, or junior years, or the distributional requirements for the bachelor's degree, including the language requirement. With permission, an accelerating student may apply course credit earned at another college or university toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years; students should consult with the residential college dean to be directed to the appropriate authority for such approval.
9. **Major requirements** With the permission of the DUS, an accelerating student may apply credit earned at another university toward the requirements of the student's major program.
10. **Makeup of course credit deficiency** If an accelerating student's record at the end of a term of enrollment shows a deficiency for promotion, academic good standing, or graduation, the student will be allowed to repair the deficiency without forfeiting the use of acceleration credits only through enrollment in Yale Summer Session if the credit earned is to be applied toward the 36-course-credit requirement for the bachelor's degree. See section D, Promotion and Good Standing.
11. **Enrollment after graduation as a non-degree student** Accelerating students who have qualified for the award of the bachelor's degree are eligible, as are all Yale College graduates, for full-time enrollment in Yale College as non-degree students. Because such students will have graduated, they will not be eligible for financial aid. See section O, Non-degree Students Program.
12. **Transfer students and students in the Eli Whitney Students Program** Students admitted by transfer from other colleges and universities are not eligible for acceleration by the use of acceleration credits.

S. Amendments

The University reserves the right to amend or supplement these regulations at any time upon such notice to students as it deems appropriate.

MAJORS IN YALE COLLEGE

African American Studies (B.A.)	Environmental Engineering (B.S.)
African Studies (B.A.)	Environmental Studies (B.A. or B.S.)
American Studies (B.A.)	Ethics, Politics, and Economics (B.A.)
Anthropology (B.A.)	Ethnicity, Race, and Migration (B.A.)
Applied Mathematics (B.A. or B.S.)	Film and Media Studies (B.A.)
Applied Physics (B.S.)	French (B.A.)
Archaeological Studies (B.A.)	German Studies (B.A.)
Architecture (B.A.)	Global Affairs (B.A.)
Art (B.A.)	Greek, Ancient and Modern (B.A.)
Astronomy (B.A.)	History (B.A.)
Astrophysics (B.S.)	History of Art (B.A.)
Biomedical Engineering (B.S.)	History of Science, Medicine, and Public Health (B.A.)
Chemical Engineering (B.S.)	Humanities (B.A.)
Chemistry (B.A. or B.S.)	Italian Studies (B.A.)
Classical Civilization (B.A.)	Jewish Studies (B.A.)
Classics (B.A.)	Latin American Studies (B.A.)
Cognitive Science (B.A. or B.S.)	Linguistics (B.A.)
Comparative Literature (B.A.)	Mathematics (B.A. or B.S.)
Computer Science (B.A. or B.S.)	Mathematics and Philosophy (B.A.)
Computer Science and Economics (B.S.)	Mathematics and Physics (B.S.)
Computer Science and Mathematics (B.S.)	Mechanical Engineering (B.S.)
Computer Science and Psychology (B.A.)	Modern Middle East Studies (B.A.)
Computing and Linguistics (B.A. or B.S.)	Molecular Biophysics and Biochemistry (B.A. or B.S.)
Computing and the Arts (B.A.)	Molecular, Cellular, and Developmental Biology (B.A. or B.S.)
Earth and Planetary Sciences (B.A. or B.S.)	Music (B.A.)
East Asian Languages and Literatures (B.A.)	Near Eastern Languages and Civilizations (B.A.)
East Asian Studies (B.A.)	Neuroscience (B.A. or B.S.)
Ecology and Evolutionary Biology (B.A. or B.S.)	Philosophy (B.A.)
Economics (B.A.)	Physics (B.S.)
Economics and Mathematics (B.A.)	Physics and Geosciences (B.S.)
Electrical Engineering (B.S.)	Physics and Philosophy (B.A. or B.S.)
Electrical Engineering and Computer Science (B.S.)	Political Science (B.A.)
Engineering Sciences (Chemical) (B.S.)	Portuguese (B.A.)
Engineering Sciences (Electrical) (B.A. or B.S.)	Psychology (B.A. or B.S.)
Engineering Sciences (Environmental) (B.A.)	Religious Studies (B.A.)
Engineering Sciences (Mechanical) (B.A. or B.S.)	Russian (B.A.)
English (B.A.)	Russian, East European, and Eurasian Studies (B.A.)
	Sociology (B.A.)
	South Asian Studies (second major only)
	Spanish (B.A.)

Special Divisional Major (B.A. or B.S.)
Statistics and Data Science (B.A. or B.S.)
Theater, Dance, and Performance Studies
(B.A.)
Urban Studies (B.A.)
Women's, Gender, and Sexuality Studies
(B.A.)

MAJORS BY DISCIPLINES

HUMANITIES & THE ARTS

- Architecture
- Art
- Classics & Classical Civilization
- Comparative Literature
- East Asian Languages and Literature
- English
- Film and Media Studies
- History
- History of Science, Medicine, and Public Health
- Humanities
- Jewish Studies
- Languages, including, but not limited to: French, German, Italian, Portuguese, Russian, Spanish
- Music
- Near Eastern Languages and Civilizations
- Philosophy
- Religious Studies
- Theater, Dance, and Performance Studies

SOCIAL SCIENCES

- Anthropology
- Cognitive Science
- Economics
- Global Affairs
- Linguistics
- Political Science
- Psychology
- Sociology

BIOLOGICAL SCIENCES

- Ecology and Evolutionary Biology
- Molecular Biophysics and Biochemistry
- Molecular, Cellular, & Developmental Biology

PHYSICAL SCIENCES

- Astronomy & Astrophysics
- Chemistry
- Earth and Planetary Sciences
- Mathematics

- Neuroscience
- Physics
- Statistics and Data Science

ENGINEERING

- Applied Mathematics
- Applied Physics
- Biomedical Engineering
- Chemical Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Mechanical Engineering

INTERDISCIPLINARY

- African American Studies
- African Studies
- American Studies
- Archaeological Studies
- Computing and Linguistics
- Computing and the Arts
- East Asian Studies
- Environmental Studies
- Ethics, Politics, and Economics
- Ethnicity, Race, and Migration
- Latin American Studies
- Modern Middle East Studies
- Russian, East European, and Eurasian Studies
- South Asian Studies
- Urban Studies
- Women's, Gender, and Sexuality Studies

CERTIFICATES IN YALE COLLEGE

Students interested in earning a certificate(s) should refer to the academic policy about Curricular Combinations and Course Overlap Allowances. They should also submit a Declaration of Candidacy for a Certificate form as early as possible in their studies. The form is sent to both the Certificate Director and the Registrar's Office.

ADVANCED LANGUAGE CERTIFICATES

Ancient Egyptian (See under Near Eastern Languages and Civilizations)

Ancient Greek (See under Classics)

Arabic (See under Near Eastern Languages and Civilizations)

Chinese (See under East Asian Languages and Literatures)

French

German

Hebrew (See under Near Eastern Languages and Civilizations)

Hindi (See under South Asian Studies)

isiZulu (See under African Studies)

Italian

Japanese (See under East Asian Languages and Literatures)

Kiswahili (See under African Studies)

Korean (See under East Asian Languages and Literatures)

Latin (See under Classics)

Portuguese

Russian

Sanskrit (See under South Asian Studies)

Spanish

Turkish (See under Near Eastern Languages and Civilizations)

Vietnamese (See under Southeast Asia Studies)

Yoruba (See under African Studies)

INTERDISCIPLINARY CERTIFICATES

Climate Science and Solutions

Education Studies

Education Studies Scholars Intensive (requires an application)

Energy Studies

Food, Agriculture, and Climate Change

Global Health Studies (requires an application)

Human Rights Studies (requires an application)

Islamic Studies

Medieval Studies

Persian and Iranian Studies

Translation Studies

SKILLS-BASED CERTIFICATES

Ethnography

Programming (See under Computer Science)

Data Science (See under Statistics & Data Science)

MAJOR ROADMAPS

Yale College offers over 80 majors, and it may be hard to choose among them. As you contemplate the choices, and even after you have chosen, it may be difficult to determine precisely which courses you need to take and when to take them in order to fulfill the requirements of the major.

Below is a list of “roadmaps” or visual representations which indicate the path—or paths—through many of the majors.

- African American Studies
- African Studies
- American Studies
- Anthropology
- Applied Mathematics
- Biomedical Engineering
- Chemistry
- Cognitive Science
- Comparative Literature
- Computer Science
- Computer Science and Mathematics
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Economics and Mathematics
- English
- Environmental Studies
- Ethics, Politics, and Economics
- Ethnicity, Race, and Migration
- Film and Media Studies
- French
- German Studies
- Global Affairs
- History
- History of Art
- History of Science, Medicine, and Public Health
- Humanities
- Italian Studies
- Linguistics
- Mathematics
- Mechanical Engineering
- Molecular Biophysics and Biochemistry

- Molecular, Cellular, and Developmental Biology
- Neuroscience
- Philosophy
- Physics
- Political Science
- Psychology
- Russian
- Russian, East European, and Eurasian Studies
- Sociology
- Spanish
- Statistics and Data Science
- Theater, Dance, and Performance Studies
- Women's, Gender, and Sexuality Studies

III. SUBJECTS OF INSTRUCTION

Accounting

Please see Yale Course Search for information about ACCT 270, Foundations of Accounting and Valuation.

Aerospace Studies

Program adviser: Lester Oberg (lester.oberg@yale.edu) and Greg Jeong (greg.jeong@yale.edu) [spring 2024]; Lester Oberg (lester.oberg@yale.edu) and Nathan Luchini (nathan.luchini@yale.edu) [fall 2024 & spring 2025] airforce@yale.edu; afrotc.yalecollege.yale.edu

Aerospace Studies is the academic component of the Yale Air Force Reserve Officer Training Corps (AFROTC) Detachment 009. Typically, students pursue the Aerospace Studies curriculum in tandem with AFROTC program requirements, including military leadership preparation and physical training. After completing all Air Force ROTC requirements and Yale College academic degree requirements, cadets commission as officers into the Air Force or Space Force upon graduation from Yale College, serving in a variety of military specialties such as aviation, intelligence, logistics, and medicine. The Aerospace Studies program and the AFROTC prepare students to excel as Air Force and Space Force leaders and to operate effectively in a dynamic military environment.

For additional information about Yale's Air Force Reserve Officers Training Corps program, visit the program website.

COURSES FOR NONMAJORS

Enrollment in Aerospace Studies courses is not limited to cadets; courses are open to any Yale student.

ACADEMIC REQUIREMENTS

The Aerospace Studies core curriculum introduces topics such as the profession of arms, military history, military communication, national security, and the philosophy of warfare. The Department of Aerospace Studies presents this content in the context of military leadership to prepare students for active duty service. Most Aerospace Studies courses count for enrollment credit only; they do not count toward the thirty-six course credits required for the Yale bachelor's degree. USAF 411 and USAF 414 do count toward graduation credit.

Students in the AFROTC program must successfully complete eight USAF courses total, typically taking one course per semester, in addition to the requirements of their Yale College major. The Department of Aerospace Studies offers these courses: USAF 101, 102, 201, 202, 301, 302, 401, 402, 411, and 414. When the Department of History offers HIST 221, Military History of the West since 1500, cadets may use it to fulfill the one term of the 200-level AFROTC requirement (USAF 202) and also count it toward the bachelor's degree. Cadets become involved in the management of their own cadet wing through a mandatory two-hour leadership laboratory each week.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the program in Aerospace Studies.

FACULTY ASSOCIATED WITH THE PROGRAM OF AEROSPACE STUDIES

Lecturers Colonel Lester Oberg, USAF, Major Nathan Luchini, USAF

ROTC Training Instructor Technical Sergeant Christopher Goad, USAF

African American Studies

Director of undergraduate studies: Elizabeth Hinton
(elizabeth.hinton@yale.edu); afamstudies.yale.edu

The African American Studies major examines, from numerous disciplinary perspectives, questions of race, culture, and modern struggles for equality centering on the experiences of people of African descent in Black Atlantic societies including the United States, the Caribbean, Latin America, Europe, and Africa, and the global impact of those experiences. Students in the department explore the historical, cultural, political, economic, and social development of Black Atlantic societies. Majors work to become informed thinkers who are intellectually prepared to offer clarity and insight to ongoing academic and public debates centered in questions concerning race and inequality.

African American Studies majors become knowledgeable about the history, primary methodologies, and interdisciplinary breadth of the field. Students learn to critique, articulate, analyze, and interpret universal themes concerning both individuals in society and group interactions as they relate to the work of scholars, scientists, writers, artists, musicians, economists, and entrepreneurs.

REQUIREMENTS OF THE MAJOR

African American Studies can be taken either as a stand-alone major or as one of two majors in consultation with the director of undergraduate studies (DUS). Pertinent regulations can be found in Academic Regulations, section L, Special Academic Arrangements, "Two Majors."

The major in African American Studies requires twelve term courses, including seven core courses and five electives in a focus area. The seven core courses include the African American history sequence AFAM 160 and AFAM 162, which can be taken in either order; one humanities course in African American literature; one course in the social sciences relevant to African American studies; the junior seminar (AFAM 410); the senior colloquium (AFAM 480) and senior essay (AFAM 491).

Area of focus Students majoring in African American Studies are required to choose an area of focus comprised of five courses. This cluster of interrelated courses is intended to ground the student's learning experience in one area of investigation. Often students choose an area of focus in a traditional discipline such as political science, art history, economics, sociology, American studies, history, or English language and literature. Students can also construct interdisciplinary areas of focus that span traditional departments and encompass broader theoretical frameworks such as race and ethnicity, cultural studies, black arts, or feminism and gender studies. All majors are encouraged to take upper-level courses as part of their focus, especially those courses centering on research and methodology. None of the seven core courses may be counted among the required electives in the area of focus.

Junior seminar In their junior year students must take the junior seminar, AFAM 410. This course provides majors with theoretical and methodological bases for the work they will do during their research-oriented senior year.

Credit/D/Fail No more than one course taken Credit/D/Fail may be counted toward the major.

SENIOR REQUIREMENT

Senior majors participate in a colloquium in AFAM 480 that provides them an opportunity to exchange ideas with each other and with more advanced scholars. Students in AFAM 480 submit a prospectus, compile a working bibliography, begin or continue research, and write the first twenty pages of the senior essay. After completing the colloquium, each student carries out the remaining research and writing of a senior essay in AFAM 491 under the guidance of a faculty member in the chosen discipline or area of focus.

Students are strongly encouraged to use the summer between the junior and senior years for research directly related to the senior essay. For example, field or documentary research might be undertaken in urban or rural communities in America and throughout the diaspora. The particular research topic and design are to be worked out in each case with a faculty adviser.

ADVISING

Students considering a program of study in African American Studies should consult the DUS as early as possible. Areas of focus and schedules for majors must be approved by the DUS.

Two majors The requirements for double majoring often depend on the other department or discipline in which the student is planning to major. Students interested in double majoring should initially make an appointment with the DUS in African American Studies to discuss their plans and the courses they have already taken toward the African American Studies major. The student should, then, plan a meeting with both the DUS in African American Studies as well as the DUS in the other department to ensure clarity on the requirements for both departments. During this meeting, the student may explore the possibility of writing a joint thesis instead of two separate theses.

Graduate work African American Studies offers training of special interest to those considering admission to graduate or professional schools and careers in education, journalism, law, the arts, business management, city planning, international relations, politics, psychology, publishing, public health, or social work. The interdisciplinary structure of the department offers students an opportunity to satisfy the increasingly rigorous expectations of admissions committees and prospective employers.

STUDY ABROAD

A limited number of courses taken during sophomore or junior semesters abroad can be counted toward the major with DUS approval.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl sen req)

Specific courses required AFAM 160, 162, 410

Distribution of courses 1 humanities course in AFAM lit and 1 relevant social science course, both approved by DUS; 5 courses in focus area

Senior requirement Senior colloquium (AFAM 480) and senior essay (AFAM 491)

FACULTY OF THE DEPARTMENT OF AFRICAN AMERICAN STUDIES

Professors Elijah Anderson, David Blight, Daphne Brooks, Hazel Carby (*Emeritus*), Marlene Daut, Erica Edwards, Roderick Ferguson, Kaiama Glover, Phillip Atiba Goff, Jacqueline Goldsby, Elizabeth Hinton, Matthew Jacobson, Gerald Jaynes, Tavia Nyong'o, Edward Rugemer, Robert Stepto (*Emeritus*), Michael Veal, Shane Vogel

Associate Professor Crystal Feimster

Assistant Professors Allison Harris, Jonathan Howard, Elleza Kelley, Ernest Mitchell, Carolyn Roberts

Lecturers Thomas Allen Harris, Ferentz Lafargue, Sarah Mahurin

African Studies

Director of undergraduate studies: Veronica Waweru (veronica.waweru@yale.edu), 115 Prospect St., Room 148; director of the program in African Languages: Kiarie Wa'Njogu (john.wanjogu@yale.edu), 115 Prospect St., Room 138, 432-0110; www.yale.edu/macmillan/african

The program in African Studies enables students to undertake interdisciplinary study of the arts, history, cultures, politics, and development of Africa. As a foundation, students in the program gain cross-disciplinary exposure to Africa. In the junior and senior years, students develop analytical ability and focus their studies on research in a particular discipline such as anthropology, art history, history, languages and literature, political science, or sociology, or on topics such as global health, economic development, or human rights.

African Studies provides training of special interest to those considering admission to graduate or professional schools or careers in education, journalism, law, management, medicine, politics, psychology, international relations, creative writing, or social work. The interdisciplinary structure of the program offers students an opportunity to satisfy the increasingly rigorous expectations of admissions committees and prospective employers for a broad liberal arts perspective that complements specialized knowledge of a field.

REQUIREMENTS OF THE MAJOR

The African Studies program consists of twelve term courses, including (1) one African Studies course in the humanities and one in the social sciences; (2) two years of an African language (Arabic, Kiswahili, Twi, Wolof, Yorùbá, isiZulu, or others with permission of the director of undergraduate studies (DUS), unless waived by examination); (3) one research methods course, AFST 505 or an alternative course that either serves to deepen the area of focus or provide methodological tools for the senior essay, selected in consultation with the DUS; (4) four courses in an area of focus, such as anthropology, art history, history, languages and literature, political science, or sociology, or in an interdisciplinary program such as African American Studies; Ethnicity, Race, and Migration; or Women's, Gender, and Sexuality Studies; or in a cross-disciplinary area such as diaspora studies or development studies; and (5) AFST 491, the senior essay. The required courses represent the core of the program and are intended to expose the student both to the interdisciplinary nature of African studies and to the methodologies currently being brought to bear on the study of African cultures and societies.

Language requirement African Studies majors are required to complete two years of college-level study (or the equivalent) of an African language, and they are encouraged to continue beyond this level. For the language requirement to be waived, a student must pass a placement test for admission into an advanced-level course or, for languages not regularly offered at Yale, an equivalent test of speaking, listening, reading, and writing skills administered through the Center for Language Study. Students should begin their language study as early as possible. If the requirement is waived, students must substitute other African Studies courses for the four required language courses.

With permission of the DUS, students may count courses in an additional language, such as French or Portuguese, toward the major requirements. Students are encouraged to include upper-level courses, especially those centering on research and methodology.

Program in African languages The language program offers instruction in five major languages from sub-Saharan Africa: Kiswahili (eastern and central Africa), Twi (western Africa), Wolof (western Africa), Yorùbá (western Africa), and isiZulu (southern Africa). African language courses emphasize communicative competence, using multimedia materials that focus on the contemporary African context. Course sequences are designed to enable students to achieve advanced competence in all skill areas by the end of the third year, and students are encouraged to spend a summer or term in Africa during their language study.

Courses in Arabic are offered through the Department of Near Eastern Languages and Civilizations. Noncredit instruction in other African languages is available by application through the Directed Independent Language Study program at the Center for Language Study. Contact the director of the Program in African Languages (john.wanjogu@yale.edu) for information.

SENIOR REQUIREMENT

Students are required to complete a senior essay in AFST 491, working under the guidance of a faculty adviser. With prior approval by the DUS, a combined senior essay may be submitted for those pursuing a second major.

A preliminary statement indicating the topic to be addressed and the name of the faculty adviser must be submitted to the DUS by the end of the second week of the fall term in the senior year.

ADVISING

Students planning to major in African Studies should consult the DUS as early as possible.

Graduate work, M.A. program Students in Yale College are eligible to complete the M.A. in African Studies in one year of graduate work if they begin the program in the third and fourth undergraduate years. Students interested in this option must complete eight graduate courses in the area by the time of the completion of the bachelor's degree. Only two courses may be counted toward both graduate and undergraduate degrees. Successful completion of graduate courses while still an undergraduate does not guarantee admission into the M.A. program.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Distribution of courses 1 AFST course in humanities and 1 in social sciences; 2 years of African lang; 4 courses and 1 research methods course in focus area

Substitution permitted if language req is waived, 4 addtl African Studies courses

Senior requirement Senior essay (AFST 491)

CERTIFICATES OF ADVANCED LANGUAGE STUDY

The Department of African Studies offers a Certificate of Advanced Language Study in three major African languages—Kiswahili, Yoruba, and isiZulu, and students may pursue a Certificate of Advanced Language Study in each of these languages. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 Yale course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY ASSOCIATED WITH THE PROGRAM OF AFRICAN STUDIES

Professors Lea Brilmayer (*Law School*), John Darnell (*Near Eastern Languages & Civilizations*), Owen Fiss (*Law School*), Robert Harms (*History*), Daniel Magaziner (*History*), Roderick McIntosh (*Anthropology*), Christopher Miller (*African American Studies, French*), Catherine Panter-Brick (*Anthropology*), Jeremy Seekings (*Global Affairs*) (*Visiting*), Ian Shapiro (*Political Science*), Robert Thompson (*Emeritus*), Michael Veal (*Music*), David Watts (*Anthropology*), Elisabeth Wood (*Political Science*)

Associate Professors Robert Bailis (*School of the Environment*), Jonathan Wyrzten (*Sociology*)

Assistant Professors Katharine Baldwin (*Political Science*), Louisa Lombard (*Anthropology*)

Lecturers Lacina Coulibaly (*Theater Studies*), Anne-Marie Foltz (*Public Health*), David Simon (*Political Science*)

Senior Lectors II Sandra Sanneh, Kiarie Wa'Njogu

Senior Lectors Oluseye Adesola, Matuku Ngame

American Studies

Director of undergraduate studies: Laura Wexler (laura.wexler@yale.edu), 314 WLH, 432-1524; americanstudies.yale.edu

The American Studies program encourages the interdisciplinary study of the cultures and politics of the United States, the changing representations of national identity, and the construction of borderland and diasporic cultures over time. Each student in the major combines courses in American Studies with courses from other relevant disciplines (literature, history, the arts, and the social sciences) to explore these broad topics from local, national, and global perspectives. Through the selection of curated courses, each student develops a focus for coursework in the major. The program encourages scholarly work in nontraditional combinations of disciplines; at the same time, however, it assumes and requires a substantial foundation of knowledge in the history and culture of the United States. Students interested in the major are encouraged to consult with the director of undergraduate studies (DUS) as early as possible.

REQUIREMENTS OF THE MAJOR

All students majoring in American Studies must take fourteen-term courses approved by the program's faculty. Although a good deal of freedom in course selection is permitted, it is expected that all students will acquaint themselves with the materials, skills, and perspectives of cultural studies. Accordingly, the major requires completion—preferably by the end of the sophomore year, but no later than the end of the junior year—of at least four gateway courses (AMST 111–299), including two in cultural history/cultural studies, one broad survey course in American literature, and one preparatory course for work in the student's area of concentration, to be selected in consultation with the DUS. One of these four courses must be listed as an “Early Americas” course on the American Studies website and indicated as such on Yale Course Search. Students may, with DUS permission, substitute a First-Year Seminar for a gateway course. An additional five concentration courses from diverse disciplines must be taken for a letter grade, one of which must incorporate a comparable topic from a non-U.S. perspective. Two electives chosen from the American Studies course offerings are also required.

Students must take two junior seminars (AMST 300–399) during their junior year. At least one of the seminars must fall within the student's area of concentration, described below. In each of the seminars, students are expected to demonstrate proficiency in interdisciplinary research and analysis through the production of critical essays on primary source materials or a paper of fifteen to twenty pages. Sophomores contemplating a junior term abroad are urged to take one of the junior seminars in the spring term of their sophomore year.

Areas of concentration Each American Studies major selects an area of concentration, normally in the fall of the junior year, from six possible choices: (1) national formations, (2) the international United States, (3) material cultures and built environments, (4) politics and American communities, (5) visual, audio, literary, and performance cultures, and (6) public humanities. The concentration in national formations explores historic migrations, settlements, and encounters among peoples who have formed the American nation, with an emphasis on Native American history and the construction of America's frontiers and borderlands. The international United

States concentration focuses on historic and contemporary diasporas, the role of the United States outside its national borders, and the flows of American peoples, ideas, and goods throughout the globe. Students in the material cultures and built environments concentration examine the formation of the American landscape from the natural to the human-made, including the development of American architecture and the visual and decorative arts. The concentration in politics and American communities investigates the emergence of social groups and their political struggles at the local and national levels, emphasizing the themes of power, inequality, and social justice. Majors with a concentration in visual, audio, literary, and performance cultures study American consumer culture, popular culture, representations, and media in relation to U.S. literatures. Students in the public humanities concentration explore various forms of public intellectual engagement, including museum studies, documentary work, public history, digital humanities, and archival based work in the visual or performing arts; senior projects in this area may consist of works or productions beyond the traditional scholarly essay. Students may also petition the DUS to develop an independent concentration.

SENIOR REQUIREMENT

During the senior year, each student in the major completes work in the area of concentration in one of three ways. First, the student may enroll in a senior seminar within the area of concentration (AMST 400–490). Students should apply interdisciplinary methods and undertake original research to produce a final paper of twenty to twenty-five pages. Students must complete all course requirements to fulfill the senior requirement. Students electing this option should submit the senior seminar registration form, signed by the seminar instructor, to the DUS and the undergraduate registrar.

Second, the student may complete a one-term senior project or essay (AMST 491). The product should be a thirty-page essay or its equivalent in another medium. To apply for admission to AMST 491, a student should submit a prospectus, signed by the faculty adviser, to the DUS and the undergraduate registrar.

Third, the student may enroll in the intensive major (AMST 493 and 494) and work independently for two terms. The intensive major offers an opportunity for significant original research leading to a substantial senior project. AMST 493, 494 carries two terms of credit; its final product should be a sixty-page essay or its equivalent in another medium. All students in the intensive major participate in a yearlong proseminar on theory and methods. One term of the two-term project may count as a course in the area of concentration. To apply for admission to AMST 493 and 494, a student should submit a prospectus, signed by the faculty adviser, to the DUS and the undergraduate registrar.

As a multidisciplinary program, American Studies draws on the resources of other departments and programs in the University. The list of American Studies courses is meant to be suggestive only: apart from those courses required for the major, it is neither restrictive nor exhaustive. Students are encouraged to examine the offerings of other departments in both the humanities and the social sciences, as well as Residential College Seminars, for additional relevant courses. The stated area of concentration of each student determines the relevance and acceptability of other courses.

ADVISING

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in American Studies.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses (incl senior req)

Distribution of courses 4 gateway courses, as specified; 2 junior sems, 1 in area of concentration; 5 courses in area of concentration for letter grades, 1 on a related non-U.S. topic (1 may be one term of two-term senior project); 2 AMST electives

Substitution permitted 1 first-year sem for 1 gateway course; others with DUS permission

Senior requirement Senior sem (AMST 400–490) or one-term senior project (AMST 491) related to area of concentration

Intensive major Same, except two-term senior project (AMST 493 and 494) is required

FACULTY ASSOCIATED WITH THE PROGRAM OF AMERICAN STUDIES

Professors Ned Blackhawk (*History*), David Blight (*History, African American Studies*), Daphne Brooks (*African American Studies, Women's, Gender, & Sexuality Studies, Music*), Alicia Schmidt Camacho (*Ethnicity, Race, & Migration*), Michael Denning (*English, Ethnicity, Race, & Migration*), Kathryn Dudley (*Anthropology*), Roderick Ferguson (*Women's, Gender, & Sexuality Studies*), Joanne Freeman (*History*), Beverly Gage (*History*), Jacqueline Goldsby (*English, African American Studies*), Scott Herring (*Women's, Gender, & Sexuality Studies*), Daniel HoSang (*Ethnicity, Race, & Migration*), Matthew Jacobson (*African American Studies, History*), Regina Kunzel (*History, Women's, Gender, & Sexuality Studies*), Kathryn Lofton (*Religious Studies, History & Divinity, FAS Dean of Humanities*), Lisa Lowe (*Director of Postdoctoral Opportunities*) (*Ethnicity, Race, & Migration*), Mary Lui (*History, Head of Timothy Dwight College*), Joanne Meyerowitz (*History*), Charles Musser (*Film & Media Studies, Theater Studies*), Tavia Nyong'o (*Theater & Performance Studies, African American Studies*), Gary Okiihiro (*Ethnicity, Race, & Migration*), Stephen Pitti (*History, Ethnicity, Race, & Migration, Head of Ezra Stiles College*), Sally Promey (*Institute of Sacred Music, Divinity School, Religious Studies, History of Art*), Ana Ramos-Zayas (*Ethnicity, Race, & Migration, Women's, Gender & Sexuality Studies*), Marc Robinson (*Theater & Performance Studies, English*), Paul Sabin (*History, Environmental Studies*), Caleb Smith (*English*), Dara Strolovitch (*Women's, Gender, & Sexuality Studies, Political Science*), Michael Veal (*Music, African American Studies*), Kalindi Vora (*Ethnicity, Race, & Migration, Women's, Gender, & Sexuality Studies*), John Warner (*History of Science, Medicine, and Public Health, History*), Michael Warner (*English*), Laura Wexler (*DUS*) (*Women's, Gender, & Sexuality Studies*), Bryan Wolf

Associate Professors Rene Almeling (*Sociology*), Laura Barraclough (*Chair*) (*Ethnicity, Race, & Migration*), Crystal Feimster (*Head of Pierson College*) (*African American Studies, History*), Zareena Grewal (*Ethnicity, Race, & Migration, Religious Studies*), Greta LaFleur (*DGS*) (*Women's, Gender, & Sexuality Studies*), Albert Laguna (*Ethnicity, Race, & Migration*), Joanna Radin (*History of Science, Medicine, and Public Health, Anthropology, History*), Elihu Rubin (*Urbanism*), Edward Rugemer (*African American Studies*), Tisa Wenger (*Religious Studies, History & Divinity*)

Assistant Professors Hi'ilei Hobart (*Ethnicity, Race, & Migration*), Julian Posada, Madiha Tahir

Senior Lecturers James Berger, Karin Roffman (*Humanities, English, Associate Director of Public Humanities*)

Lecturers Ryan Brasseux (*Head of Davenport College*), Quan Tran (*Ethnicity, Race, & Migration*), Dicky Yangzom

Anthropology

Director of undergraduate studies: William Honeychurch

(william.honeychurch@yale.edu), Rm. 305, 51 Hillhouse Ave., 432-3676;
anthropology.yale.edu

Anthropology is the study of human cultural, social, and biological diversity from the distant past to the present day and around the world. The undergraduate major in Anthropology introduces students to key topics and approaches in three broad areas, also known as subfields: (1) the evolution of human and nonhuman primates, including the evolutionary biology of living people; (2) the archaeological study of human societies and cultures; (3) social, cultural, and linguistic dimensions of human life. In addition to gaining a broad understanding of these complementary areas of Anthropology, majors develop advanced skills in one or more subfields and may elect to pursue a formal concentration in archaeological, biological, or sociocultural anthropology, or in medical anthropology and global health (see Concentrations). Whatever their path through the major, students learn ways of understanding and engaging with humanity that emerge from the sciences, social sciences, and humanities, and they often complete synergistic coursework in other departments and programs. All students write a senior essay, often based on independent research, and many go on to careers that incorporate anthropological perspectives.

REQUIREMENTS OF THE MAJOR

Students are required to present twelve course credits toward their major, including at least one introductory or intermediate (100–200 level) course in each of the three subfields of anthropology, at least three advanced courses (300–400 level, not including numbers reserved for senior essay work), and a senior essay. With approval from the director of undergraduate studies (DUS), up to three courses may be selected from other departments as cognates. Cognate courses should be chosen to expand a student's knowledge in one of the subfields of anthropology or in an area of cross-disciplinary concentration. For example, cognate courses for biological anthropology may be found in Ecology and Evolutionary Biology, Earth and Planetary Sciences, or Psychology, while cognates for sociocultural anthropology may be found in Sociology, Environmental Studies, Ethnicity, Race, and Migration, and Women's, Gender, and Sexuality Studies. Appropriate areas of cross-disciplinary coursework also include area studies (e.g., African Studies), or topics such as law, health, gender and sexuality, environment and ecology, science and technology, race and ethnicity, and others.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be applied toward the Anthropology major.

Searchable attributes: YC ANTH: Archaeology, YC ANTH: Biological, YC ANTH: Adv Lab/Data Analysis, YC ANTH: Linguistic, YC ANTH: Medical, YC ANTH: Sociocultural, YC ANTH: Theory

SENIOR REQUIREMENT

All majors are required to complete a substantial paper during their senior year, either in a seminar or in ANTH 491. In most cases, the senior essay is a traditional written essay, although students may, in consultation with their adviser, propose to work in and submit other media; such senior essays should still be accompanied by a 10–15 page

written exposition of the work and its relationship to anthropology. There are three options for completing the senior essay:

Option 1: Students may write a paper in an advanced seminar. A seminar senior essay must be more substantial than a typical term paper, generally 20–25 pages long. It is evaluated by the seminar instructor and a second reader drawn from the Yale faculty. Students must obtain written approval for this option from the seminar instructor no later than the third week of the term. Students fulfilling the requirements of two majors may not apply a single seminar essay toward the senior requirement for both majors. The deadline for a seminar senior essay is the senior essay deadline, not the term paper deadline. Students choosing this option must take the seminar for which they write their essay *in addition to* the three advanced courses required for the major. *Note that some concentrations in Anthropology do not permit a seminar-style senior essay.*

Option 2: An independent essay on a subject of the student's choice, completed in ANTH 491. A student pursuing this option must choose a topic and identify a faculty adviser by the end of the third week of the term in which the essay is to be written. By the same date, the adviser must approve a prospectus that outlines the topic, objectives, and methods of the essay, as well as a preliminary bibliography. The student should also inform the DUS of a preferred second reader by this time.

Option 3: A yearlong paper, begun in ANTH 471 or 472 and completed in ANTH 491. The yearlong essay is designed for students who wish to pursue more extensive independent projects than can be completed in a single term. Students must have their project approved by a faculty adviser who establishes the requirements for ANTH 471 or 472; approval is required before the student registers for ANTH 471 or 472, typically in the fall term of the senior year.

For options two and three, the adviser must have a faculty appointment in Anthropology, and the second reader must have a faculty appointment at Yale.

ADVISING

With permission of the DUS, students may apply up to two courses taken outside Yale as electives or cognates toward the Anthropology major. Such courses must have been approved for Yale College credit and may include courses taken on a year or term abroad or through summer study at another college or university. See Academic Regulations, section K, Special Academic Programs.

Graduate courses Most graduate seminars in anthropology are open to qualified undergraduates. Descriptions are available in the departmental office, 10 Sachem St. Permission of the instructor and of the director of graduate studies is required.

STUDY ABROAD

Study abroad courses that are approved for Yale College and Anthropology credit may be used to replace one elective. If more than one such study abroad course credit is to be used for the major, it will come at the expense of one or more of the three cognate courses which may be taken in any Yale department or program with the approval of the DUS in Anthropology.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 course credits (incl senior req)

Distribution of courses At least one introductory or intermediate, 100–200 level course in each of three subfields; at least three advanced, 300–400 level courses (not incl ANTH 471, 472, 491, or seminar senior essay)

Substitution permitted Up to 3 cognate courses in other departments or programs with DUS approval

Senior requirement Senior essay in advanced sem; or ANTH 491; or yearlong essay in ANTH 471 or 472, along with ANTH 491; students electing a concentration may have additional requirements specific to that concentration

CONCENTRATIONS

Majors may choose to concentrate in one of the following areas to take advantage of groups of related courses and recommended sequences. Each of these concentrations has its own requirements and recommendations that fit within the overall requirements of the anthropology major.

CONCENTRATION IN ARCHAEOLOGY

The archaeology subfield focuses on understanding societies and cultures through the study of their material remains. Students in anthropological archaeology develop skills that allow them to study sites that were inhabited or modified by people in the past (including sites from relatively recent or modern times), together with a variety of materials recovered at such places, from microscopic residues and chemical traces to monumental buildings and entire landscapes. They learn to develop and apply theoretical approaches from the social sciences and comparative data from ethnographic and historical sources, coupled with a growing range of scientific methods of analysis derived from the natural and biological sciences.

In addition, students should gain field experience by joining a summer field school. Many archaeological field schools are offered around the world, and students are encouraged to apply to the Albers or Coe fellowships to defer the costs. In special cases, laboratory or museum activities may substitute for field work with the approval of the DUS.

A concentration in Archaeology is similar to but also different from a major in Archaeological Studies. The Anthropology major with a concentration in Archaeology provides a strong background in anthropological theory, ethnography, and biological anthropology, in addition to archaeology. The Archaeological Studies major is an option for students who wish to pursue coursework in additional departments, such as Classics and Classical Civilizations, Near Eastern Languages and Civilizations, and History of Art, among others. Alternatively, students can choose to double major in Anthropology and Archaeological Studies.

All students with this concentration need to complete at least *six course credits* as indicated. Senior majors with a concentration in Archaeology should consult with their senior thesis advisor to complete a thesis pertinent to the archaeology subfield (alternative formats for fulfilling this requirement can be discussed with the thesis advisor and DUS). Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements

Searchable attributes: YC ANTH: Archaeology, YC ANTH: Adv Lab/Data Analysis, YC ANTH: Theory

- **1 introductory survey course:** ANTH 171, ANTH 172
- **1 foundational laboratory course:** ANTH 316L
- **1 advanced laboratory or data analysis course:** use the attribute, YC ANTH: Adv Lab/Data Analysis
- **1 theory course:** use the attribute, YC ANTH: Theory
- **1 seminar**
- **1 area focused course** with DUS approval

CONCENTRATION IN BIOLOGICAL ANTHROPOLOGY

The concentration in Biological Anthropology helps students understand human evolutionary biology, comparative primate behavior and biology, evolutionary genetics, and the hominin and primate fossil records. Students become knowledgeable about the fundamentals of evolutionary biology, mechanisms of evolution and population genetics, human and non-human primate behavioral ecology, life history and reproductive ecology, and the relationship of our species to other primates. They will be prepared to navigate research on human and non-human primates thoughtfully and ethically and will have a grounding in the principles of rigorous scientific research, quantitative reasoning, data analysis, data interpretation, and critical analysis of primary scientific literature.

The concentration in Biological Anthropology is distinguished from the major in Ecology and Evolutionary Biology by its focus on the evolutionary biology of humans and our primate relatives, including the use of genetics and endocrinology to address questions about both our evolution and our current world, and on the interplay of human biology and culture. Students are encouraged to gain solid scientific backgrounds by taking courses in related departments such as Ecology and Evolutionary Biology.

The concentration in Biological Anthropology overlaps with and complements the concentration in Medical Anthropology and Global Health in conceptual approaches and scientific methods. It complements the Department's Archaeology program by its coverage of the fossil and archaeological record for early human evolution and of the ecological, behavioral, and demographic context in which our own species emerged and successfully dispersed across the world. It complements the sociocultural and linguistic anthropology program by providing a comparative context for understanding how our species then came to manifest our contemporary unprecedented behavioral diversity and flexibility.

All students with this concentration need to complete at least *six course credits* in biological anthropology or cognates, not including the senior project. Senior majors should consult with their senior thesis advisor to complete a thesis with an emphasis on the biological subfield. Essays written as term papers for seminars do not meet the senior requirement for this concentration. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements

Searchable attribute: YC ANTH: Biological

- **Required course:** ANTH 116
- **4 or more biological anthropology seminar or cognate electives**
- **At least 1 advanced seminar in biological anthropology**

CONCENTRATION IN SOCIOCULTURAL ANTHROPOLOGY

A concentration in sociocultural anthropology engages students in the study of how different people live and understand the world, their aspirations and struggles, and how both shared and conflicting ideas, values, and interests are related to action and interaction in society. Study and research in sociocultural anthropology is grounded in wide-ranging social and cultural theory and take ethnography to be a primary mode of research and a key form of expression (whether through ethnographic texts or other media, such as film). This concentration offers students an opportunity to focus on many parts of the world; on areas of inquiry such as environmental anthropology, urban anthropology, or economic anthropology; and topics such as language, legal and political institutions, race and ethnicity, information, science, and technology, gender, sexuality, and the body, and more. Students completing a concentration in sociocultural anthropology will have excellent skills for interpreting cultural differences, understanding power and inequality, and connecting small-scale human lived experiences with an understanding of large-scale structures and transformations.

Students are encouraged to learn more about opportunities and sources of support for undergraduate research in anthropology.

Students in this concentration are also invited to explore the Certificate in Ethnography as a means to deepen and expand their interests in sociocultural anthropology through coursework in related academic units that engage with ethnographic methods and ethnography-informed scholarship, including (but not limited to): African American Studies, American Studies, Environmental Studies, Ethnicity, Race, and Migration (ER&M), History, History of Science and Medicine (HSHM), Political Science, Sociology, Urban Studies, and Women's, Gender, and Sexuality Studies (WGSS).

Note: The Anthropology Department does not offer an independent concentration in linguistic anthropology. Students interested in linguistic anthropology may concentrate on sociocultural anthropology and consult with the DUS and appropriate faculty about choosing courses most relevant to their interests.

There are *six required course credits* that may be applied to this concentration. With DUS approval, similar courses taught in the department, or a related department or program, may substitute. The senior requirement is not one of the concentration requirements; however, seniors should consult with their senior thesis advisor to complete a thesis emphasizing the sociocultural subfield. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements

Searchable attributes: YC ANTH: Sociocultural, YC ANTH: Linguistic

- **1 introductory course** in sociocultural anthropology at the 100 level
- **2 or more electives in sociocultural and linguistic anthropology at the 200-400 level**
- ANTH 303, the core research methods course, usually taken in the junior year. With DUS approval, a similar methods course taught in the Department, or a related department or program, may substitute.
- ANTH 311, the core theory course, usually taken in the junior year

CONCENTRATION IN MEDICAL ANTHROPOLOGY AND GLOBAL HEALTH

The concentration in Medical Anthropology and Global Health (MAGH) addresses the biological, ecological, economic, political, and sociocultural dimensions of health, illness, and healing around the world. It brings together theories, frameworks, and ethnographic foundations from sociocultural anthropology with biocultural orientations and research approaches found in biological anthropology. Students learn theoretical and methodological tools to think critically about issues related to health research, practice, and policy. They address the biological, ethical, and sociocultural aspects of global health inequities, caregiving, medical and healing practices, technological innovations, and health interventions. The concentration encourages a mindful and critical look at how social conditions and inequalities shape the health and illness experiences of individuals, families, and populations. Students who choose a MAGH concentration may pursue further graduate academic study in medical anthropology, or careers in biomedical and health-related fields, including epidemiology, global health, nursing, medicine, and public health. Others may be interested in health policy and legal aspects of health care delivery, among other fields.

All students opting for this concentration must complete *six course credits* in medical anthropology, global health, or cognate disciplines. In consultation with their adviser and/or the DUS, and especially if they plan independent research, students may wish to take an appropriate methods course as well. The senior requirement is not one of the concentration requirements; however, seniors should consult with their senior thesis advisor to complete a thesis emphasizing the medical anthropology or global health subfield. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements

Searchable attribute: YC ANTH: Medical

- ANTH 448
- **at least 1 seminar at the 300- or 400- level that supports their preparation for the senior essay** and 4 other electives

FACULTY OF THE DEPARTMENT OF ANTHROPOLOGY

Professors Richard Bribiescas, Richard Burger, Michael Dove (*School of the Environment*), Kathryn Dudley (*Anthropology/American Studies*), Eduardo Fernandez-Duque, Erik Harms, William Honeychurch, Marcia Inhorn, Paul Kockelman, Catherine Panter-Brick, Douglas Rogers, Eric Sargis, Helen Siu, Kalyanakrishnan Sivaramakrishnan, Anne Underhill, Claudia Vaggia, David Watts

Associate Professors Oswaldo Chinchilla, Yukiko Koga, Louisa Lombard, Lisa Messeri, Christen Smith (Anthropology/African American Studies)

Assistant Professors Jessica Thompson, Serena Tucci

Lecturers Carol Carpenter, Jane Lynch

Applied Mathematics

Director of undergraduate studies: John Wettlaufer (john.wettlaufer@yale.edu);
associate director of undergraduate studies: Ian Adelstein (ian.adelstein@yale.edu)

Mathematical models are widely used throughout natural science, social science, and engineering in fields as diverse as physics, bioinformatics, robotics, image processing, and economics. Despite the broad range of mathematical settings and applications, there exists a core of essential concepts and techniques used in addressing most problems. The Applied Mathematics major provides a foundation in these mathematical techniques and prepares the student to use them in a substantive field of application.

The interdisciplinary major permits a great deal of flexibility in design. It is intended to appeal to students who wish to study the more mathematical aspects of science or engineering, as well as those whose primary interest is in mathematics and statistics and who wish to become acquainted with applications. Core courses are drawn from Computer Science, Mathematics, Statistics and Data Science, and Engineering and Applied Science. Courses applying mathematics may be drawn from participating programs in Applied Physics; Astronomy & Astrophysics; the biological sciences, including Ecology and Evolutionary Biology, Molecular Biophysics and Biochemistry, and Molecular, Cellular, and Developmental Biology; Chemistry; Economics; the various programs in engineering, including Biomedical Engineering, Chemical Engineering, Electrical Engineering, Environmental Engineering, and Mechanical Engineering; Earth and Planetary Sciences; Physics; and even Linguistics and Political Science. The Applied Mathematics degree program requires a three-course concentration in a field in which mathematics is used.

Students in the major are often sought after by graduate programs in either Applied Mathematics or in the disciplines in which they choose their concentration, as well as by industries and startup companies in which their breadth of quantitative skills are essential and often unique.

Students may pursue a major in Applied Mathematics as one of two majors and can thereby equip themselves with mathematical modeling skills while being fully engaged in a field of application. In this case, the concentration requirement of the Applied Mathematics program is flexible in order to recognize the contribution of the other major. A two-course overlap is permitted to satisfy the requirements of the two majors.

Frequently Asked Questions Students are encouraged to consult the Applied Mathematics FAQ for more details about courses and policies in the major.

PREREQUISITE AND INTRODUCTORY COURSES

Multivariable calculus and linear algebra are required and should be taken before or during the sophomore year. This requirement may be satisfied by MATH 120 or ENAS 151, and MATH 222 or 225 or 226. It may also be satisfied by MATH 230, 231 for rising seniors. Computer programming skills are also required and may be acquired by taking ENAS 130 and CPSC 100 or 112. Details of individual programs must be worked out in consultation with the director of undergraduate studies (DUS), whose signed permission is required.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the DUS, the following requirements may be fulfilled by students who declared the major in a prior term. Rising seniors may count MATH 230, 231 (linear algebra), MATH 250 (vector analysis), and MATH 300 and 301 (analysis) toward their analysis requirements.

The B.A. degree program The program requires eleven term courses beyond the prerequisites, including the senior project, comprising a coherent program:

1. A course in differential equations (ENAS 194 or MATH 246)
2. A course in probability (S&DS 241 or S&DS 238)
3. A course in data analysis (S&DS 361 or S&DS 230)
4. A course in discrete mathematics (AMTH 244 or CPSC 202)
5. Courses in at least three of the following areas* (with DUS approval) including, but not limited to:
 - (a) optimization: AMTH 232, 431, 437, EENG 433, CPSC 485
 - (b) probability and statistics: S&DS 242, 312, 351, 364, 400, 410, 411, 425, ECON 136, APHY 470
 - (c) partial differential equations and analysis: MATH 247, 250, 255, 256, 260, 300, 301, 302, 305, 310, 447, AMTH 428
 - (d) algorithms and numerical methods: CPSC 365, 366, 424, 440, 465, 467, 468, 469, ENAS 440, 441
 - (e) graph theory: AMTH 362, 420, 562, ENAS 962, MATH 799
 - (f) mathematical economics: ECON 125, 126, 350, 351, 417, 433, 460, 471
 - (g) electrical engineering: EENG 397, 436, 455, AMTH 342, S&DS 364
 - (h) data mining and machine learning: S&DS 262, 365, 669, 671, CPSC 445, 453, 470, 474, 477, 486, 745, AMTH 552
 - (i) biological modeling and computation: CPSC 453, 475, 476, BENG 352, 445, 458, ENAS 559
 - (j) physical sciences: ASTR 320, 420, CHEM 333**, EPS 322, 323, 421, 428, 456, PHYS 342, 343, 344, 401, 402, 410, 420, 430, 440, 442, 460, APHY 439, 448
 - (k) engineering: MENG 280, 285, 361, 365, 383, 463, 469, CENG 301, 315
 - (l) mathematical linguistics: LING 224, 227, 380
 - (m) mathematical philosophy: PHIL 267, 427, MATH 270

* Because departmental curricula from which the program draws regularly change, the DUS maintains a more exhaustive list of courses and areas satisfying this particular requirement. Additionally, due to rapid advances in many areas, these categories are often fluid, and their union can evolve. In order to accommodate this fluidity, students

are strongly encouraged to revisit their program of study each term and share their checklist with the DUS. Students can independently and systematically plan multiple routes toward completion of the major by using the checklist and the master list of courses.

** Chemistry courses numbered 410 and above may count as a breadth requirement (either 1 full-term 1 credit course or 2 half-credit courses) with permission of the DUS.

6. At least *three advanced courses* in a field of concentration involving the application of mathematics to that field. Programs in science, engineering, computer science, statistics, and economics are natural sources of concentration. Alternatively, when two majors are undertaken, if the second major is in a participating program, then, recognizing that there can be an overlap of two courses, the student may take for the remaining course an additional choice relevant to the Applied Mathematics major such as those listed in point 5 above or for the B.S. below. Details of a student's program to satisfy the concentration requirement must be worked out in consultation with, and approved by, the DUS.

The B.S. degree program In addition to the courses indicated for the B.A. degree, the B.S. degree, which totals fourteen term courses beyond the prerequisites and includes the senior requirement, must also include the three items listed below.

1. A vector analysis course, (MATH 302 or MATH 305). MATH 310, 320, 325, and 447 and those courses listed under "(c) partial differential equations and analysis" can act as replacements for MATH 250, 300, 301 and/or act as concentration or breadth courses.

The course selected may not be counted toward the requirements for the major under item 5 above. (MATH 350 and MATH 440 can in specific cases be considered in consultation with the DUS.)

2. An additional course selected from item 5 above.

3. Another course numbered 300 or higher selected from item 5 above, or a course numbered 300 or higher in mathematics, applied mathematics, statistics, or quantitative computer science or engineering, subject to the approval of the DUS.

Alternatively, students may petition to receive a B.S. in Applied Mathematics by fulfilling the B.A. requirements in Applied Mathematics and the B.S. requirements in another program.

Credit/D/Fail A maximum of one course credit taken Credit/D/Fail may be counted toward the requirements of the major.

SENIOR REQUIREMENT

Both the B.A. and B.S. degree programs require a senior thesis research project (AMTH 491).

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or ENAS 151, and MATH 222 or 225 or 226, or equivalents; ENAS 130, CPSC 100, or 112

Number of courses B.A. – 11 term courses beyond prereqs (incl senior req); B.S. – 14 term courses beyond prereqs (incl senior req)

Specific courses required *B.A.* — ENAS 194 or MATH 246; S&DS 241 or S&DS 238; S&DS 361 or S&DS 230; AMTH 244 or CPSC 202; *B.S.* — same as *B.A. degree*

Distribution of courses *B.A.* — at least 3 advanced courses in a concentration concerning the application of math to that field; 3 addtl courses, as specified; *B.S.* — same as *B.A. degree*, plus MATH 302 or 305 (or MATH 350 and 440 with DUS approval), with 2 addtl courses, as specified

Senior requirement Senior thesis research project (AMTH 491)

FACULTY ASSOCIATED WITH THE PROGRAM OF APPLIED MATHEMATICS

Professors Andrew Barron (*Statistics & Data Science*), David Bercovici (*Earth & Planetary Sciences*), Donald Brown (*Emeritus*) (*Economics, Mathematics*), Joseph Chang (*Statistics & Data Science*), Ronald Coifman (*Mathematics*), Michael Fischer (*Computer Science*), Igor Frenkel (*Mathematics*), Anna Gilbert (*Mathematics, Statistics & Data Science*), Roger Howe (*Emeritus*) (*Mathematics*), Peter Jones (*Mathematics*), John Lafferty (*Statistics & Data Science*), A. Stephen Morse (*Electrical Engineering*), Corey O'Hern (*Mechanical Engineering & Materials Science*), David Pollard (*Statistics & Data Science*), Nicholas Read (*Physics, Applied Physics*), Vladimir Rokhlin (*Computer Science, Mathematics*), John Schotland (*Mathematics*), Peter Schultheiss (*Emeritus*) (*Electrical Engineering*), Martin Schultz (*Emeritus*) (*Computer Science*), Mitchell Smooke (*Mechanical Engineering & Materials Science, Applied Physics*), Daniel Spielman (*Computer Science, Statistics & Data Science*), Mary-Louise Timmermans (*Earth & Planetary Sciences*), Van Vu (*Mathematics*), Günter Wagner (*Ecology & Evolutionary Biology*), John Wettlaufer (*Earth & Planetary Sciences, Mathematics, Physics*), Huibin Zhou (*Statistics & Data Science*), Steven Zucker (*Computer Science, Biomedical Engineering*)

Associate Professors John Emerson (*Statistics & Data Science*), Thierry Emonet (*Molecular, Cellular, & Developmental Biology, Physics*), Josephine Hoh (*Epidemiology & Public Health*), Yuval Kluger (*Pathology*), Michael Krauthammer (*Pathology*), Smita Krishnaswamy (*Genetics, Computer Science*), Sekhar Tatikonda (*Electrical Engineering, Statistics & Data Science*), Madhusudhan Venkadesan (*Mechanical Engineering & Materials Science*)

J. W. Gibbs Assistant Professors Yariv Aizenbud, Abinand Gopal, Erik Hiltunen, Boris Landa, Kevin O'Neill

Applied Physics

Director of undergraduate studies: Daniel Prober (daniel.prober@yale.edu), 417 BCT, 432-4280; appliedphysics.yale.edu

Physics is the study of the fundamental laws of nature. Applied physics uses these laws to understand phenomena that have practical applications. Engineering in turn makes use of these phenomena for human purposes. Applied physics thus forms a link between the fundamental laws of nature and their applications. Students majoring in Applied Physics take courses in both physics and engineering, as well as courses specifically in applied physics. Students completing the program in Applied Physics are prepared for graduate study in applied physics, in physics, in nanoscience, or in engineering, and, with appropriate prerequisites, in medicine; or they may choose careers in a wide range of technical and commercial fields, or in fields such as technical writing or patent law that draw on interdisciplinary subjects.

Contemporary physical science and engineering are becoming increasingly interdisciplinary. Traditional boundaries between fields have blurred, and new areas are constantly emerging, e.g., nanotechnology. The Applied Physics major provides a flexible framework on which students can build a curriculum tailored to their own interests, in consultation with the director of undergraduate studies (DUS).

PREREQUISITES

During their first year, students interested in Applied Physics should start by taking courses in mathematics, and in physics if possible, appropriate to their level of preparation. The choice between different starting points is generally made based on performance on Advanced Placement tests. The multiplicity of choices facing students interested in this general area indicates the importance of informed advice for first-year students. Students should consult freely with DUSs and individual faculty members in their departments of interest to optimize choices and to ensure maximum flexibility at the time a major is selected.

The required prerequisites for students interested in Applied Physics include two physics courses and one physics lab; APHY 151 or MATH 120; and PHYS 301 (or APHY 194 with either MATH 222 or MATH 225 or MATH 226).

The recommended starting courses in physics are PHYS 200 and 201. These courses should be taken in the first year by students who have a strong preparation in mathematics and physics. Students with a particularly strong background in physics and mathematics may take PHYS 260 and 261 instead. Students who are less well prepared in physics and mathematics may choose to take PHYS 180 and 181 during their first year, or PHYS 200 and 201 during their sophomore year after they have taken additional mathematics courses. One laboratory course, PHYS 166L or 206L, should be taken at some time during the first or second year.

REQUIREMENTS OF THE MAJOR

The major in Applied Physics requires eight courses beyond the introductory sequence. Two of these must be APHY 471 and 472. All majors are also required to take APHY 322, APHY 439 or PHYS 440, and APHY 420, or equivalents. The three remaining advanced courses should comprise an area of focus. For example, a student interested in solid-

state and/or quantum electronics might choose from APHY 321, 448, 449, EENG 320, and 325. A student interested in the physics of materials and/or nanoscience might choose from APHY 448, 449, CHEM 220, and MENG 285. Many other focus areas are possible.

Credit/D/Fail All courses required for the major, beyond the prerequisites, must be taken for a letter grade, with the single exception that one such course may be taken Credit/D/Fail with permission of the DUS. The senior special projects, APHY 471 and 472, may only be taken for a letter grade.

SENIOR REQUIREMENT

Seniors must complete an independent research project, taken as APHY 471 and 472. The independent research project is under the supervision of a faculty member in Applied Physics, Physics, Engineering, or related departments. The project may be started in the junior year and continued into the senior year. Students planning to do a research project should contact the DUS as early as possible to discuss available options and general requirements.

ADVISING

The Applied Physics major provides various programs corresponding to a range of student interests. Substitutions of equivalent courses may be permitted. Students interested in an Applied Physics major should contact the DUS as early as possible, and in any case by the end of their sophomore year.

A well-prepared student interested in materials physics or quantum electronics who starts the senior research in the junior year might elect the following course sequence:

First-Year	Sophomore	Junior	Senior
APHY 151	APHY 322	APHY 472	APHY 448
PHYS 200	APHY 439	EENG 320	APHY 449
PHYS 201	PHYS 301	APHY 420	APHY 471
PHYS 206L			

A student interested in alternative energy who starts physics in the sophomore year and conducts research in the senior year might elect:

First-Year	Sophomore	Junior	Senior
MATH 120	PHYS 200	APHY 322	APHY 448
	PHYS 201	APHY 439	APHY 471
	PHYS 206L	EENG 320	APHY 472
	PHYS 301	APHY 420	EENG 406

REQUIREMENTS OF THE MAJOR

Prerequisites PHYS 180, 181, or 200, 201, with appropriate math coreqs and PHYS 166L or 206L; APHY 151 or MATH 120; PHYS 301 (or APHY 194 with either MATH 222 or MATH 225 or MATH 226)

Number of courses 8 term courses beyond prereqs (incl senior req)

Distribution of courses 3 adv courses in physical or mathematical sciences or engineering in area of focus, with DUS approval

Specific courses required APHY 322, APHY 439 or PHYS 440, and APHY 420, or equivalents

Substitution permitted Any relevant course approved by DUS

Senior requirement APHY 471 and 472

FACULTY OF THE DEPARTMENT OF APPLIED PHYSICS

Professors Charles Ahn, †Sean Barrett, Hui Cao, Michel Devoret, Paul Fleury (*Emeritus*), †Steven Girvin, †Leonid Glazman, †Jack Harris, Victor Henrich (*Emeritus*), Sohrab Ismail-Beigi, Simon Mochrie, †Corey O'Hern, Vidvuds Ozolins, Daniel Prober, Nicholas Read, Peter Schiffer, Robert Schoelkopf, †Ramamurti Shankar, †Mitchell Smooke, A. Douglas Stone, †Hongxing Tang, Robert Wheeler (*Emeritus*), Werner Wolf (*Emeritus*)

Associate Professors †Michael Choma, Peter Rakich

Assistant Professors Yu He, Owen Miller, Shruti Puri

†A joint appointment with primary affiliation in another department.

Archaeological Studies

Director of undergraduate studies: William Honeychurch
(william.honeychurch@yale.edu) [spring 2024], archaeology.yale.edu

This interdisciplinary major is supervised by the University's Council on Archaeological Studies. Inquiries about the major may be addressed to the chair of the council, Richard Burger (richard.burger@yale.edu), Department of Anthropology, 10 Sachem St., or to the director of undergraduate studies (DUS).

The major in Archaeological Studies provides a program of interdepartmental offerings covering prehistoric, early historic, medieval, and other cultures and cultural developments in the Old and New Worlds, and introduces students to the analytic tools that facilitate archaeological studies. The major is designed to expose students to a variety of archaeological research perspectives: anthropological, historical, art historical, and scientific. Also emphasized are substantive studies including (1) study of prehistoric–early historic transformations such as the origins of agriculture, cities and states, and early empires, and (2) study of the material culture, art, and architecture of prehistoric, early historic, and medieval cultures, including the iconography of ancient cultures, the relationship between art and society, ancient writing systems, and American historical archaeology.

REQUIREMENTS OF THE MAJOR

The major consists of twelve term courses, including the senior project. In addition, students must participate in a Yale-affiliated summer research project, or that of another archaeological field school approved in advance by the DUS. The following five courses are required: an introductory survey; the introductory laboratory course ARCG 316L; an advanced laboratory course; a theory course; and the senior research project ARCG 491. The remaining seven courses required for the major must be distributed among the subject areas represented by the departments and programs offering courses multiple-titled with Archaeological Studies, with three of those seven courses found in different departments and programs. The relevant departments and programs are Anthropology, Classics, Earth and Planetary Sciences, Environmental Studies, History, History of Art, Near Eastern Languages and Civilizations, and Religious Studies. With the permission of the DUS, a course may be counted toward a subject area other than the one(s) under which it is listed. For three of the seven archaeology electives students may, with permission of the DUS, substitute courses from other departments in areas related to their research.

Field research In addition to being the base for several faculty field projects around the globe, the Council on Archaeological Studies takes as its principal mission the encouragement of multiple field experiences. Our undergraduate majors are required to participate in at least one intensive summer field school. Approval is required, and costs are often subsidized by the Council. Students are encouraged to participate in each other's field projects, thereby learning about the greatest number of cultures and areas possible, while experiencing a diverse array of field situations.

Students are strongly encouraged but are not required, to devote a second summer to archaeological research, either in the field or in a laboratory. Council faculty currently direct archaeological field projects in China, Egypt, Guatemala, Peru, Mongolia,

Armenia, and Italy. Qualified majors are encouraged to apply for research positions with these projects.

SENIOR REQUIREMENT

The final requirement for the major is a senior research project (ARCG 491) in some field of archaeology, preferably one involving more than one area or discipline.

ADVISING

Students majoring in Archaeological Studies should consult with the DUS at the beginning of each term.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior project)

Specific course required ARCG 316L (intro lab)

Distribution of courses 1 intro survey; 1 advanced lab; 1 theory course; 7 electives, at least 1 in each of 3 areas, as specified

Field requirement 1 summer field techniques course or research project, as specified and approved by the DUS

Substitution permitted For 3 electives, 3 courses related to research, with DUS permission

Senior requirement Research project (ARCG 491)

COUNCIL ON ARCHAEOLOGICAL STUDIES

Anthropology Richard Burger (*Chair*), Oswaldo Chinchilla, Ellery Frahm, William Honeychurch, Roderick McIntosh (*Emeritus*), Eric Sargis, Jessica Thompson, Anne Underhill, David Watts

Classics Andrew Johnston, Diana Kleiner (*Emeritus*)

Earth and Planetary Sciences Ronald Smith

History Joseph Manning

History of Art Edward Cooke, Jr., Milette Gaifman

Near Eastern Languages & Civilizations John Darnell, Karen Foster, Eckart Frahm, Gregory Marouard, Nadine Moeller, Harvey Weiss

Religious Studies Stephen Davis

Architecture

Director of undergraduate studies: Michael Schlabs (michael.schlabs@yale.edu), RDH, 180 York St.; architecture.yale.edu

Architecture is a humanistic endeavor. The purpose of the undergraduate major is to include the study of architecture within a comprehensive liberal arts education, drawing from the broader academic and professional environment of the Yale School of Architecture. The curriculum includes work in design; in history, theory, and criticism of architecture; and in urbanism, and leads to a bachelor of arts degree with a major in Architecture. As a liberal arts major in Yale College, it is not an accredited professional degree program. For accredited professional degree programs, refer to the requirements of the National Architectural Accrediting Board (NAAB).

INTRODUCTORY COURSES FOR NONMAJORS AND MAJORS

Introductory courses are ARCH 150, 200, and 280. They are open to all Yale College students and are required for those interested in the Architecture major prior to submitting a Declaration of Intent to Major. Interested students may also consider courses such as ARCH 154, 160, 260, 312, 341, or 345.

PREREQUISITES

Three courses are prerequisite for all concentrations: ARCH 150; 200; and *one* of the following: ARCH 280, 341, or 345.

REQUIREMENTS OF THE MAJOR

Students majoring in Architecture are required to take fifteen course credits, including prerequisites and the senior requirement. Majors are expected to take the three prerequisites by the end of their sophomore year and to complete a core of four courses, for five course credits, by the end of their junior year. They must also base their studies in one of two areas of concentration: the Design concentration or the History, Theory, Criticism of Architecture, and Urbanism concentration. Majors are also required to complete three orientation sessions: advanced technology orientation, library orientation, and shop orientation. Within the concentrations, electives are categorized under four broad subject areas: history and theory of architecture and the city; urbanism and landscape; materials and design; and structures and computation.

Design concentration The Design concentration explores the role of architecture in shaping the world around us. It introduces complex processes involved in solving spatial and programmatic problems. Creative work is grounded in the study of history and culture, and in the analysis of social conditions influencing architecture. Design studios provide a forum for production and discourse. Studio projects address issues of architectural form, space, composition, site, tectonics, and programs within broader humanistic ideals.

For the Design concentration, the following additional courses are required:

1. A core of four courses: the studio courses ARCH 250 and 251 taken during the junior year after the student is accepted into the major; and the history of architecture surveys, ARCH 260 and 312, to be completed by the end of the junior year

2. One elective in history and theory of architecture as outlined in the elective options below
3. One elective in urbanism and landscape as outlined in the elective options below
4. One elective in materials and design as outlined in the elective options below
5. One elective in structures and computation as outlined in the elective options below
6. The senior requirement, ARCH 450 and 494

History, Theory, Criticism of Architecture, and Urbanism concentration The History, Theory, Criticism of Architecture, and Urbanism concentration is intended to establish a broad historical and intellectual framework for the study of architecture and the city. An interdisciplinary approach is encouraged through additional courses taken in various fields of humanities and social sciences. Such courses may include archaeology, urban studies, aesthetics, philosophy, or visual culture. Permission of the director of undergraduate studies (DUS) is required if the courses fall outside the specified course of studies. During their senior year students complete a senior essay or project on a topic approved by the faculty.

For the History, Theory, Criticism of Architecture, and Urbanism concentration, the following additional courses are required:

1. A core of four courses: the urban laboratory, ARCH 250 or 360 taken during the fall term of junior year; a second urban laboratory (e.g. ARCH 353, 362) or an elective approved by the DUS, taken during the spring term of junior year; and the history of architecture surveys ARCH 260 and 312 to be completed by the end of junior year
2. Four electives in history and theory of architecture and the city as outlined in the elective options below
3. One elective in urbanism and landscape, materials and design, or structures and computation or other relevant course approved by the DUS as outlined in the elective options below
4. The senior requirement, ARCH 490 and 491

ELECTIVE OPTIONS IN SUBJECT AREAS

History and theory of architecture and the city Electives can be chosen from ARCH 007, 271, 314, 316, 327, 330, 332, 337, 338, 341, 346, or other relevant courses in History of Art and other, related fields approved by the DUS. Examples of approved courses include: HSAR 143, 160, 221, 260, and 432.

Urbanism and landscape Electives can be chosen from ARCH 007, 160, 314, 316, 327, 341, 345 or other relevant courses in American Studies; Ethics, Politics, and Economics; Environmental Studies; or Political Science approved by the DUS. Examples include: AFAM 146, 164, 261, and 326; AFST 238, and 366; AMST 031, 190, 258, 310; ENAS 400; ER&M 200, 224, 278, 293; EVST 205, 219, 228, 255; SOCY 151, 169, 315.

Materials and design Electives can be chosen from ARCH 154, 162, 325, 332, or another relevant course approved by the DUS. Examples include: ART 110, 114, 116, 120, 130, 210.

Structures and computation Electives can be chosen from ARCH 161, an approved calculus course such as MATH 112, 115, 120, or physics course such as PHYS 180, 200 or other relevant course approved by the DUS. One example of an approved course is MENG 280. (Elementary calculus is strongly recommended as preparation for graduate studies in architecture.)

REQUIRED ORIENTATIONS

Advanced Technology orientation All Architecture students are required to complete orientation sessions in the advanced technology workshop and materials laboratory. Students enrolled in ARCH 200 must complete these sessions at the beginning of the spring term of the sophomore year. Access to digital media equipment is not allowed until the required orientation sessions have been completed. Questions should be addressed to the DUS or the director of advanced technology, Vincent Guerrero (vincent.guerrero@yale.edu), 432-7552.

Library orientation The Architecture program requires all students to complete a ninety-minute introductory library research session. Students enrolled in ARCH 200 must take this session at the beginning of the spring term of their sophomore year. Failure to complete the required orientation precludes completion of the major. Students may not offer substitutions for this orientation. Orientation sessions may be coordinated by the Arts Librarian for Research Services, Tess Colwell, 432-2641. Questions should be addressed to the DUS.

Shop orientation The Architecture program requires all majors to complete several woodshop and materials lab orientation sessions. Students who plan to enroll in ARCH 250 must take these sessions at the beginning of the fall term in the junior year, before the first day of classes. Access to the woodshop and materials lab is not allowed until the required orientation sessions have been completed. Questions should be addressed to the DUS or to the shop coordinator, Timothy Newton (timothy.newton@yale.edu), 432-7234.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Architecture major.

SENIOR REQUIREMENT

Seniors in the Design concentration take ARCH 450 in the fall term and 494 in the spring term. Seniors in the History, Theory, Criticism of Architecture, and Urbanism concentration take ARCH 490 in the fall term and 491 in the spring term. Proposals for senior projects and essays are submitted in the fall term for review and approval by the senior project coordinator; they are then distributed to faculty members for review. Upon successful review, students may ask faculty members to act as senior advisers. Senior essays and projects for ARCH 491 are due in the office of the DUS by early April. Design projects for ARCH 494 are due as specified by the course instructor. All seniors must submit a portfolio of their work to the office of the DUS by late April. For all architecture majors, this portfolio must be representative of the student's design work including prerequisites and the senior project. History, Theory, Criticism of Architecture, and Urbanism majors must also include a copy of the senior essay and other appropriate texts.

ADVISING AND DECLARATION OF INTENT TO MAJOR

Yale College students interested in the Architecture major must submit a Declaration of Intent to Major during the spring term of their sophomore year, after taking ARCH 150, 200, and one of the following: ARCH 280, 341, or 345. The Declaration of Intent to Major form must be submitted to the office of the DUS (contact DUS for deadlines) and must include the following information: name, address, telephone number, courses related to architecture already taken, and a statement of purpose. Students should also indicate their desired concentration at this time. Additionally, students must submit an electronic portfolio representative of coursework for ARCH 150, 200, and a paper from ARCH 280 (or other course approved by the DUS). Upon the successful completion of these requirements, students are notified in writing regarding their acceptance to the major. Refer to the department website for important deadlines.

Courses in the School of Architecture Unless otherwise indicated in the course descriptions, all courses in the School of Architecture are open to majors and nonmajors with permission of the instructor and the graduate registrar. They are not available for the Credit/D/Fail option. Students are admitted on the basis of their previous coursework and previous performance.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites ARCH 150, 200, and *one of the following*: ARCH 280, 341, or 345

Number of courses 15 course credits (incl prereqs and senior req)

Specific courses required *Design concentration*—ARCH 250, 251, 260, 312; *History, Theory, Criticism of Architecture, and Urbanism concentration*—ARCH 250 or 360; ARCH 362 or 353 or elective approved by DUS; ARCH 260; and ARCH 312

Distribution of courses *Design concentration*—1 elective in history and theory of arch, 1 in urbanism and landscape, 1 in materials and design, 1 in structures and computation, all approved by DUS; *History, Theory, Criticism of Architecture, and Urbanism concentration*—4 electives in history and theory of arch and city, 1 elective in urbanism and landscape, or materials and design, or structures and computation; all approved by DUS

Other requirements Orientation sessions in advanced technology, library, and shop

Senior requirement *Both concentrations*—portfolio representative of design work, including prereqs and senior req; *Design concentration*—ARCH 450 and 494; *History, Theory, and Criticism of Architecture and Urbanism concentration*—ARCH 490 and 491

MEMBERS OF THE SCHOOL OF ARCHITECTURE TEACHING IN YALE COLLEGE

Professors Turner Brooks (*Adjunct*), Keller Easterling, Steven Harris (*Adjunct*), Eeva-Liisa Pelkonen, Alan Plattus, Alexander Purves (*Emeritus*)

Associate Professors Kyoung Sun Moon, Elihu Rubin

Assistant Professors Anthony Acciavatti (*Visiting*), Sunil Bald (*Adjunct*), Joyce Hsiang, Bimal Mendis (*Adjunct*)

Senior Lecturers Marta Justo Caldeira, Bryan Fuermann

Lecturers Kyle Dugdale, Jerome Haferd, Erleen Hatfield, Justin Moore

Senior Critics Katherine Davies, Andrei Harwell, Gavin Hogben

Critics Anne Barrett, Adam Hopfner, George Knight, Timothy Newton, M. Surry
Schlabs

Art

(Drawing, Filmmaking, Graphic Design, Painting/Printmaking, Photography, and Sculpture)

Director of undergraduate studies: Alexandria Smith

(alexandria.m.smith@yale.edu); art.dus@yale.edu, (art.dus@yale.edu) 122 GRN, 432-2600; art.yale.edu

Students in the Art major develop a critical and practical understanding of the visual arts and design through a studio-based curriculum that organically blends practice with critical thinking and art historical precedents; apply fundamentals of visual art across a variety of mediums and disciplines; relate the practice of making art and design to culture and the study areas of art history and theory; and learn to embody the knowledge and practice of at least one artistic discipline through active search and research. Students may concentrate on a medium such as painting/printmaking, sculpture, graphic design, photography, or filmmaking, and interdisciplinary study is supported. Art majors learn to place their own work in the context of an inclusive group of contemporary art worlds and national and global cultures. This study is a crucial element in a liberal arts curriculum both for future arts practitioners and for those ultimately studying and working in other fields. A key element of the creative learning process is the critique, which is implemented via both group settings and one-on-one studio visits with faculty and visiting critics. Through rigorous practice and regular feedback, a student gains insight into one's own critical voice. Art majors have access to the graduate program by attending regular lectures, critiques, events, and exhibitions that represent a diverse set of art practitioners who regularly visit the School of Art.

COURSES FOR NONMAJORS AND MAJORS

Courses in Art are open to all undergraduate students, but are registered by permission of instructor only due to limited class size. In cases where student demand for entry into a course is greater than can be accommodated, priority is given to School of Art students and declared Art and Computing and the Arts majors. The director of undergraduate studies (DUS) and members of the Art faculty typically hold counseling meetings during the registration period. See the Art department website listed above for more information. Students seeking advice about course selection or the program in Art should attend these advising sessions. Others wishing to elect an Art course should visit the course's Canvas site for details, and request instructor permission during the registration period to apply for these limited-enrollment classes. Many studio art courses require the purchase of a limited number of supplies in addition to the materials provided in the class. All Art majors are required to register with the DUS at the beginning of each term to be enrolled or to continue in the major, as well as participate in the sophomore review in the fourth term.

PREREQUISITES

The prerequisites for acceptance into the major are the sophomore review, which is an intensive advising session and evaluation of work from studio courses taken at the Yale School of Art, and five introductory courses (courses numbered 001–199). Four of the introductory courses must have been completed at the time of the sophomore review. Visual Thinking (ART 111) and Basic Drawing (ART 114) are mandatory, and may not

be waived. At the time of the review, the student should be enrolled in the fifth 100-level prerequisite course. In exceptional cases, arrangements for a special review during the junior year may be made with the DUS.

REQUIREMENTS OF THE MAJOR

The Art major requires fourteen courses, including the following: (1) five prerequisite courses at the Introductory level numbered 001–199 (including ART 111 and ART 114); (2) four courses at the 200 level or above; (3) the Junior Seminar (ART 395); (4) the two-term senior project (ART 495 and ART 496); and (5) two courses in the history of art, or DUS-approved equivalent. A student who has completed five courses numbered 001–199 may count a sixth such course towards the 200-level course requirement. Program guidelines and specific requirements for the various areas of concentration are described below.

Areas of concentration Each Art major selects an area of concentration from five possible choices: (1) graphic design, (2) painting/printmaking, (3) photography, (4) sculpture, and (5) filmmaking. Suggested courses for the *graphic design concentration* are: ART 132, 264, 265, 266 or 368; ART 369 or 370; and ART 468 or 469. Specific courses recommended for the *painting/printmaking concentration* are ART 116, 130, 331 or 332; ART 224, 245 or 356; and ART 421, 432, 433 or 457. Students in the *photography concentration* should take ART 136 and/or 138; ART 237 and/or 239; ART 337 or 338; ART 379 and 401. The *sculpture concentration* recommends 2 of the following: ART 110, 120, 121, 122 or 123; and 3 of the following: ART 210, 346, 348, 371 or 446. Required courses for the *filmmaking concentration* are ART 142, 341, 342, and ART 442 or 443. Students in the filmmaking concentration may substitute two non-production courses in Film and Media Studies for the history of art requirement, and the same for other concentrations only with permission of the DUS. Students wishing to work interdisciplinarily should consult with the DUS.

Credit/D/Fail Courses taken Credit/D/Fail may be counted toward the requirements of the major.

SENIOR REQUIREMENT

The senior requirement consists of a two-term senior project, ART 495 and ART 496.

UNIQUE TO THE MAJOR

Summer fellowship Art majors are eligible to apply for the Ellen Battell Stoeckel Fellowship for study at the Yale University Summer School of Music and Art in Norfolk, Connecticut. Applicants for the program must be officially classified as junior Art majors and be returning to Yale for two terms of their senior year. The program awards up to three course credits for work successfully completed. These credits may be used toward the requirements of the Art major at the discretion of the DUS.

Repeated and outside courses Some Art courses may be repeated for credit, with permission of both the instructor and the DUS. Course credits in studio art earned at other institutions may, in some cases, be applied toward the requirements of the major, but not to replace the two prerequisites, and is done solely at the discretion of the DUS and subject to a faculty review process.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Favorable faculty review of work done in studio courses before end of sophomore year; ART 111 and 114; 3 addtl courses numbered 001–199

Number of courses 14 courses (incl prereqs and yearlong senior project)

Specific courses required *All concentrations*—ART 395; *Graphic design*—ART 132, 264, 265, 266 or 368; ART 369 or 370; and ART 468 or 469; *Painting/printmaking*—ART 116, 130, 331 or 332; ART 224, 245 or 356; and ART 421, 432, 433 or 457; *Photography*—ART 136 and/or 138; ART 237 and/or 239; ART 337 or 338; ART 379, 401; *Sculpture*—any 2 of ART 110, 120, 121, 122 or 123; and any 3 of ART 210, 346, 348, 371, or 446; *Filmmaking*—ART 142, 341, 342; ART 442 or 443

Distribution of courses 4 courses at 200 level or above; 2 courses in hist of art

Senior requirement Two-term senior project (ART 495, 496)

Substitution permitted *Filmmaking concentration*—2 courses in Film and Media Studies may be substituted for the hist of art req

MEMBERS OF THE SCHOOL OF ART TEACHING IN YALE COLLEGE

Professor Martin Kersels

Associate Professor Meleko Mokgosi

Senior Critics Julian Bittiner, Sandra Burns, Alice Chung, Benjamin Donaldson, Pamela Hovland, Matthew Keegan, Lisa Kereszi, Sophy Naess, Christopher Pullman, A.L. Steiner, Sarah Stevens-Morling, Elizabeth Tubergen, Henk Van Assen

Critics Beverly Acha, Michel Auder, Yeju Choi, Rachelle Dang, Maria de Los Angeles, Neil Goldberg, Halsey Rodman, Karin Schneider, Douglass Scott, Alexander Valentine, Anahita Vossoughi, Molly Zuckerman-Hartung

Lecturers Jonathan Andrews, American Artist, Elena Bertozzi, Nathan Carter, Luiza Dale, Luchina Fisher, Ben Hagari, Shira Inbar, Hasabie Kidanu, Desmond Lewis, Jesse Marsolais, Rosa McElheny, Ted Partin, Michael Rader, Kern Samuel, Ryan Sluggett, Greg Parma Smith

Astronomy & Astrophysics

Director of undergraduate studies: Marla Geha (marla.geha@yale.edu); astronomy.yale.edu

Astronomy and Astrophysics are quantitative physical sciences that apply physics, mathematics, and statistical analysis to observing, describing, and modeling the universe. The courses and degree programs offered by the Department of Astronomy train students in research techniques and quantitative reasoning and develop creative problem solvers. The department offers a B.A. degree in Astronomy and a B.S. degree in Astrophysics. The Astronomy degree is intended for students who plan to continue in adjacent fields such as science policy and science journalism. The Astrophysics degree is intended for students who plan to attend graduate school in related fields. Students who complete either major are sought after by employers in a range of fields from healthcare management to the banking and investment industry.

INTRODUCTORY COURSES

Introductory courses with no prerequisites The department offers a variety of courses without prerequisites that provide an introduction to astronomy with particular attention to recent discoveries and theories. Courses numbered below 150 are intended for students who desire a broad, nontechnical introduction to astronomy. These courses fulfill the science distributional requirement, and some also fulfill the quantitative reasoning distributional requirement.

Courses with numbers from 150 to 199 are topical rather than survey courses. Most of these offerings fulfill both the science and the quantitative reasoning requirements. ASTR 155 is a laboratory course that provides a hands-on introduction to astronomical observing. ASTR 160 and 170 provide an introduction to frontier topics in modern astrophysics and cosmology.

Introductory courses with high school calculus and physics prerequisites Students who have taken calculus and physics in high school may enroll in quantitative introductory courses. ASTR 210 and ASTR 220 focus on fundamental measurements and tools used in astronomy and include an in-depth study of stellar astrophysics (ASTR 210) or galaxies and cosmology (ASTR 220). These courses overlap in content, so students should take either ASTR 210 or ASTR 220, but not both. ASTR 255 provides training in data analysis and research techniques, including computer programming and numerical and statistical analysis.

PREREQUISITES

B.A. degree program The prerequisites for the B.A. degree are PHYS 170 and 171, or PHYS 180 and 181, or PHYS 200 and 201, and MATH 112 and 115.

B.S. degree program Prerequisites for the B.S. degree include an introductory physics sequence (PHYS 180 and 181, or PHYS 200 and 201, or PHYS 260 and 261); a physics laboratory sequence (PHYS 165L and 166L, or PHYS 205L and 206L); and the mathematics sequence MATH 112, 115, and either MATH 120 or ENAS 151. ASTR 155 may be substituted for one term of the physics laboratory sequence. All prerequisites should be completed by the end of the sophomore year.

Prerequisites for advanced electives Courses numbered 300 and above are specialized and intensive. The prerequisites for these courses include ASTR 210 or ASTR 220, multivariable calculus, and two terms of introductory college physics.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program in Astronomy is designed for students who do not plan to continue in a graduate program in astronomy, but who are interested in the subject as a basis for a liberal arts education or as a physical science background to careers such as medicine, teaching, journalism, business, law, or government. It allows greater flexibility in course selection than the B.S. program because the emphasis is on breadth of knowledge rather than on specialization.

Ten courses are required beyond the prerequisites, including either ASTR 210 or 220; ASTR 255; ASTR 310; one additional Astronomy elective numbered 150 or above; and the senior requirement (ASTR 492). Two of the ten courses must be advanced courses in mathematics, such as MATH 120 or ENAS 151, or courses in mathematical methods, including statistics or computer science, such as CPSC 112, MATH 200 or above, or ASTR 356. Three electives can be drawn from any of the natural, applied, or mathematical sciences (including additional astronomy courses); at least two of these must be advanced enough to have college-level prerequisites.

B.S. degree program The B.S. degree program in Astrophysics is designed to provide a strong foundation in astrophysics for students interested in graduate study or a career in astronomy, physics, or a related science.

Beyond the prerequisites, twelve courses are required in astronomy, physics, and mathematics. Students complete at least six courses in astronomy, including either ASTR 210 or 220; ASTR 255; ASTR 310; ASTR 320; and a two-term senior project (ASTR 490 and 491). Students also complete three physics courses numbered 400 or above, normally PHYS 401, 402, and 439. In addition, majors choose either one additional 400-level course in physics or an astronomy elective numbered 300 or higher. In mathematics, students complete a course in differential equations selected from MATH 246, PHYS 301, or ENAS 194, and either an additional mathematics course numbered 200 or above or a course in statistics or computing such as CPSC 112, 201, or ASTR 356.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of either degree program.

SENIOR REQUIREMENT

B.A. degree program The senior requirement consists of a senior essay or independent research project carried out for one term in ASTR 492 under the supervision of a faculty member.

B.S. degree program The senior requirement consists of an independent research project in astronomy carried out for two terms in ASTR 490 and 491 under the supervision of a faculty member.

ADVISING

Before entering the junior year, students must obtain approval of a course of study from the director of undergraduate studies (DUS).

Graduate work Graduate courses in astronomy are open to qualified undergraduates who already have a strong preparation in mathematics, physics, and astronomy. Students wishing to take a graduate course must first obtain the permission of the instructor and of the director of graduate studies.

SUMMARY OF MAJOR REQUIREMENTS

ASTRONOMY, B.A.

Prerequisites PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201; MATH 112, 115

Number of courses 10 courses beyond prereqs, incl senior req

Specific courses required ASTR 210 or ASTR 220; ASTR 255; ASTR 310

Distribution of courses 1 astronomy elective numbered 150 or above; 2 advanced math courses; 3 science electives (may include addtl astronomy courses), at least 2 with college-level prereqs

Senior requirement Senior essay or senior research project (ASTR 492)

ASTROPHYSICS, B.S.

Prerequisites PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261; PHYS 165L, 166L, or PHYS 205L, 206L; MATH 112, 115; MATH 120 or ENAS 151

Number of courses 12 courses beyond prereqs, incl senior req

Specific courses required ASTR 210 or 220; ASTR 255; ASTR 310; ASTR 320

Distribution of courses 3 courses in physics numbered 400 or above; 1 addtl course in astronomy numbered 300 or above or in physics numbered 400 or above; 2 courses in math or mathematical methods, as specified

Substitution permitted ASTR 155 for 1 term of physics lab prereq

Senior requirement Senior independent research project (ASTR 490 and 491)

FACULTY OF THE DEPARTMENT OF ASTRONOMY

Professors Hector Arce, Charles Bailyn, †Charles Baltay, Sarbani Basu (*Chair*), Paolo Coppi, Pierre Demarque (*Emeritus*), Debra Fischer, Marla Geha, Jeffrey Kenney, Richard Larson (*Emeritus*), Gregory Laughlin, Priyamvada Natarajan, †C. Megan Urry, William van Altena (*Emeritus*), Frank van den Bosch, Pieter van Dokkum, Robert Zinn

Associate Professors †Daisuke Nagai, †Nikhil Padmanabhan

Assistant Professor Malena Rice

Lecturer Michael Faison

†A joint appointment with primary affiliation in another department.

Biology

Program coordinator: Edgar Benavides (edgar.benavides@yale.edu) and Thomas Loreng (thomas.loreng@yale.edu)

Yale offers four biological science majors: Ecology and Evolutionary Biology (E&EB); Molecular Biophysics and Biochemistry (MB&B); Molecular, Cellular, and Developmental Biology (MCDB); and Neuroscience (NSCI). The distinctions between these majors reflect the types of biological systems analysis each represents: the analysis of whole organisms, populations, and ecosystems (E&EB); the analysis of life at the molecular level using tools of chemistry and physics (MB&B); the analysis of molecular, cellular, and developmental biology, genetics, neurobiology, and quantitative biology (MCDB); and the analysis of neurons, neural circuits, brains, and behavior, using a wide range of approaches (NSCI). Yale also offers the Biomedical Engineering (BENG) major for students interested in studying biological systems from the perspectives of the physical sciences and engineering.

Together, these approaches cover the vast breadth of disciplines in the biological sciences. The courses BIOL 101–104 are designed as entry points to all four programs. The prerequisites for the four majors are similar, so students need not commit to a specific major in their first year. Students who wish to major in any of the four tracks (E&EB, MB&B, MCDB, and NSCI) must complete all four modules.

For information on the major requirements, course offerings, and departmental faculty of the biological sciences programs, see Ecology and Evolutionary Biology; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; and Neuroscience. See also information for Biomechanical Engineering.

Biomedical Engineering

Director of undergraduate studies: Lawrence H. Staib (lawrence.staib@yale.edu), N309 B TAC, 785-5958; seas.yale.edu/departments/biomedical-engineering

Engineering methods and strategies are used to address biomedical problems ranging from studies of physiological function using images to the development of novel drug delivery methods and new biomaterials. The B.S. degree in Biomedical Engineering is designed to provide students with an understanding of common fundamental methodologies in biomedical engineering and the ability to develop quantitative approaches to one of four biomedical engineering concentrations: Bioimaging, Biomechanics and Mechanobiology, Biomolecular Engineering, and Systems Biology. The course structure of the major permits students to bridge basic concepts in the life sciences and traditional areas of engineering, while gaining a comprehensive understanding of biomedical engineering as a field of study. The program provides graduates with an excellent background for graduate study in biomedical engineering and related areas, or in medicine and other health professions as well as for a diverse range of careers in industry, consulting, or government.

PREREQUISITES

The following prerequisites are common to all concentrations in the major: BIOL 101 and 102 or a higher-level course in MCDB or MB&B, with the permission of the director of undergraduate studies (DUS); a lecture course in chemistry numbered CHEM 161 or higher; MATH 115 or 116 (not necessary if placed into MATH 120 or ENAS 151); MATH 120 or ENAS 151; ENAS 194; PHYS 180, 181 and PHYS 205L, 206L or PHYS 165L, 166L. Students with advanced high school preparation may move ahead to more advanced courses with DUS permission.

REQUIREMENTS OF THE MAJOR

Students must complete thirteen term courses, totaling at least eleven course credits, beyond the prerequisites, including at least three required courses in the chosen concentration and the senior requirement (see below). During the first two years, students study basic biology, chemistry, mathematics, and physics (see prerequisites). By the end of the sophomore year, students should have taken BENG 280, 249, and 350. In the junior year, students gain a comprehensive grounding in the field through BENG 351, 352, 353, 355L, and 356L. During the junior and senior years, students acquire depth by taking electives in one of the four concentrations. One relevant course (e.g. MB&B 300) may be substituted with DUS permission. A senior seminar (BENG 480) provides information about the field and a senior project (BENG 474 or BENG 473, 474) allows students to explore an area in depth.

Students in all concentrations are required to take the following courses: BENG 249, 280, 350, 351, 352, 353, 355L, 356L, and 480.

Students in the *Bioimaging concentration* (YC BENG: Bioimaging) must also take three courses chosen from, e.g., BENG 404, 406, 410, 444, 445, 449, 475, 476, or 485.

Students in the *Biomechanics and Mechanobiology concentration* (YC BENG: Biomchncs&Mchnbiology) must also take three courses chosen from, e.g., MENG 185, 361, BENG 404, 406, 410, 422, 456, or 458.

Students in either the Biomolecular Engineering concentration (YC BENG: Biomolecular Engrng) and the **Systems Biology concentration** (YC BENG: Systems Biology) must also take three courses chosen from, e.g., BENG 404, 406, 410, 411, 422, 435, 463, 465, 467, 468, 469, MENG 361.

Research Courses Students are permitted and encouraged to engage in research before the senior year by enrolling in BENG 471 and/or BENG 472. These courses, offered Pass/Fail, may be taken more than once for credit.

Searchable Attributes YC BENG: Bioimaging, YC BENG: Biomchncs&Mchnbiology, YC BENG: Biomolecular Engrng, YC BENG: Systems Biology

Credit/D/Fail No course taken Credit/D/Fail may count toward the major, including prerequisites.

SENIOR REQUIREMENT

In their sophomore year, all students must enroll in BENG 280 and in their senior year, all students must enroll in BENG 480; both are half-credit courses. They must also complete a one-term senior project in their final term of enrollment (BENG 474) or a two-term, yearlong project (BENG 473, 474).

ADVISING

Preparation for graduate study The Biomedical Engineering curriculum is excellent preparation for graduate study in engineering, science, and medicine.

Combined B.S./M.S. degree program Exceptionally able and well-prepared students may apply to complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Biomedical Engineering.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites BIOL 101 and 102, or higher-level course in MCDB or MB&B with DUS permission; 1 lecture course in chemistry numbered CHEM 161 or higher; ENAS 194; MATH 115 or 116 (not necessary if placed into MATH 120 or ENAS 151); MATH 120 or ENAS 151; PHYS 180, 181 and PHYS 205L, 206L or PHYS 165L, 166L.

Number of courses 13 term courses, totaling at least 11 course credits, beyond prerequisites (incl senior req)

Specific courses required *All concentrations*—BENG 249, 280, 350, 351, 352, 353, 355L, 356L, 480

Distribution of courses *All concentrations*—see above for suggested courses for each concentration

Substitution permitted Relevant course with DUS permission

Senior requirement BENG 280, a half-credit course taken sophomore year; BENG 480, a half-credit course taken senior year; a one-term senior project in final term of enrollment (BENG 474) or two-term, yearlong senior project (BENG 473 and 474)

FACULTY OF THE DEPARTMENT OF BIOMEDICAL ENGINEERING

Professors †Helene Benevise, †Joerg Bewersdorf, Richard Carson, †Nicholas Christakis, †Todd Constable, †Robin de Graaf, James Duncan, Rong Fan, †Henry Hsia, Jay Humphrey, Fahmeed Hyder, Themis Kyriakides, †Francis Lee, Andre Levchenko, †Graeme Mason, †Evan Morris, †Xenophon Papademetris, Douglas Rothman, Mark Saltzman, †Martin Schwartz, †Frederick Sigworth, †Albert Sinusas, †Brian Smith, Lawrence Staib, †Hemant Tagare, †Paul Van Tassel, Steven Zucker

Associate Professors Stuart Campbell, Tarek Famy, †Gigi Galiana, Anjelica Gonzalez, †Michelle Hampson, Farren Isaacs, †Chi Liu, Kathryn Miller-Jensen, Michael Murrell, †Dana Peters, †Dustin Scheinost, †Jiangbing Zhou

Assistant Professors †Daniel Coman, †Nicha Dvornek, †Ansel Hillmer, Michael Mak, Christina Rodriguez, Gregory Tietjen, †Daniel Wiznia

Research Scientist †Steven Tommasini

Lecturers †Liqiong Gui, †Jing Zhou

†A joint appointment with primary affiliation in another department or school.

British Studies

(Courses at the Paul Mellon Centre in London)

Director of undergraduate studies: Jemma Field (jemma.field@yale.edu)

The Yale in London program offers Yale undergraduates the opportunity to take spring or summer courses in London at the Paul Mellon Centre for Studies in British Art. The program provides students the opportunity to go beyond the traditional classroom into the vibrant London environment, where they view great works of art in museums and galleries; explore historic palaces and houses; and watch new and legendary actors perform in live theatre.

All students who participate in the program are expected to enroll fulltime, which the program defines as four courses in the spring and two courses in the summer. There are no prerequisites and students from any major and from any year of study may apply. All courses carry full Yale College credit. Students may elect to take up to two courses Credit/D/Fail during the spring term, but they must enroll in at least two courses, representing at least two course credits, for a letter grade as indicated in Section B, Grades in the Academic Regulations. Courses are taught seminar-style by Yale faculty and leading academics from the United Kingdom. Courses bring together British art, architecture, history, literature, theatre, and culture to explore Britain's identity and impact, both local and global, from the Medieval period to today. Classes are held Monday through Thursday so that students can explore London and beyond in the afternoons and on weekends.

Further information on housing, fees, financial aid, and student life is available on the program website. Inquiries about the program, described under "International Experience" in The Undergraduate Curriculum, may be directed to yaleinlondon@yale.edu.

The application deadline for the spring term is in October and the application deadline for the summer program is generally in February. See the Yale in London website for exact deadlines. Students are notified of acceptance within one month of the application deadline.

Chemical Engineering

Director of undergraduate studies: Paul Van Tassel (paul.vantassel@yale.edu); seas.yale.edu/departments/chemical-and-environmental-engineering

Energy, the environment, and health care are key challenges facing humanity in the twenty-first century. Chemical engineering is a discipline well placed to confront these challenges. Chemical engineering is rooted in the basic sciences of mathematics, chemistry, physics, and biology; a traditional engineering science core of thermodynamics, transport phenomena, and chemical kinetics; a rigorous design component; and an expanding focus on emerging topics in materials, nanotechnology, and life sciences. The discipline has grown from its petrochemical origins to become central to state-of-the-art technologies in microelectronics, alternative energy, biomedicine, and pharmaceuticals.

The Chemical Engineering program, with two degree programs (see below), is principally focused on basic and engineering sciences and on problem solving. Additional emphasis is on communication, analysis of experiments, and chemical process design. A special feature of the program is the accessibility of laboratory research – most chemical engineering majors participate in faculty-led research projects, often resulting in publication and/or presentation at national meetings.

Chemical engineering graduates find a wide range of professional opportunities in academia, industry, government, business, and the nonprofit sector. Many majors go on to graduate programs in chemical, biomedical, or environmental engineering, or to medical, law, or business schools.

Upon graduation, Yale's Chemical Engineering students are expected to have achieved "Student Outcomes" as defined by ABET (www.abet.org) and the program. The Chemical Engineering major produces graduates who demonstrate: (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics; (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors; (3) an ability to communicate effectively with a range of audiences; (4) an ability to recognize ethical and professional responsibilities in engineering situations and to make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts; (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives; (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions; and (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Yale and ABET also look ahead, several years beyond graduation. Program educational objectives provide the expectations for graduates early in their career. The Chemical Engineering objectives are to produce graduates who: (1) have mastery of the basic principles of science and modern chemical engineering practice and are able to adapt and creatively apply them to solve new problems in a broad range of fields; (2) become ethical professionals who advance chemical engineering practice and knowledge in

multiple fields and recognize the local and global impacts of their work on humans and the environment; (3) are able to work well with people from diverse backgrounds and are committed to the advancement of women and under-represented groups in engineering; (4) have a strong educational foundation enabling them to study in graduate and professional schools as well as become leaders in STEM or non-STEM career paths; and (5) are committed to, and engage in, lifelong learning throughout their careers.

PREREQUISITES

Students considering a Chemical Engineering major are encouraged to take two terms of chemistry and mathematics during the first year, and to contact the director of undergraduate studies (DUS).

Students in both degree programs (see below) take the following prerequisite courses: MATH 112, 115, and ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260. Students with advanced high school preparation may reduce the number of prerequisites by placing out of certain courses.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements may be fulfilled by students who declared the major in a prior term.

Two degree programs are offered: a B.S. in Chemical Engineering accredited by the Engineering Accreditation Commission of ABET, Inc., and a B.S. in Engineering Sciences (Chemical). All students majoring in Chemical Engineering and Engineering Sciences (Chemical) must follow the requirements listed below as approved by the program's faculty.

B.S. degree program in Chemical Engineering The curriculum for the ABET-accredited B.S. degree in Chemical Engineering requires 19 courses, totaling 18.5 credits, including the senior requirement (CENG 416), and the following courses beyond the prerequisites:

1. Computing: ENAS 130 or CPSC 100 or CPSC 112 or CPSC 200
2. Mathematics: ENAS 194
3. Chemistry: CHEM 174 or CHEM 220; CHEM 222L; CHEM 332 and 333
4. Engineering science: Four term courses chosen from engineering electives
5. Chemical engineering: CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411, 412L, 480

B.S. degree program in Engineering Sciences (Chemical) The B.S. degree in Engineering Sciences (Chemical) requires 12 term courses for 12 credits, including the senior requirement, CENG 416 or CENG 490, and the following courses beyond the prerequisites, chosen in consultation with the DUS:

1. Computing: ENAS 130 or CPSC 100 or CPSC 112 or CPSC 200
2. Mathematics: ENAS 194

3. Chemistry: CHEM 174 or CHEM 220; and CHEM 332
4. Engineering science (chemical): One term course chosen from engineering electives
5. Chemical engineering: CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411

SENIOR REQUIREMENT

B.S. degree program in Chemical Engineering In their senior year, students must complete a senior research project in CENG 416.

B.S. degree program in Engineering Sciences (Chemical) In their senior year, students must complete a senior research project in CENG 416 or CENG 490.

SUMMARY OF MAJOR REQUIREMENTS

CHEMICAL ENGINEERING, B.S.

Prerequisites MATH 112, 115; ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260.

Number of courses 19 courses, totaling 18.5 credits, beyond prereqs (incl senior req)

Specific courses required ENAS 194; CHEM 174 or CHEM 220; CHEM 222L; CHEM 332, 333; CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411, 412L, 480

Distribution of courses 1 from ENAS 130, CPSC 100, 112, or 200; 4 addtl electives in engineering

Senior requirement CENG 416

ENGINEERING SCIENCES (CHEMICAL), B.S.

Prerequisites MATH 112, 115; ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260.

Number of courses 12 term courses for 12 credits beyond prereqs (incl senior req), chosen in consultation with DUS

Specific courses required ENAS 194; CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411

Distribution of courses 1 from ENAS 130, CPSC 100, 112, or 200; CHEM 174 or CHEM 220; CHEM 332; 1 engineering elective

Senior requirement CENG 416 or CENG 490

FACULTY OF THE DEPARTMENT OF CHEMICAL AND ENVIRONMENTAL ENGINEERING

Professors Eric Altman, †Paul Anastas, †Michelle Bell, †Ruth Blake, Menachem Elimelech, John Fortner, Gary Haller (*Emeritus*), †Edward Kaplan, Jaehong Kim, Michael Loewenberg, †Andrew Miranker, Jordan Peccia, Lisa Pfefferle, Daniel Rosner (*Emeritus*), †Mark Saltzman, †Udo Schwarz, T. Kyle Vanderlick, Paul Van Tassel, Julie Zimmerman

Associate Professors Drew Gentner, Mingjiang Zhong

Assistant Professors Peijun Guo, Amir Haji-Akbari, †Shu Hu, Lea Winter

Lecturers †Anikó Bezur, †Paul Whitmore

†A joint appointment with primary affiliation in another department or school.

Chemistry

Director of undergraduate studies: Patrick Vaccaro (patrick.vaccaro@yale.edu) [Fall 2023]; Patrick Holland (patrick.holland@yale.edu) [Spring 2024]; chem.yale.edu

The wide range of courses offered by the Department of Chemistry reflects the position of chemistry as the foundation of all the molecular sciences. In addition to graduate work in chemistry, biochemistry, or health-related disciplines, the department's graduates find their broad scientific training useful in fields such as technology policy, business management, and law. Chemistry is an especially appropriate major for students interested in energy research or policy and the environment.

COURSES FOR NONMAJORS WITHOUT PREREQUISITES

The Chemistry department offers one-term courses with no prerequisites, which are intended for non-science majors. These courses do not satisfy medical school requirements or the general chemistry requirement for any science major. Courses for nonmajors are numbered CHEM 100–109.

PREREQUISITES AND INTRODUCTORY COURSES

Prerequisite courses Required prerequisites for the Chemistry degree programs are: two terms of general chemistry and laboratory; single-variable calculus at the level of MATH 115 or MATH 116; and one term of introductory physics numbered 170 or higher, or advanced placement beyond these levels in math or physics. Students also are encouraged to complete a course in multivariable calculus (MATH 120, MATH 121, or ENAS 151); these courses or more advanced math courses fulfill the math prerequisite. All prerequisite courses must be taken for a letter grade; if they are taken as Audit or Credit/D/Fail they will not satisfy the requirement.

Introductory courses The majority of students begin with a general chemistry sequence: either CHEM 161 and 165 or CHEM 163 and 167. These courses fulfill the prerequisite for general chemistry in the Chemistry major. Students taking CHEM 161 may be studying chemistry for the first time, perhaps took chemistry as a high school sophomore, or even may have completed AP chemistry but did not fully master the subject at that level. Students in CHEM 163 will have completed a year or two of chemistry later in high school, although motivated students may have last taken chemistry as a high-school sophomore if they have a strong math and physics background. Typically students who complete CHEM 163 in the fall term complete CHEM 167 in the spring term. Regardless of whether a student completes the CHEM 161 and 165 sequence or the CHEM 163 and 167 sequence, the introductory laboratory sequence is CHEM 134L and 136L; each laboratory course gives one-half course credit.

Students with a sufficiently strong background in chemistry may initiate their studies with courses in organic or physical chemistry after demonstrating proficiency on the department's placement examination. While CHEM 174 and 175 are offered only to first-year students, other courses in organic chemistry, including CHEM 220 and 221, also are available to qualified first-year students. Students with a strong background in physics and calculus may be eligible for the physical chemistry

courses CHEM 332 and 333 in the first year if they have fulfilled the math and physics requirements.

PLACEMENT PROCEDURES

Details about placement and preregistration for chemistry courses can be found on the department website. Information about the placement examination and advising also are available on the department website.

Permission Enrollment in CHEM 163 or CHEM 174 through the registration system requires permission from the department. Permission is issued automatically after placement has been completed for entering first-year students. For more information email chemistry.dus@yale.edu.

Upper-level students Upper-level students wishing to take CHEM 161 or 163 should confirm their placement on Canvas@Yale by accessing the Chemistry Placement site that corresponds to their year of matriculation. If permission is required in the registration system, upper-level students should write to chemistry.dus@yale.edu. Those wishing to enroll in CHEM 220 may do so as long as they have satisfied the general chemistry prerequisite.

Section registration in laboratory and lecture courses Information about online registration for laboratory and discussion sections can be found in the description for each laboratory or lecture course in Yale Course Search.

Advanced courses All chemistry advanced lecture courses numbered 400 and higher are half-semester courses, which count for 0.5 Yale College credits. These courses are held in the first half of the semester or in the second half of the semester. Information about the timing of courses is available in Yale Course Search. Because most advanced courses are offered either in the fall term or have a fall-term course as a prerequisite, students should give consideration to the advanced courses they plan to take in the spring term. For the purpose of degree requirements, all undergraduate Chemistry courses numbered 401 or higher, approved by the director of undergraduate studies (DUS), typically count as advanced lecture or laboratory courses, as do CHEM 226L, 251L, 331L, 349L, 355L, and 335L. Many graduate-level Chemistry courses (those numbered 500 and above) also may count toward the advanced-course requirement; consult the DUS for information about eligible courses.

For premedical students Medical schools currently require one year of organic chemistry and laboratory as well as one year of general chemistry and laboratory. The general chemistry requirement may be satisfied by completing CHEM 161 and 165, CHEM 163 and 167, or two terms of physical chemistry. Students should consult with the Office of Career Strategy for the most up-to-date premedical course advice.

REQUIREMENTS OF THE MAJOR

Four degree programs are offered: the B.A., the B.S., an intensive major leading to the B.S., and the combined B.S./M.S. The B.A. degree is intended for students who want solid training in the chemical sciences and who also intend to study other subjects in which chemical training would be an asset, such as technology policy, economics, or the environment. The B.S. degree is intended to prepare students for graduate study while permitting extensive exploration of other disciplines and is also recommended for those planning to attend graduate school. The B.S. degree with an intensive major provides

more focused preparation for a career in chemical research, and requires greater breadth in laboratory courses and electives. The combined B.S./M.S. is designed for students whose advanced preparation qualifies them for graduate-level work in their third and fourth years of college.

The major requires a group of prerequisites or their equivalent in advanced placement, a core of courses common to all four degree programs, advanced courses specific to each degree program, and a senior requirement.

Course requirements common to all Chemistry degree programs All degrees require the following 5 credits with two terms of organic chemistry (CHEM 174 or 220, and CHEM 175, 221, or 230) with laboratory (CHEM 222L and 223L), one term of physical chemistry (CHEM 332 or 328), and one term of inorganic chemistry (CHEM 252).

B.A. degree program The B.A. degree program requires ten course credits beyond the prerequisites. In addition to the common degree requirements and one-term senior requirement, the B.A. degree requires four additional course credits of advanced chemistry lecture or laboratory courses. At least one full credit must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course. CHEM 333 may be counted toward the advanced-course requirement, although not as the sole lecture course.

B.S. degree program The B.S. degree program requires thirteen course credits beyond the prerequisites. In addition to the common degree requirements and two-term senior requirement, the B.S. degree requires completion of a second term of physical chemistry (CHEM 333), one term of physical chemistry laboratory (CHEM 330L), and four additional course credits of advanced chemistry lecture or laboratory courses. At least one full credit must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course.

B.S. degree program, intensive major The B.S. degree program, intensive major requires fifteen course credits beyond the prerequisites. In addition to the common degree requirements and two-term senior requirement, the B.S. degree with an intensive major requires completion of a second term of introductory physics numbered 171 or higher, a second term of physical chemistry (CHEM 333), one term of physical chemistry laboratory (CHEM 330L), and five additional course credits of advanced chemistry lecture or laboratory courses. At least two full credits must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course.

Combined B.S./M.S. degree Exceptionally well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. Formal application for admission to this program must be made no later than the last day of classes in the fifth term of enrollment. To be considered for admission, by the end of their fifth term applicants must have achieved at least two-thirds A or A– grades in all of their course credits as well as in all of the course credits directly relating to the major, including prerequisites. Two terms of CHEM 490 must be taken in the fifth and sixth terms with earned grades of A or A– to continue in the program. The B.S./M.S. degree program requires completion of the intensive major requirements, including the senior requirement, which typically is completed in the fifth and sixth terms. The introductory physics requirement must

be fulfilled with PHYS 200 and 201 or PHYS 260 and 261; a term course in physics numbered 400 or higher and approved by the Chemistry DUS may be substituted for the introductory sequence. In addition, eight credits of graduate courses in chemistry (four of which count toward the B.S.) are required. Four terms of research are required, including two terms of research taken in CHEM 990. Students in the program must earn grades of A in at least two of their graduate-level term courses (or in one yearlong course) and have at least a B average in other graduate-level courses. B.S./M.S. candidates also are expected to continue their independent research in a summer internship between their junior and senior years. At the end of their eighth semester students are required to write a thesis summarizing their research activities. The thesis must be written under the guidance of the faculty member who supervises the student's research and it must be submitted to their research adviser on the final day of classes of the student's eighth semester. The thesis should be no shorter than twenty-five pages (double-spaced, twelve-point font, excluding figures, tables, and bibliography) and normally should contain the following sections: Introduction, Results and Discussion, Summary and Conclusions, Research Methods, and Bibliography. Students in the B.S./M.S. program, must also present their research in the form of a poster presentation at the end of their sixth semester (to fulfill the requirements of the B.S. degree) and an oral presentation at the end of their eighth semester (to fulfill the requirements of the M.S. degree). Both the poster and oral presentation are coordinated by the instructor of CHEM 490. For more information, see Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

Credit/D/Fail No chemistry courses taken Credit/D/Fail may be counted toward the major (including substitutions for advanced courses).

SENIOR REQUIREMENT

For the B.A. degree program Students in the B.A. degree program must complete the senior seminar CHEM 400, in which they prepare a capstone essay on a chemistry-related topic. The capstone essay is expected to be 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography).

For the B.S. degree program Students in the B.S. degree program may fulfill the senior requirement by completing two terms of the independent research course CHEM 490 and writing a capstone report under the guidance of a faculty member that describes their research activities. Alternatively, they may complete the senior seminar CHEM 400, in which they prepare a capstone essay on a chemistry-related topic, and complete one additional course credit of advanced chemistry lecture or laboratory course or CHEM 490. The capstone report or essay is expected to be 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography). All students performing research also must present their work in the form of an oral or poster presentation as coordinated by the instructor of CHEM 490.

For the B.S. degree program with an intensive major Students in the B.S. degree program with an intensive major fulfill the senior requirement by completing two terms of the independent research course CHEM 490 and writing a capstone report of 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography) under the guidance of a faculty member that describes their research

activities. Students in the intensive major program also must present their work in the form of an oral or poster presentation as coordinated by the instructor of CHEM 490.

ADVISING

Majors are encouraged to begin their programs in the first year to provide the greatest flexibility in scheduling. It is possible, however, to complete the B.S. in as few as six terms if a student has advanced placement. One sample B.S. program follows, but many others are possible:

First-Year	Sophomore	Junior	Senior
CHEM 161, 165, 134L, 136L, math prereq	CHEM 220, 221, 252, 222L, 223L, physics prereq	CHEM 332, 333, 330L, 251L, 1 elective (1 credit)	2 terms of CHEM 490, 2 electives (2 credits)

Substitutions for required courses Up to two credits of advanced science courses outside Chemistry may be counted as electives, with the written approval of the DUS. CHEM 490 may not in any circumstance be substituted for any of the laboratory requirements. The graduate courses CHEM 562L, 564L, and 565L may not be counted toward any requirement of the major.

Programs of study with special emphasis The flexibility of the degree requirements makes it possible for a student's program of study to emphasize a particular area of specialization in chemistry. For example, a program specializing in chemical biology may include CHEM 419 and biochemistry electives such as MB&B 300 or 301. An inorganic chemistry specialization could include CHEM 402 and 403. A program with emphasis in physical chemistry and chemical physics would have electives such as CHEM 466, 472, or 496. Students interested in synthetic organic chemistry could complete electives such as CHEM 416, 423, or 528. An emphasis in biophysical chemistry includes a course in either chemical biology or biochemistry, as well as electives chosen from graduate courses in biophysics or biochemistry. Students may design programs with other areas of emphasis in consultation with the DUS. For a list of graduate courses appropriate for a particular specialization, consult the DUS.

Approval of major programs of study All Chemistry majors in their sophomore, junior, and senior years must have their programs approved by the DUS. A program tailored to each student's goals is created and recorded on a Chemistry Course of Study (COS) form and submitted to chemistry.dus@yale.edu.

STUDY ABROAD

Chemistry majors wishing to study abroad typically find their course of study easier to schedule if the semester abroad is a spring term. Students studying abroad in the spring term of their junior year are required to obtain approval for the project that will fulfill their senior requirement before the end of the prior term. For general information on the Year or Term Abroad, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

UNIQUE TO THE MAJOR

Special restrictions on lecture courses For the general, organic, or physical chemistry sequences, CHEM 161 and 165; CHEM 174 or 220 and CHEM 175, 221, or 230; and CHEM 332 or CHEM 328 and 333, completion of the first term with a passing grade is a

prerequisite for registration in the subsequent term. Completion of CHEM 163 with a passing grade is a prerequisite for registration in CHEM 167.

Students receive credit for only one chemistry sequence of any given type. For example, a student who has completed CHEM 161 and 165 may not subsequently enroll in CHEM 163 or 167; a student who has completed CHEM 174 and 175 may not subsequently enroll in CHEM 220, 221, or 230. Similarly, students may not enroll in a course (typically of lower number) that is a prerequisite to a course they already have taken. For example, a student who has completed an organic chemistry laboratory cannot subsequently enroll in a general chemistry laboratory.

Special restrictions on laboratory courses Although the department does not recommend it, chemistry courses may be taken without the accompanying laboratory. However, the appropriate lecture course is a prerequisite or corequisite for each laboratory course. Students dropping the lecture course corequisite with a laboratory must also drop the laboratory course.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; MATH 115 or 116; (MATH 120, MATH 121, or ENAS 151 suggested); PHYS 170, 180, 200, or 260; or equivalents in adv placement

Number of courses *B.A.*—10 course credits, beyond prereqs (incl senior req); *B.S.*—13 course credits, beyond prereqs (incl senior req); *B.S., intensive major*—15 course credits, beyond prereqs (incl senior req)

Specific courses required *All degrees*—2 terms of organic chem (CHEM 174 or 220 and CHEM 175, 221, or 230); 2 terms of organic chem lab (CHEM 222L and 223L); 1 term of physical chem (CHEM 332 or 328); 1 term of inorganic chem (CHEM 252); *B.S.*—CHEM 330L, 333; *B.S., intensive major*—CHEM 330L, 333; second term of intro physics, PHYS 171 or higher

Distribution of courses *B.A. and B.S.*—4 addtl course credits in adv lectures or labs, incl at least 1 lecture credit and 1 lab; *B.S., intensive major*—5 addtl course credits in adv lectures or labs, incl at least 2 credits of lectures and 1 lab

Substitution permitted Up to 2 relevant adv science courses in other departments for adv chemistry courses with DUS permission

Senior requirement *B.A.*—CHEM 400; *B.S.*—2 terms of CHEM 490, or CHEM 400 and 1 addtl course credit in adv lecture or lab; *B.S., intensive major*—2 terms of CHEM 490; all degree programs require submission of senior capstone essay

FACULTY OF THE DEPARTMENT OF CHEMISTRY

Professors Victor Batista, Gary Brudvig, Robert Crabtree (*Emeritus*), Jason Crawford, †Craig Crews, R. James Cross, Jr. (*Emeritus*), Jonathan Ellman, John Faller (*Emeritus*), Sharon Hammes-Schiffer, Nilay Hazari, Seth Herzon, Patrick Holland, Mark Johnson, William Jorgensen, J. Patrick Loria, James Mayer, J. Michael McBride (*Emeritus*), Scott Miller, Peter Moore (*Emeritus*), Timothy Newhouse, †Anna Pyle, †James Rothman, Martin Saunders (*Emeritus*), †Dieter Söll, David Spiegel, †Scott Strobel, John Tully

(*Emeritus*), Patrick Vaccaro, Hailiang Wang, Kenneth Wiberg (*Emeritus*), Elsa Yan, Frederick Ziegler (*Emeritus*), Kurt Zilm

Associate Professor Sarah Slavoff

Assistant Professors Amymarie Bartholomew, Caitlin Davis, †Stavroula Hatzios, Stacy Malaker, †Mingjiang Zhong

Lecturers Paul Anastas, Paul Cooper, Christine DiMeglio, Jonathan Parr

Preceptors TBD

†A joint appointment with primary affiliation in another department.

Child Study

Director of undergraduate studies: James McPartland (james.mcpartland@yale.edu); medicine.yale.edu/childstudy/

The Child Study Center is a department at Yale University School of Medicine which brings together multiple disciplines to further the understanding of the problems of children and families. Among the many disciplines are child psychiatry, pediatrics, genetics, neurobiology, epidemiology, psychology, nursing, social work, and social policy. The mission of the Yale Child Study Center is to improve the mental health of children and families, advance understanding of their psychological and developmental needs, and treat and prevent childhood mental illness through the integration of research, clinical practice, and professional training. The Child Study Center is unique in its scope of research, clinical services, training programs, policy work, and its local, state, national, and international collaborations. The strengths of the Center are reflected in the breadth and integrative nature of research, clinical services and training. More information is available on the Child Study Center website.

Classics

Director of undergraduate studies: Andrew Johnston

(andrew.johnston@yale.edu) [Spring 2024]; Jessica Lamont

(jessica.lamont@yale.edu) [Fall 2024/Spring 2025]; 311 Phelps Hall; classics.yale.edu

The Department of Classics offers a major in Classics, concentrating in either Greek or Latin literature, or in both literatures; a major in Classical Civilization; and, in conjunction with the Hellenic Studies program, a major in Ancient and Modern Greek. The diversity of subject matter covered by these majors makes Classics an excellent partner in interdepartmental major programs. Programs for all majors must be approved by the director of undergraduate studies (DUS).

COURSE NUMBERING

All CLCV courses are taught in translation, with no knowledge of Greek or Latin required. CLCV courses numbered 001–099 are First-Year Seminars, with enrollment limited to eighteen. CLCV courses numbered at the 100-level and 200-level are primarily introductory, lecture-style courses, which may or may not include a discussion-section component. CLCV courses numbered at the 300-level are discussion-oriented seminars, with enrollment limited to fifteen.

For courses in Ancient Greek (GREK) and Latin language (LATN), those at the 100-level are introductory and intermediate courses (L1, L2, L3, and L4), while those at the 400-level are advanced seminar-style courses (L5).

PLACEMENT PROCEDURES

Students are encouraged to take courses as advanced as they can handle with profit and pleasure. The department, recognizing the great variety of preparation in ancient languages, wishes to accommodate incoming students in as flexible a manner as possible. Students who plan either to begin or to continue the study of Greek or Latin should consult members of the departmental faculty as soon as possible.

Students who have had the equivalent of two years of college-level instruction may try a 400-level course. It is possible to take GREK 141 or LATN 141 after a 400-level course, or to be admitted to a 400-level course after completion of GREK 131 or LATN 131.

REQUIREMENTS OF THE MAJOR IN CLASSICS

The major in Classics is primarily a liberal arts major. It provides a rigorous interdisciplinary education in the literature, material culture, and history that underlie Western civilization and other humanities disciplines; it can also provide foundational disciplinary expertise for students who wish to do professional graduate work. Students develop a mastery of the classical languages, become acquainted with important periods and major authors in Greek and Roman literature, and develop the linguistic, historical, and theoretical interpretative tools to analyze classical antiquity and its relevance in the modern world. All courses in the department emphasize a combination of precise analysis, original thought, creativity, and breadth of historical inquiry. Courses in other literatures, in history, in art history, and in philosophy are strongly recommended for students enrolled in the Classics major.

The department recognizes three concentrations for this major, one aiming at knowledge of both ancient literatures, Greek and Latin; one concentrating on Greek literature, and the third concentrating on Latin literature.

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2023-2024, may be fulfilled by students who declared the major in a prior term.

The concentration in two literatures requires no fewer than twelve term courses (including senior requirement). These include six language courses in both Greek and Latin at the level of 390 or above, of which no fewer than two must be taken in each language. These six courses must include GREK 403 or LATN 390. Also required are one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), one course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level), one course in a related field in ancient history, and one course in a related field in ancient history, ancient philosophy, classical art and archaeology, or classical civilization.

Students concentrating in one literature (Greek or Latin) are required to take no fewer than twelve term courses (including the senior requirement). These include six language courses in that literature level of 390 or above, and must include GREK 403 or LATN 390. Also required are one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), one course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level), a course in ancient history related to the chosen literature, and an additional course in ancient history, classical art and archaeology, ancient philosophy, or classical civilization. Students are encouraged to do some work in the second language and may substitute two terms at the intermediate level (131 and 141) or higher in the second language for two 400-level courses in the major literature.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

Combined B.A./M.A. degree Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s

Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Classics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required GREK 403 or LATN 390

Distribution of courses *All concentrations*—1 course that covers broadly the literature and/or culture of ancient Greece, and 1 course that covers broadly the literature and/or culture of ancient Rome; 1 addtl course in ancient hist, classical art and archaeology, ancient philosophy, or classical civ; *Two literatures concentration*—6 courses in both langs at level 390 or above, with one of those being GREK 403 or LATN 390; 1 course in ancient hist; *One literature concentration*—6 courses in lit at level 390 or above, with one of those being GREK 403 for the Greek major and LATN 390 for the Latin major; 1 course in ancient hist related to lit of major

Substitution permitted *One literature*—2 courses in the other literature numbered 131 or higher for 2 courses in the major literature at 400 level

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and an additional course

REQUIREMENTS OF THE MAJOR IN CLASSICAL CIVILIZATION

The major in Classical Civilization is designed to offer students an opportunity to study an entire Western civilization in its many diverse but related aspects. The literature, history, philosophy, religion, art, archaeology, and other aspects of Greek and Roman antiquity from the earliest beginnings in Greece to the Middle Ages are studied for their intrinsic artistic value, their historical significance, and their power to illuminate problems confronting contemporary societies. Each year, the department offers courses that focus on ways that subsequent ages have used and made sense of classical antiquity. Ancient texts are studied primarily in translation, under the guidance of instructors who have expertise in Greek and Latin.

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2023–2024, may be fulfilled by students who declared the major in a prior term.

Candidates for the major complete at least twelve term courses (including the Senior Tutorial) in Classics and related departments. Of these, two must be in ancient history and/or classical art and archaeology; and two must be in Greek or Latin, or both, numbered 131 or higher (the latter courses should be completed by the end of the junior year). Students must also take one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), and one term course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level). It is strongly recommended that candidates elect one course each in the general

areas of ancient epic, drama, philosophy, Roman civilization, and the classical tradition. Candidates for the major are encouraged to take related courses in other departments.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required None

Distribution of courses 2 courses in ancient history and/or classical art and archaeology; 2 courses in Greek or Latin, or both, numbered 131 or higher; 1 course that covers broadly the literature and/or culture of ancient Greece, and 1 course that covers broadly the literature and/or culture of ancient Rome

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and additional course

REQUIREMENTS OF THE MAJOR IN ANCIENT AND MODERN GREEK

The major in Ancient and Modern Greek offers students an opportunity to integrate the study of postclassical Greek language, history, and culture with the departmental program in ancient Greek and classical civilization. The major covers Hellenic civilization from the Bronze Age to the modern day, and traces the development of the language and the culture across traditionally drawn boundaries. The study of both ancient and modern Greek allows the student to appreciate how familiarity with one enriches understanding of the other, and to chart the development of a language which has one of the oldest continuous written traditions in the world. The literature, history, philosophy, religion, and art of the ancient Greek and Greco-Roman worlds are studied both as ends in themselves and also as a foundation for appreciating later (medieval, Ottoman, and modern) developments in these areas. Students are encouraged to develop a sense of the continuity of Greek language and culture, and an understanding of how Byzantine and modern forms relate to their ancient forebears.

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the

following requirements, updated for the academic year 2023–2024, may be fulfilled by students who declared the major in a prior term.

The major in Ancient and Modern Greek requires at least twelve term courses. These include four term courses at the level of 390 or above in ancient Greek, one of which should be GREK 403; and four term courses, to consist of: one term course that covers broadly the literature and/or culture of ancient Greece (a course with the designation CLCV at the 100- or 200-level), one term course that covers broadly the literature and/or culture of ancient Rome (a course with the designation CLCV at the 100- or 200-level), one term course in ancient Greek history, and at least one additional term course in the history, art history, literature, or culture of the Greek-speaking Balkans or the Hellenic diaspora in the medieval, Ottoman, or modern period. Candidates are encouraged to take a wide range of courses in the areas of ancient philosophy, religion, art, and architecture. In addition, no fewer than two term courses in modern Greek must be elected at the intermediate level (MGRK 130, MGRK 140), or above.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required GREK 403

Distribution of courses 4 term courses in ancient Greek numbered 390 or higher, as indicated and incl GREK 403; 4 term courses in Greek and Roman history and lit, as indicated; 2 term courses in modern Greek at the intermediate level

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and additional course

CERTIFICATES OF ADVANCED LANGUAGE STUDY

The Classics Department offers a Certificate of Advanced Language Study to non-majors in ancient Greek and in Latin. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses in ancient Greek or Latin beyond the L4 level (four L5 courses; 400-level Greek or 400-level Latin courses, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one course, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements, provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student’s last semester at Yale. The form can be found on the University Registrar’s Office website. Once declared, Degree Audit tracks students’ progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF CLASSICS

Professors Egbert Bakker, Kirk Freudenburg, Milette Gaifman, Verity Harte, Brad Inwood, Christina Kraus, Noel Lenski, Pauline LeVen, Joseph Manning

Associate Professor Andrew Johnston

Assistant Professors Jessica Lamont, Erika Valdivieso

Lecturers Susan Matheson, James Patterson, Timothy Robinson, Joseph Solodow

Climate Science and Solutions Certificate

Certificate director: Jeffrey Park (jeffrey.park@yale.edu)

This Certificate provides students with a foundation in basic climate science, anthropogenic climate change, and solutions, so they can be effective and informed leaders in all walks of life in the decades to come. In our lifetimes, the combined effects of climatic and environmental change will profoundly and pervasively alter the planet and the lives of all of us. In this day and age, effective leaders cannot afford to be ignorant of climate change and the many possible ways to mitigate it and its effects. Climate change is one of humanity's grand challenges and the goal of this Certificate is to prepare students to meet this challenge wherever their paths might lead.

REQUIREMENTS

Students must successfully complete six course credits. Three of the required courses must represent three different pillars of thought, each designed to provide the fundamentals, vocabulary, and interdisciplinary scope to engage in integrative conversations, collaborations, and endeavors on climate change and solutions. The three pillars of thought are basic climate science; the science and impacts of anthropogenic climate change; and climate solutions.

From the first pillar, basic climate science, students gain an understanding of the components, processes, and feedback of the climate system, including an overview of ocean–atmosphere dynamics, the carbon cycle, atmospheric gases, and their effects, radiative balance, and spatial and temporal climate variability.

From the second pillar, the science and impacts of anthropogenic climate change, students learn about drivers and projections for anthropogenic climate change, the feedback and uncertainties in regional to global climate models, regional to global climate change impacts, mitigation, and adaptation, and the interaction between climate and other aspects of global societal and environmental change.

From the third pillar, climate solutions, students learn about climate solutions, including the scientific, technological, and socio-political aspects of natural and technological solutions and strategies.

One of the remaining 3 courses needs to be designated as a seminar on climate science and solutions as approved by the certificate director. Three of the 6 courses must have a science, engineering, or technology focus.

Yale Course Search **searchable attributes:**

- 1 basic climate science credit (YC Climate: Basic Climate Sci)
- 1 science and impacts of anthropogenic climate change credit (YC Climate: Anthropogenic)
- 1 climate solutions credit (YC Climate: Solutions)
- 1 seminar on climate science and solutions (YC Climate: Sci/Solutions Sem)
- 3 of 6 courses must have science, engineering, or technology focus (YC Climate: Sci/Eng/Tech)
- climate-oriented non-science lecture course (YC Climate: Non-science)

Other courses may be approved by permission of the certificate director. An on-topic summer internship can replace one elective.

No more than two course credits fulfilling the requirements of the Climate Science and Solutions certificate may overlap with a major, a simultaneous degree, a multidisciplinary academic program, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. No more than four credits may come from a single department or school.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

REQUIREMENTS OF THE CERTIFICATE

Number of courses 6 course credits

Distribution of courses 1 course in each of three pillars; 3 of the 6 required courses must focus on science, engineering, or technology, and 1 should be a seminar on the climate science and solutions of climate crisis

Cognitive Science

Director of undergraduate studies: Joshua Knobe (joshua.knobe@yale.edu), 102 C, 432-1699; www.yale.edu/cogsci

Cognitive science explores the nature of cognitive processes such as perception, reasoning, memory, attention, language, decision making, imagery, motor control, and problem solving. The goal of cognitive science, stated simply, is to understand how the mind works. Cognitive science is an inherently interdisciplinary endeavor, drawing on tools and ideas from fields such as psychology, computer science, linguistics, philosophy, economics, and neuroscience. Approaches include empirical studies of the ontogenetic and phylogenetic development of cognitive abilities, experimental work on cognitive processing in adults, attempts to understand perception and cognition based on patterns of breakdown in pathology, computational and robotic research that strives to simulate aspects of cognition and behavior, neuroscientific investigations of the neural bases of cognition using neural recording and brain scanning, and the development of philosophical theories of the nature of mind.

PREREQUISITE

An introductory survey course, CGSC 110, is normally taken by the end of the fall term of the sophomore year and prior to admission to the major.

REQUIREMENTS OF THE MAJOR

The requirements of the major for the B.S. and B.A. degrees are the same, except for the skills requirement and the senior requirement. Fourteen term courses, for a total of thirteen and one half course credits, are required for the major, including the introductory course and the senior requirement. Each major program must include the elements described below. The particular selection of courses must be approved by the director of undergraduate studies (DUS) in order to assure overall coherence. No course may be used to fulfill more than one requirement for the major.

Breadth requirement A breadth requirement introduces students to the subfields of cognitive science. Each major is required to take a course from four of the following six areas:

1. Computer science: CPSC 201
2. Economics and decision making: ECON 159
3. Linguistics: LING 110, 116, 130, 217, 232, 253
4. Neuroscience: CGSC 201, MCDB 320, NSCI 340, PSYC 160, 270
5. Philosophy: PHIL 126, 182, 269, 270, 271
6. Psychology: PSYC 110, S139E, 140

Depth requirement Students fulfill a depth requirement by completing six courses that focus on a specific topic or area in cognitive science. The depth courses must be chosen from at least two disciplines, and are typically drawn from the six cognitive science subfields. It may be possible to draw depth courses from other fields when necessary to explore the student's focal topic, in consultation with the DUS. All six depth courses must be intermediate or advanced; for most disciplines, courses numbered 300 or above

fulfill the requirement. With permission of the DUS, up to two directed reading or research courses may count toward the depth requirement.

Skills requirement Because formal techniques are fundamental to cognitive science, one skills course is required, preferably before the senior year. The suggested skills requirement for the B.S. degree is PSYC 200, or any courses listed as fulfilling the B.A. degree, or with permission of the DUS. Courses that fulfill the skills requirement for the B.A. degree include CPSC 112, 202, LING 224, PSYC 200, PSYC 270, S&DS 100, 103, 106, 220, 230, and S107E. Other courses may fulfill this requirement with the permission of the DUS.

Junior colloquium In the junior year, students are required to take CGSC 395, a half-credit colloquium in which majors discuss current issues and research in cognitive science and select a senior essay topic.

Repeat for credit Only one term of CGSC 471, 472, 473, or 474 may be offered toward the major.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major, except with permission of the DUS.

SENIOR REQUIREMENT

In the senior year, students take CGSC 491, a full-credit capstone course in which the senior essay is written. Students in the course meet regularly with one another and with the faculty to discuss current work in cognitive science and their own developing research projects. Students must take this course during their last spring term at Yale. If spring is not the student's final term, (e.g., a planned December graduation date), then it is possible to attend the class and complete some of the assignments, but not turn in the finished thesis until November. In this case, a grade of INC will be given for the Spring term. (Unlike other incomplete grades at Yale, an incomplete for a thesis does not expire.)

B.S. degree program The B.S. degree is typically awarded to students who conduct empirical research as part of their senior requirement. This normally includes designing an experiment and collecting and analyzing data.

B.A. degree program The B.A. degree is typically awarded to students who conduct a nonempirical senior essay. There are no restrictions on the research format for the B.A.

ADVISING AND APPLICATION TO THE MAJOR

Students may apply to enter the major at any point after the first year. Applications must be made in writing to the DUS. Applications must include (1) an official or unofficial transcript of work at Yale, (2) a brief statement of purpose, which indicates academic interests and expected focus within the areas of the Cognitive Science major, and (3) a list of the six upper-level courses that the student plans to take as part of the research focus. Application forms and answers to frequently asked questions are available on the program website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite CGSC 110

Number of courses 14 term courses, for a total of 13.5 course credits (incl prereq and senior req)

Specific course required CGSC 395

Distribution of courses 1 course each in 4 of 6 subfields, as specified for breadth req; 6 courses in a specific topic or area, as specified for depth req; 1 skills course, as specified

Senior requirement *B.S.* — empirical research and senior essay in CGSC 491; *B.A.* — nonempirical senior essay in CGSC 491

FACULTY ASSOCIATED WITH THE PROGRAM IN COGNITIVE SCIENCE

Professors Woo-kyoung Ahn (*Psychology*), Stephen Anderson (*Emeritus*), Amy Arnsten (*School of Medicine*), Richard Aslin (*Haskins Laboratories*), John Bargh (*Psychology*), Paul Bloom (*Emeritus*) (*Psychology*), Hal Blumenfeld (*School of Medicine*), Claire Bowern (*Linguistics*), Nicolò Cesana-Arlotti (*Psychology*), Marvin Chun (*Psychology*), Veneeta Dayal (*Linguistics*), Michael Della Rocca (*Philosophy*), Ravi Dhar (*School of Management*), Julie Dorsey (*Computer Science*), Melissa Ferguson (*Psychology*), Robert Frank (*Linguistics*), Shane Frederick (*School of Management*), David Gelernter (*Computer Science*), Tamar Gendler (*Philosophy*), Laurence Horn (*Emeritus*) (*Linguistics*), Marcia Johnson (*Emeritus*), Christine Jolls (*Law School*), Dan Kahan (*Law School*), Frank Keil (*Psychology, Linguistics*), Joshua Knobe (*Philosophy*), Gregory McCarthy (*Psychology*), Nathan Novemsky (*School of Management, Psychology*), Kenneth Pugh (*School of Medicine*), Ian Quinn (*Music*), Holly Rushmeier (*Computer Science*), Laurie Santos (*Psychology*), Brian Scassellati (*Computer Science, Mechanical Engineering*), Brian Scholl (*Chair*) (*Psychology*), Sun-Joo Shin (*Philosophy*), Jason Stanley (*Philosophy*), Zoltán Szabó (*Philosophy*), Nick Turk-Browne (*Psychology*), Tom Tyler (*Law School*), Julie Van Dyke (*Haskins Laboratories*), Fred Volkmar (*School of Medicine*), David Watts (*Anthropology*), Karen Wynn (*Emeritus*) (*Psychology*), Gideon Yaffe (*Law School*), Raffaella Zanuttini (*Linguistics*), Gal Zauberman (*School of Management*), Steven Zucker (*Computer Science, Biomedical Engineering*)

Associate Professors Philip Corlett (*School of Medicine*), Jason Dana (*School of Management*), Yarrow Dunham (*Psychology*), Hedy Kober (*School of Medicine*), James McPartland (*Child Study Center*), Maria Piñango (*Linguistics*)

Assistant Professors Ryan Bennett (*Linguistics*), Steve Chang (*Psychology*), Philip Corlett (*School of Medicine*), Julian Jara-Ettinger (*Psychology*), Julia Leonard (*Psychology*), Samuel McDougle (*Psychology*), Al Powers (*School of Medicine*), Robb Rutledge (*Psychology*), Marynel Vázquez (*Computer Science*), Ilker Yildirim (*Psychology*)

Lecturer Daylian Cain (*School of Management*)

College Seminars

The Residential College Seminar program is designed to enhance the intellectual life of the residential colleges by offering courses that fall outside typical departmental structures, often taught by instructors whose professional life lies outside the university. Each residential college sponsors one seminar each term, and a defining feature of the program is that undergraduates play a central role in the seminar selection process. Each residential college has a student committee responsible for evaluating seminar proposals and interviewing candidates.

Course descriptions for college seminars for the fall and spring terms can be found in Yale Course Search. Students may search for college seminars by selecting YC: College Seminar under the "Any Department" dropdown in the left side search panel. The online listings contain course titles, descriptions, and prerequisites. Course syllabuses are available on Canvas @ Yale.

Students apply to college seminars during registration. Students from the sponsoring college have priority admission to the first six roster spots in each seminar. Students may apply to no more than two college seminars in a given term and may only enroll in one college seminar in a single term and four college seminars in their Yale College career. Auditing is not permitted in college seminars. See the YCPS, K. Special Academic Programs, Limit on Residential College Seminars, for more information.

Comparative Literature

Directors of undergraduate studies: Samuel Hodgkin

(samuel.hodgkin@yale.edu) [Spring 2024], Moira Fradinger

(moira.fradinger@yale.edu) [Fall 2024–Spring 2025] 320 York St., Rm. 244,
203-432-2760; complit.yale.edu/literature-major

The Comparative Literature major allows students to address fundamental questions about the nature, function, and value of literature in a broadly comparative context. Students read and write about a wide variety of literary works across periods, genres, and national traditions. They investigate ancient and contemporary approaches to literary study, theories and methods of comparison, and the relationship of literature to film and other media. Majors have the freedom to construct a program of study that reflects their intellectual goals. All prospective majors should register with the director of undergraduate studies (DUS), who will work with them to develop a coherent sequence of courses suited to their individual interests.

The Comparative Literature major offers four unique concentrations: Literature and Comparative Cultures; Intensive Language; Film; and Literary Translation. These concentrations share the same core courses. Other courses are normally chosen from different language and literature programs, many of which offer courses on literature and film in translation. Among these programs are African American Studies, Classics, East Asian Languages and Literatures, English Language and Literature, Film and Media Studies, French, German Studies, Italian Studies, Near Eastern Languages and Civilizations, Portuguese, Slavic Languages and Literatures, and Spanish.

Prospective majors are strongly encouraged to begin the study of a language other than English as early as possible in their academic careers and to continue such study throughout their time at Yale. All concentrations of the Comparative Literature major require students to have advanced (L5) competence in at least one language other than English. Students interested in graduate study in comparative literature should be aware that many programs require reading knowledge of two or three languages other than English.

REQUIREMENTS OF THE MAJOR

The Comparative Literature major requires twelve term courses, including the senior requirement and two required foundational seminars, one of which must be LITR 130 and the other may be LITR 140 or 143 or 348, depending on which concentration the student is pursuing. Beyond the two required courses and the senior essay, the major requires nine term courses, with specific requirements for each concentration. Students must choose one concentration and each concentration requires students to take two or three literature and/or film courses in a single language other than English; all have a period requirement and a theory requirement. Additionally, prospective majors must achieve an L5 in the language in which they plan to fulfill their literature requirement.

For the in-language literature requirement, students must take two or three courses (depending on the concentration) reading literature in a single language other than English. One L4 course can be counted, but the remaining courses must be taken at L5 or equivalent. Students may count non-instructional language courses (no L4 or L5

distributional designation number) in which reading knowledge of the language is a prerequisite and extensive in-language readings are assigned. With DUS permission, one of the in-language literature requirements may be fulfilled with a language course, not specifically marked as a literature or film course, that includes substantial literary readings and/or film screenings.

For the period requirement, students must take at least one course in three of five historical periods: (1) Antiquity (covering until approximately the 6th century AD); (2) Medieval (ca. 6th–15th centuries); (3) Early Modern (ca. 14th–18th centuries); (4) 19th century; and (5) 20th–21st centuries. In practice, many courses deal with texts covering several periods. A course may fulfill the requirement for any period if at least half the primary readings come from that period. For questions about which period requirements a course might fulfill consult the DUS.

For the theory requirement, students must take one course that involves a significant component of literary or cultural theory. Students who wish to know if a course, particularly those offered in other departments, may count toward this requirement should consult the DUS.

LITERATURE AND COMPARATIVE CULTURES CONCENTRATION

Literature and Comparative Cultures is the least constraining concentration, permitting students to plan a course of study tailored to their particular interests. Prospective majors electing the Literature and Comparative Cultures concentration must take two required foundational seminars; LITR 130 and one of LITR 140, 143, or 348. Beyond the two required courses and the senior essay, the concentration requires three in-language literature courses with readings in a language other than English, three courses that fulfill the period requirement, two elective courses, and one theory course. Period courses, elective courses, and the theory course may be taken in any literature department (including English) and may include two courses in a related discipline that has a direct bearing on the student's program of study in literature, such as history of art, philosophy, anthropology, music, or theater studies. One of the electives may be in creative writing or Directed Studies, but composition courses (ENGL 114, 115, or 120) may not be counted.

In-language literature requirement Majors are required to take at least three literature courses with readings in a language other than English. See under Requirements of the Major for more information.

INTENSIVE LANGUAGE CONCENTRATION

Prospective majors electing this concentration focus their plan of study on literature studied in two languages other than English. They must take two required foundational seminars: LITR 130 and LITR 140; three courses that fulfill the period requirement; three in-language literature courses in a single language other than English (see under Requirements of the Major for more information); two literature courses in a second language other than English; and one course that involves a significant element of literary or cultural theory.

FILM CONCENTRATION

Students in the Film concentration focus their plan of study on film and media. They must take two required foundational seminars: LITR 130 and LITR 143; three

courses that fulfill the period requirement; two (rather than three) in-language literature courses with readings in the same language other than English (see under Requirements of the Major for more information); three electives (which must have a FILM course number); and one course in film theory. At least one of the in-language literature courses must be at the L5 level.

LITERARY TRANSLATION CONCENTRATION

Students in the Literary Translation concentration focus on the theory and practice of literary translation. They must take two required foundational seminars: LITR 130 and LITR 348; three courses that fulfill the period requirement; three in-language literature courses in a single language other than English, two of which must be an L5 course (see under Requirements of the Major for more information); one course in literary or cultural theory; and two courses that engage with some aspect of translation studies. The DUS can provide a list of qualifying courses.

Credit/D/Fail A maximum of two courses taken Credit/D/Fail may count toward the major, with permission of the DUS. None of the specific required courses may be taken Credit/D/Fail.

SENIOR REQUIREMENT

For the senior essay (LITR 491, or LITR 492, 493), students develop a research topic of their choice and work closely with a faculty adviser, preferably from the department. Normally, the essay makes use of texts in the language of their original composition. Any exceptions must be approved by the DUS. Deadlines for the prospectus, the rough draft, and the completed essay are listed on the departmental website. The initial deadline for a topic proposal signed by the thesis adviser is before the end of the previous semester, so majors should begin their search for an adviser and topic early in the spring of their junior year.

The senior essay may be written over one term (LITR 491) or over two terms (LITR 492, 493). Students with an especially well-developed project may petition to write a yearlong senior essay. Interested juniors must apply by the last day of classes in the spring term. Students may count the second term of the essay as one elective course toward the total number of courses required for the major. Students expecting to graduate in May enroll in LITR 492 during the fall term and complete their essays in LITR 493 in the spring term. December graduates enroll in LITR 492 in the spring term and complete their essays in LITR 493 during the following fall term.

COURSE SUBSTITUTIONS

A literature course taught in English translation is sometimes suitable as a non-English literature course. In such cases, majors are expected to request additional assignments from their instructors that demonstrate they have engaged with the texts in the original language. They should submit the appropriate form, signed by the instructor, attesting to their intent to do so. The department registrar or the DUS can provide this form; students should submit it to the DUS at the beginning of the semester along with their course schedule.

Non-native speakers of English who are granted permission by Yale College to complete the language distributional requirement by taking ENGL 114, 115, 120, or 450 may take a total of three English literature courses to fulfill the three in-language literature course

requirements, or they may fulfill the major requirements by taking three courses in a third language.

STUDY ABROAD

Comparative Literature majors are encouraged to consider spending a summer, a term, or a year abroad. One course taken through international programs and approved by Yale College may, with permission of the DUS, be applied to the in-language literature requirement.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement and concentration requirements)

Specific courses required *All concentrations*—LITR 130; *Literature and Comparative Cultures*—1 of LITR 140, 143, or 348; *Intensive Language*—LITR 140; *Film*—LITR 143 or equivalent; *Literary Translation*—LITR 348 or equivalent

Distribution of courses *All concentrations*—3 period courses, as specified; *Literature and Comparative Cultures*—3 in-language literature courses, as specified, 1 course in literary or cultural theory, 2 elective courses; *Intensive Language*—3 literature courses in one language, 2 literature courses in a second language, 1 course in literary or cultural theory; *Film*—2 in-language lit courses, 1 course in film theory; 3 electives in Film and Media Studies; *Literary Translation*—3 in-language literature courses, as specified, 1 course in literary or cultural theory, 2 courses in translation studies

Senior requirement One-term senior essay (LITR 491); or two-term senior essay (LITR 492 and LITR 493)

FACULTY OF THE DEPARTMENT OF COMPARATIVE LITERATURE

Professors Dudley Andrew (*Emeritus*), Peter Brooks (*Emeritus*), Rüdiger Campe, Roberto González Echevarría (*Emeritus*), Martin Hägglund, Hannan Hever, Carol Jacobs (*Emeritus*), Pericles Lewis, David Quint (*Emeritus*), Ayesha Ramachandran, Shawkat Toorawa, Katie Trumpener, Jing Tsu, Jane Tylus, Jesús Velasco

Associate Professors Robyn Creswell, Marta Figlerowicz, Moira Fradinger

Assistant Professor Samuel Hodgkin

Senior Lecturers Peter Cole, Jan Hagens

Lecturers Jane Mikkelson, Candace Skorupa, George Syrimis

Affiliated Faculty R. Howard Bloch (*French*), Francesco Casetti (*Film & Media Studies*), Michael Denning (*American Studies*), Alice Kaplan (*French*), Tina Lu (*East Asian Languages & Literatures*), John MacKay (*Slavic Languages & Literatures*), Maurice Samuels (*French*), Ruth Yeazell (*English*)

Computer Science

Director of undergraduate studies: Y. Richard Yang (yang.r.yang@yale.edu); cpsc.yale.edu

The Department of Computer Science offers both B.S. and B.A. degree programs, as well as four combined major programs in cooperation with other departments: Electrical Engineering and Computer Science, Computer Science and Economics, Computer Science and Mathematics, and Computer Science and Psychology. Each program not only provides a solid technical education in the core of computer science but also allows students to take a broad range of courses in other disciplines that are an essential part of a liberal arts education.

Specifically, the Computer Science and combined major programs share a common core of five computer science courses. The first is CPSC 201, a survey that demonstrates the breadth and depth of the field to students who have taken the equivalent of an introductory programming course. The remaining core courses cover discrete mathematics (CPSC 202 or MATH 244), data structures (CPSC 223), systems programming and computer architecture (CPSC 323), and algorithm analysis and design (CPSC 365 or 366). Only one of CPSC 365 or 366 may be taken for major credit. Together these courses include the material that every major should know.

The core courses are supplemented by electives (and, for a combined major, core courses in the other discipline) that offer great flexibility in tailoring a program to each student's interests. The capstone is the senior project (CPSC 490), through which students experience the challenges and rewards of original research under the guidance of a faculty adviser.

Prospective majors are encouraged to discuss their programs with the director of undergraduate studies (DUS) as early as possible.

INTRODUCTORY COURSES

The department offers a broad range of introductory courses to meet the needs of students with varying backgrounds and interests. Except for CPSC 200 and CPSC 201, none assumes previous knowledge of computers.

1. CPSC 100 is taught jointly with Harvard University and teaches students majoring in any subject area how to program a computer and solve problems. No prior programming experience is required. Students with previous programming experience should consider taking CPSC 201 instead. This course satisfies the Quantitative Reasoning distributional requirement.
2. CPSC 110 teaches programming for humanities and social sciences using the Python programming language. No prior programming experience is required. This course satisfies the Quantitative Reasoning distributional requirement.
3. CPSC 112 teaches students majoring in any subject area how to program a computer and solve problems using the Java programming language. No prior programming experience is required. Students with previous programming experience should consider taking CPSC 201 instead. This course satisfies the Quantitative Reasoning distributional requirement.

4. CPSC 134 provides an introduction to computer music, including musical representations for computing, automated music analysis and composition, interactive systems, and virtual instrument design.
5. CPSC 150 explores how some of the key ideas in computer science have affected philosophy of mind, cognitivism, connectionism, and related areas. This humanities-style course requires a significant amount of reading and writing a paper, and satisfies the Writing and the Humanities and Arts distributional requirements.
6. CPSC 151 studies the history of the graphical user interface in an attempt to guess its future. This course satisfies the Writing distributional requirement.
7. CPSC 175 studies the C programming language and the Linux operating system. This course satisfies the Quantitative Reasoning requirement.
8. CPSC 183 explores the myriad ways that law and technology intersect, with a special focus on the role of cyberspace. This course satisfies the Social Sciences distributional requirement.
9. CPSC 184 focuses on the evolving and oftentimes vexing intellectual property regime of the new digital age. This course satisfies the Social Sciences and the Humanities and Arts distributional requirements.
10. CPSC 185 covers the evolution of various legal doctrines with and around technological development. This course satisfies the Social Sciences and the Writing distributional requirements.
11. CPSC 200, intended as a survey course for non-majors, focuses on practical applications of computing technology while examining topics including computer hardware, computer software, and related issues such as security and software engineering. This course satisfies the Quantitative Reasoning distributional requirement.
12. CPSC 201 teaches the basic concepts, techniques, and applications of computer science, including systems (computers and their languages) and theory (complexity and computability). Students with sufficient programming experience may elect CPSC 201 without taking CPSC 112. (These courses meet at the same time so that students are easily able to change levels if necessary.) This course satisfies the Quantitative Reasoning distributional requirement.
13. CPSC 202 presents the formal methods of reasoning and the concepts of discrete mathematics and linear algebra used in computer science and related disciplines. This course satisfies the Quantitative Reasoning distributional requirement.
14. CPSC 210 examines the political challenges wrought by massive increases in the power of computational and communication technologies and the potential for citizens and governments to harness those technologies to solve problems. This course satisfies the Social Sciences distributional requirement.

REQUIREMENTS OF THE MAJOR

The B.S. and the B.A. degree programs have the same required five core courses: CPSC 201; CPSC 202 or MATH 244; CPSC 223; CPSC 323; and CPSC 365 or 366.

B.S. degree program The B.S. degree program requires a total of twelve term courses: five core courses, six intermediate or advanced courses in Computer Science, and the senior requirement.

B.A. degree program The B.A. degree program requires a total of ten term courses: the five core courses, four intermediate or advanced courses in Computer Science, and the senior requirement.

Combined B.S./M.S. degree Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. General eligibility requirements are described in the Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Specific requirements for the combined degree in Computer Science are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree in Computer Science.
2. At the end of their fifth term of enrollment, candidates must have earned at least nine of their Computer Science required course credits, which together with three additional Computer Science required course credits, satisfy the requirements for the B.S. in Computer Science. Candidates must also have achieved A grades (only A, not A-) in at least three-quarters of these courses.
3. Candidates must also complete eight graduate courses from the approved list, up to two of which may, with the permission of the DUS and the director of graduate studies, also be applied toward completion of the B.S. degree. At most one of these eight courses may be CPSC 692. All eight graduate courses must be completed in the final four terms of enrollment, and at least six of them must be completed in the final three terms of enrollment.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major. All courses in the major must be taken for a letter grade.

SENIOR REQUIREMENT

In the senior year, students must take CPSC 490, an independent project course, in which a student selects an adviser to conduct original research with substantial work in a subfield of computer science. With permission of the DUS, students may enroll in 490 more than once or before their senior year.

ADVISING

All Computer Science majors in the sophomore, junior, and senior years should review their programs with their class advisers and the DUS. Students majoring in Computer Science are advised to complete CPSC 201 and 223 by the end of their sophomore year.

Electives The field of computer science has broadened substantially in the last few decades and the Computer Science department advises its majors to choose intermediate and advanced electives covering the breadth of computer science, including theoretical computer science; computer systems and languages (e.g., database, networking, operating systems, programming languages, and systems security); and computer applications (e.g., artificial intelligence, computer graphics,

computer vision, human-computer interactions, machine learning, natural language processing, and robotics).

The Computer Science department encourages interdisciplinary study in which computer science plays a major role. Advanced courses in other departments that involve concepts from computer science and are relevant to an individual program may, with permission of the DUS, be counted toward the requirements, but no more than two such courses may be counted toward the B.S., and no more than one toward the B.A.

Students interested in using computers to solve scientific and engineering problems are advised to take CPSC 440 as well as computational courses offered in Applied Mathematics and in Engineering and Applied Science.

The core mathematical background necessary to complete the Computer Science major is provided in CPSC 202. However, many advanced courses in graphics, computer vision, neural networks, and numerical analysis assume additional knowledge of linear algebra and calculus. Students who plan to take such courses as electives and who are unsure whether they have the appropriate mathematical background are encouraged to take MATH 222 or 225, MATH 226, and MATH 120.

Typical programs For students who already know how to program, typical B.S. programs starting in the first and sophomore years are indicated below. For typical B.A. programs, two of the electives would be omitted.

First-Year	Sophomore	Junior	Senior
CPSC 201	CPSC 202 and CPSC 323	Two electives	CPSC 490
CPSC 223	CPSC 365 or 366 One elective	Two electives	One elective
	Sophomore	Junior	Senior
	CPSC 223	CPSC 365 or 366	Two electives
	CPSC 201	CPSC 323	CPSC 490
	CPSC 202	Two electives	Two electives

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses *B.S.* – 12 term courses taken for letter grades (incl senior project);
B.A. – 10 term courses taken for letter grades (incl senior project)

Specific courses required *B.S. and B.A.* – CPSC 201; CPSC 202 or MATH 244;
CPSC 223; CPSC 323; and CPSC 365 or 366.

Distribution of courses *B.S.* – 6 addtl intermediate or advanced Comp Sci courses;
B.A. – 4 addtl intermediate or advanced Comp Sci courses

Substitution permitted Advanced courses in other depts, with DUS permission

Senior requirement Senior project (CPSC 490)

CERTIFICATE IN PROGRAMMING

Certificate in programming advisor: Theodore Kim, AKW 412; cpsc.yale.edu

The Certificate in Programming prepares students to program computers in support of work in any area of study. While the certificate does not provide the grounding in theory and systems that the computer science majors do, it does provide a short path to programming literacy that can be completed in a span of four terms. Majors in Computer Science, and in the joint programs with Economics, Electrical Engineering, Mathematics, and Psychology, or in Computing and the Arts may not pursue the Certificate.

Refer to the Computer Science website for more information.

PREREQUISITE

The prerequisite for the Certificate is an introductory programming course, CPSC 100, 110, 112, S115 or successful completion of an AP Computer Science course.

REQUIREMENTS OF THE CERTIFICATE

Students may not use any of the five required courses, indicated below, to satisfy the requirements of any major or other certificate. If such a course is required for another program, the student must substitute another course from the same category or a more advanced one for the Programming Certificate. No course taken Credit/D/Fail may be used to satisfy any of the requirements; no course may be used to satisfy more than one of them.

Programming One from CPSC 201 or CPSC 200

Data structures CPSC 223

Advanced programming One from CPSC 327 or CPSC 323

A programming elective A CPSC course with CPSC 223 as a listed or implied prerequisite and a primary focus on programming (such as CPSC 421, 422, 424, 433, CPSC 434, 437, 439, 446, or 478) or a second course that satisfies the advanced programming requirement

An applications or algorithms elective Either programming in context course that requires significant programming (such as CPSC 334, 335, 376, 431, 432, 474, 477, 479, or LING 380) or a course in algorithms (such as CPSC 365 or 366)

ADVISING

Theodore Kim from the Department of Computer Science is the Certificate Coordinator. He advises students pursuing the Certificate. Exceptions to the requirements, other than the substitution of a more advanced course for a required one, are limited.

SUMMARY OF REQUIREMENTS

Prerequisite CPSC 100, 110, 112, S115 or AP Computer Science course

Number of courses 5 term courses

Specific courses required CPSC 201 or 200; CPSC 223; CPSC 327 or 323

Distribution of courses 2 electives, as specified

FACULTY OF THE DEPARTMENT OF COMPUTER SCIENCE

Professors Dana Angluin (*Emeritus*), James Aspnes, *Dirk Bergemann, Abhishek Bhattacharjee, Julie Dorsey, Joan Feigenbaum, Michael Fischer, David Gelernter, *Mark Gerstein, Theodore Kim, †Vladimir Rokhlin, Holly Rushmeier (*Chair*), Brian Scassellati, Martin Schultz (*Emeritus*), Zhong Shao, Avi Silberschatz, †Daniel Spielman, Nisheeth Vishnoi, Y. Richard Yang (*DUS*), Lin Zhong (*DGS*), †Steven Zucker

Associate Professors Yang Cai, Smita Krishnaswamy, Charalampos Papamantou, Ruzica Piskac, Robert Soulé

Assistant Professors *Kim Blenman, Arman Cohan, Yongshan Ding, Benjamin Fisch, Tesca Fitzgerald, Anurag Khandelwal, Quanquan Liu, Daniel Rakita, Katerina Sotiraki, Marynel Vázquez, Andre Wibisono, Alex Wong, Rex Ying, Manolis Zampetakis, Fan Zhang

Senior Research Scientists Robert Bjornson, Andrew Sherman

Senior Lecturers James Glenn, Scott Petersen, Stephen Slade

Lecturers Timothy Barron, Andrew Bridy, Xiuye (Sue) Chen, Ozan Erat, Jay Lim, Dylan McKay, Cody Murphey, Sohee Park, Brad Rosen, Inyoung Shin, Alan Weide, Cecillia Xie

*A secondary appointment with a primary affiliation in another department or school.

†A joint appointment with primary affiliation in another department or school.

For a complete list of Computer Science Department personnel, visit the department website.

Computer Science and Economics

Director of undergraduate studies: Philipp Strack (philipp.strack@yale.edu)

Computer Science and Economics (CSEC) is an interdepartmental major for students interested in the theoretical and practical connections between computer science and economics. The B.S. degree in CSEC provides students with foundational knowledge of economics, computation, and data analysis, as well as hands-on experience with empirical analysis of economic data. It prepares students for professional careers that incorporate aspects of both economics and computer science and for academic careers conducting research in the overlap of the two fields. Topics in the overlap include market design, computational finance, economics of online platforms, machine learning, and social media. The CSEC major requires some classes in the intersection between Computer Science and Economics which are not mandatory for either major.

PREREQUISITES

Prerequisite to this major is basic understanding of computer programming, discrete math, calculus, microeconomics and macroeconomics. Grades of 4 or 5 on high-school AP computer science, statistics, calculus, microeconomics, and macroeconomics signal adequate preparation for required courses in the CSEC major. For students who have not taken these or equivalent courses in high school, the programming prerequisite may be satisfied with CPSC 100 or CPSC 112; the discrete mathematics prerequisite may be satisfied with CPSC 202 or MATH 244; the calculus prerequisite may be satisfied with MATH 112; the microeconomics prerequisite may be satisfied with ECON 110 or ECON 115; and the macroeconomics prerequisite may be satisfied with ECON 111 or ECON 116. Other courses may suffice, and students should consult the director of undergraduate studies (DUS) and their academic advisers if they are unsure whether they have the prerequisite knowledge for a particular required course.

REQUIREMENTS OF THE MAJOR

The B.S. degree program requires successful completion of fourteen term courses (not including courses taken to satisfy prerequisites) and the senior project. Nine of the fourteen courses are listed below; the remaining five courses are electives. With permission of the DUS and the academic adviser, a student may substitute a more advanced course in the same area as a required course. When a substitution is made, the advanced course counts toward the nine required courses and *not* toward the five electives.

The required courses include CPSC 201; 223; 323; 365 or 366; ECON 121 or 125; two courses in econometrics (ECON 117 and 123 or ECON 135 and 136); one course in game theory ECON 351 or CPSC 455; one course in the intersection of computer science and economics (e.g., CPSC 455, ECON 417, 433, 486, 441, 435, 478 or CPSC 474) which may not also count as one of the five remaining electives or for the game theory requirement. S&DS 241 and 242 may be taken instead of ECON 135. Only CPSC 365 or CPSC 366 may be taken for major credit.

Elective courses are essentially those courses that count as electives in the Computer Science major, the Economics major, or both. ECON 122, ECON 159, and ECON 672 can count as Economics electives. S&DS 365 can count as an elective in a related field. At least two electives must be taken in the Computer Science department, and at least

one must be taken in the Economics department. With the permission of the academic adviser, a student may use as the fourth and/or fifth elective (one or two courses) in related departments that do not usually serve as electives in Computer Science or Economics.

Searchable attributes: YC CSEC: Elective not CS or EC; YC CSEC: Electv intrsectn CS/EC

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

In the senior year, each student must complete CSEC 491, a one-term independent-project course that explicitly combines both techniques and subject matter from computer science and economics. A project proposal must be approved by the student's academic adviser and project adviser, and it must be signed by the DUS by the end of the third week of the term.

Distinction in the Major Computer Science and Economics majors may earn Distinction in the Major if they receive grades of A or A- in at least three quarters of their courses in the major (not including courses taken to satisfy prerequisites), and their senior-project advisers determine that their senior projects are worthy of distinction.

ADVISING

Approval of course schedules Students considering the major but not yet declared should arrange to meet with the DUS during the registration period to ensure that their proposed course schedules are appropriate. Similarly, declared majors should meet with their academic advisers to ensure that they are on track to satisfy all of the requirements of the major. Course schedules must be signed by the DUS each term, and they must be approved by an academic adviser before the DUS signs them.

Transfer credit Students who take a term abroad or take summer courses outside of Yale may petition the DUS to count at most two courses from outside Yale toward the requirements of the major. Students who take a year abroad may petition to count at most three courses. Many courses taken outside Yale do not meet the standards of the CSEC major; therefore, students should consult with their academic advisers and the DUS *before* taking such courses. Courses taken outside Yale may not be counted toward the major requirements in intermediate microeconomics, econometrics, or the intersection of computer science and economics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Basic knowledge of programming, discrete math, calculus, microeconomics, and macroeconomics as determined by DUS and academic advisers, as indicated

Number of courses 14 term courses (not incl prereqs or senior req)

Specific courses required CPSC 201, 223, and 323; CPSC 365 or 366; ECON 121 or 125; ECON 117 and 123 or ECON 135 and 136; ECON 351 or CPSC 455

Distribution of courses 1 course in intersection of CPSC and ECON, as specified; 5 electives as specified

Substitution permitted S&DS 241 and 242 may substitute for ECON 135; a more advanced course in the same area may substitute for a required course with DUS and academic adviser permission

Senior requirement CSEC 491

Computer Science and Mathematics

Directors of undergraduate studies: Y. Richard Yang (yang.r.yang@yale.edu) (Computer Science), AKW 208A, 432-6400; Richard Kenyon (Mathematics), Miki Havlickova (Mathematics); Math DUS email (math.dus@yale.edu)

Computer Science and Mathematics is an interdepartmental major for students who are interested in computational mathematics, the use of computers in mathematics, mathematical aspects of algorithm design and analysis, and theoretical foundations of computing.

REQUIREMENTS OF THE MAJOR

The major requires fourteen term courses as well as a senior project. Six of the fourteen courses must be in computer science: CPSC 201; CPSC 223; CPSC 323; and CPSC 365 or 366; one advanced course with significant mathematical content; and one additional advanced course other than CPSC 490. Only one of CPSC 365 and 366 may be taken for major credit. The remaining eight courses must be in mathematics: MATH 120, either MATH 225 or 226, MATH 244, and five additional term courses numbered above MATH 200 other than MATH 470 or MATH 480 through MATH 489.

Students who completed multivariable calculus during high school may consult the DUSs about replacing MATH 120 with a higher-level mathematics course.

A course must be listed with a MATH number to count toward the mathematics requirements and must be listed with a CPSC number to count toward the computer science requirements—substitutions from other departments are not allowed.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

The senior requirement is a project or an essay on a topic acceptable to both departments. Students typically enroll in CPSC 490 or MATH 475. Permission must be obtained in writing from the director of undergraduate studies (DUS) of both departments before embarking on the project or the essay.

ADVISING

The entire program of each student majoring in Computer Science and Mathematics must be approved by the DUS in each department.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses, 6 in computer science and 8 in math (not incl senior req)

Specific courses required CPSC 201; CPSC 223; CPSC 323; CPSC 365 or 366; MATH 120; MATH 225 or 226; MATH 244

Distribution of courses 2 addtl courses in computer science with 1 adv course with significant mathematical content and 1 adv course other than CPSC 490; 5 addtl courses

in math numbered above 200 (may not include MATH 470, or MATH 480 through MATH 489)

Senior requirement CPSC 490 or MATH 475

Computer Science and Psychology

Directors of undergraduate studies: Y. Richard Yang
(yang.r.yang@yale.edu) (Computer Science); Yarrow Dunham (Psychology)

Computer Science and Psychology is an interdepartmental major designed for students interested in integrating work in these two fields. Each area provides tools and theories that can be applied to problems in the other. Examples of this interaction include cognitive science, artificial intelligence, and biological perception.

PREREQUISITE

The prerequisite for the major is PSYC 110, from which students who have scored 5 on the Advanced Placement test in Psychology are exempt. Beyond the prerequisite, the major requires fourteen term courses as well as a senior project.

REQUIREMENTS OF THE MAJOR

Eight of the fourteen required courses must be in computer science: CPSC 201, 202, 223, 323, and CPSC 365 or 366, and three advanced computer science courses in artificial intelligence (examples of such courses are those in the range CPSC 470–CPSC 477, CPSC 452, 453, CPSC 481–489). CPSC 280 and 490 may not be counted as one of these courses. MATH 244 may substitute for CPSC 202. Only one of CPSC 365 and 366 may be taken for major credit.

The remaining six courses must be in psychology, including PSYC 200; at least one from PSYC 210–299; at least two psychology courses from the social science point of view; and at least two courses from the natural science point of view. At least one of the two psychology courses from both the social science point of view and the natural science point of view must be designated as Core in the course listings. Refer to the Psychology program overview for a listing of courses that fulfill the social science and natural science requirements and a description of courses designated as Core.

With the permission of both directors of undergraduate studies (DUSs), a course in cognitive psychology or cognitive science that is highly relevant to the major and that is not counted as one of the six courses in psychology may substitute for one of the courses in artificial intelligence. An additional course in psychology and an examination arranged with the instructor of PSYC 200 may substitute for PSYC 200.

Credit/D/Fail No course in computer science taken Credit/D/Fail may be counted toward the major; no more than one course in psychology taken Credit/D/Fail may be counted toward the major. No 200-level course in psychology taken Credit/D/Fail may be counted.

SENIOR REQUIREMENT

Students must take either CPSC 490 or PSYC 499, and the project must be approved by the DUS in each department.

ADVISING

The entire program of each student majoring in computer science and psychology must be approved by the DUS in each department.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite PSYC 110

Number of courses 14 term courses beyond prereq (not incl senior project)

Specific courses required CPSC 201, 202, 223, 323, and CPSC 365 or 366; PSYC 200

Distribution of courses 8 courses in CPSC, with 3 advanced AI courses; 6 courses in PSYC, incl PSYC 200; at least 1 additional course from PSYC 210–299; at least 2 from social science point of view and 2 from natural science point of view, with 1 designated Core course from each, as specified

Substitution permitted With permission of both DUSs, and as specified: MATH 244 for CPSC 202; 1 relevant course in cognitive psychology or cognitive science for 1 course in AI; 1 addtl course in PSYC and exam arranged with instructor for PSYC 200

Senior requirement CPSC 490 or PSYC 499, with project approved by DUS in each dept

Computing and Linguistics

Director of undergraduate studies: Robert Frank (robert.frank@yale.edu)
(Linguistics); Computing and Linguistics website

The Computing and Linguistics major provides multidisciplinary training in the computational study of human language, the development of systems for natural language processing, and the automated analysis of textual data in applications in the humanities, social sciences, and sciences. Students learn the foundational tools and methods that underlie this work, including areas of computer science, statistics and data science, and linguistics, and apply them to some empirical domain, through coursework and an independent research project in the senior year.

The B.A. in Computing and Linguistics exposes students to the fundamental ideas and foundational techniques of the field, while the B.S. provides more extensive training and engagement in research, preparing students for graduate work in the area.

PREREQUISITES

There are three prerequisites for this major and they fall in three areas of study: (1) *statistics*, satisfied through S&DS 100, 101–106, 123, or 220, or comparable background in statistics (e.g., through a score of 5 on the AP Statistics exam) as approved by the director of undergraduate studies (DUS); (2) *programming*, satisfied through CPSC 100 or 112 or comparable programming experience as approved by the DUS; and (3) *linguistics*, satisfied through one 100 level Linguistics course. It is also advisable that students have some background in single-variable calculus, prior to beginning this major.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program requires 11 term credits beyond the prerequisites and not including the senior requirement. Core courses, as listed below, are required from the following categories: 2 math core courses; 1 statistics core course (S&DS 238); 2 linguistics core courses; 2 computation core courses; 3 advanced courses; 1 elective, and 1 senior requirement course.

B.S. degree program The B.S. degree program requires 14 term credits beyond the prerequisites and not including the senior requirement. Core courses, as listed below, are required from the following categories: 2 math core courses; 2 statistics core courses; 3 linguistics core courses; 2 computation core courses; 3 advanced courses; 2 electives, and 2 senior requirement courses.

Math core courses Both B.A. and B.S. degree students must take one course in proof-based discrete mathematics (one of MATH 244, LING 224, or CPSC 202) and one course in linear algebra (either MATH 222 or MATH 225).

Statistics core courses These provide foundations in probability and statistical theory. B.A. degree students satisfy this requirement by taking S&DS 238; B.S. degree students choose between two options (1) one of S&DS 240 or S&DS 241, together with S&DS 242; (2) S&DS 238 and either S&DS 230 or any S&DS course numbered 242 or above.

Linguistics core courses These courses, LING 232, 253, and 263, expose students to the nature of linguistic structure and its variability across languages, at the level of sound (phonology), form (syntax) and meaning (semantics). B.A. degree students must take 2 out of these 3 courses, while B.S. degree students must take all 3.

Computation core courses Computational studies of language rest crucially on the foundations of computer science and programming. To this end, both B.A. and B.S. degree students must take CPSC 201 and 223.

Advanced courses Both B.A. and B.S. degree students must take 1 advanced course in linguistic structure, either LING 235, 254, or 264; 1 course in natural language processing, either CPSC 477 or LING 227; and 1 course in machine learning, either S&DS 265, 365, or CPSC 381.

Electives Elective courses may be used to explore the application of the techniques of computational linguistics across a range of disciplines or to deepen expertise in these techniques. Courses that are pre-approved to satisfy the elective requirement are listed on the Computing and Linguistics major website, but other relevant courses may satisfy this requirement with DUS approval. B.A. degree students take 1 elective course; B.S. degree students take 2 electives.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major (other than as prerequisites).

SENIOR REQUIREMENT

All Computing and Linguistics majors enroll in the capstone seminar CSLI 490 in the fall of the senior year. This seminar includes discussion of student research, as well as presentations by researchers in the field from both inside and outside of Yale. B.A. degree students complete a senior project as part of CSLI 490, working either on an independent project supervised by a Yale faculty member with relevant expertise or as part of a group effort of capstone seminar participants. B.S. degree students enroll in the capstone seminar in the fall and continue work on their senior project in the spring. The senior project of B.S. degree students must involve independent research.

ADVISING

Students interested in the Computing and Linguistics major are encouraged to consult with the DUS. Further information about the major and answers to FAQs are available on the Computing and Linguistics website. The entire selection of courses by students in the major must be approved by the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Statistics*: one of S&DS 100, 101-106, 123, or 220 or comparable experience; *Programming*: CPSC 100 or 112 or comparable experience; *Linguistics*: one 100-level LING course

Number of courses *B.A. degree*—11 term credits beyond prereqs and not incl senior req; *B.S. degree*—14 term credits beyond prereqs and not including senior req

Specific courses required *For both degrees*—2 computational core courses: CPSC 201 and CPSC 223; *for B.A. degree*—S&DS 238

Distribution of courses *Both degrees*—2 math core courses, 1 adv linguistics structure course, 1 adv natural language processing course, 1 adv course in machine learning; *B.A. degree*—2 linguistics core courses, 1 elective; *B.S. degree*—2 statistics core courses, 3 linguistics core courses, 2 electives

Substitution permitted Elective courses in computational linguistics, machine-learning and applications of computational linguistics, as approved by DUS

Senior requirement *Both degrees*—Capstone seminar CSLI 490; *B.S. degree*—one additional semester of senior project

Computing and the Arts

Director of undergraduate studies: Scott Petersen (scott.petersen@yale.edu)

Computing and the Arts is an interdepartmental major designed for students who wish to integrate work in computing with work in one of five arts disciplines: architecture, art, history of art, music, or theater studies.

For students with a computing perspective, issues in these disciplines present interesting and substantive problems: how musicians use computers to compose; the limitations of current software tools used by artists; the types of analyses done by art historians; challenges in designing and using virtual sets in the theater; ways that virtual worlds might help to envision new forms of artistic expression; and lessons that can be learned from trying to create a robotic conductor or performer.

For students with an artistic perspective, computing methods offer a systematic approach to achieving their vision. A foundation in computer science allows artists to understand existing computing tools more comprehensively and to use them more effectively. Furthermore, it gives them insight into what fundamentally can and cannot be done with computers, so they can anticipate the future development of new tools for computing in their field.

PREREQUISITES

The prerequisite for all students in the major is either CPSC 100 or CPSC 112, which should be taken during the first year. There are two additional prerequisites for the Art concentration, ART 111 and 114. There are two additional prerequisites for the Theater, Dance, and Performance Studies concentration, THST 110 and 111. There are no additional prerequisites for the Architecture, History of Art, or Music concentrations. There is no required favorable review of studio work for admission to the major in any concentration, but a sophomore review advising session is required for the Art concentration.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required beyond the prerequisites, not including the two-term senior project. Six of the courses must be in Computer Science, including CPSC 201, 202, and 223. Students are advised to complete CPSC 202 and 223 by the end of the sophomore year. MATH 244 may be substituted for CPSC 202. The six remaining courses are selected from one of the arts disciplines. Students choose a concentration in architecture, art, history of art, music, or theater, dance, and performance studies. All requirements for a single concentration must be satisfied, as specified below.

The Architecture concentration requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 150 and 200; (2) two courses from ARCH 260, 312, 360, and 362; (3) two elective courses from either of the two Architecture specific concentrations: Design; or History, Theory, Criticism of Architecture, and Urbanism; (4) two courses from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; and (5) one additional intermediate or advanced CPSC course (excluding CPSC 490).

The Art concentration requires the following courses in addition to the Computer Science courses listed above, as well as a sophomore review at the School of Art: (1) two 100-level courses beyond ART 111 and 114, such as ART 132 and/or 184 or 185; (2) two

courses in Art at the 200 or 300 level, such as ART 285 and/or 370; (3) ART 395; (4) one course in Art at the 400 level, such as ART 495; (5) two courses selected from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490). Seniors following the art concentration will have access to a shared studio and many facilities in the School of Art.

The History of Art concentration requires the following courses in addition to the Computer Science courses listed above: (1) one introductory, 100-level, History of Art course; (2) two History of Art courses at the 200, 300, or 400 level (the courses must represent two different areas as defined in the History of Art program description); (3) one studio art course (students may need to take a prerequisite course in Art to prepare for the studio course); (4) HSAR 401; (5) one 400-level seminar in History of Art; (6) two courses selected from CPSC 376, 437, 451, 475, 478, or 479, one of which must be CPSC 478 or 479; (7) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Music concentration requires the following courses in addition to the Computer Science courses listed above: (1) two courses from *Group I* (Music Theory); (2) three additional courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); (4) CPSC 431; (5) CPSC 432; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Theater, Dance, and Performance Studies concentration requires the following courses in addition to the prerequisites and Computer Science courses listed above: (1) one course in the Artistic Practice domain; (2) one course in the Histories domain; (3) one course in the Performance Theory domain; (4) one course in the Interarts domain; (5) two additional courses in any of the domains; (6) CPSC 431 or 432; (7) CPSC 478, 479, or 484; (8) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

Searchable attributes: YC CPAR: ARCH CS Elective; YC CPAR: ART CS Elective, YC CPAR: HSAR CS Elective, YC CPAR: MUSI Elective, YC CPAR: THST CS Elective

SENIOR REQUIREMENT

The senior project requires two terms: one term of CPSC 490, and one term of ARCH 491, ART 496, HSAR 499, one from MUSI 496–499, or one from THST 471, 491 or 492, depending on the concentration chosen. The project must be approved by the DUS and be acceptable to both departments. Students must submit a written report, including an electronic abstract and webpage(s).

ADVISING AND APPROVAL OF PROGRAM

The entire program of each student majoring in Computing and the Arts must be approved by the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *All concentrations*—CPSC 100 or CPSC 112; *Art concentration*—ART 111, 114, and sophomore review; *Theater, Dance, and Performance Studies concentration*—THST 110, 111

Number of courses 12 term courses beyond prereqs (not incl senior project)

Specific courses required *All concentrations*—CPSC 201, 202, 223; *Architecture*—ARCH 150, 200; 2 courses from ARCH 260, 312, 360, 362; *Art*—ART 395; *History of Art*—HSAR 401; *Music*—CPSC 431, 432; *Theater, Dance, and Performance Studies*—CPSC 431 or 432; CPSC 478, 479, or 484

Distribution of courses *All concentrations*—3 addtl courses in Comp Sci as specified for each concentration, to incl 1 intermediate or advanced course (excluding CPSC 490); *Architecture*—2 courses from the Architecture specific concentrations, as specified; *Art*—2 courses in Art at 100 level (excluding prereqs), 2 courses at 200 or 300 level, and 1 at 400 level as specified; *History of Art*—1 intro, 100-level course; 2 courses in different areas of History of Art at 200, 300, or 400 level, as specified; 1 sem at 400-level in History of Art; 1 studio art course; *Music*—2 courses from *Group I* (Music Theory); 3 courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); *Theater, Dance, and Performance Studies*—1 course in each of 4 domains; 2 additional courses in any domain

Substitution permitted MATH 244 for CPSC 202

Senior requirement *All concentrations*—Two-term senior project including CPSC 490, approved by DUS; *Architecture*—ARCH 491; *Art*—ART 496; *History of Art*—HSAR 499; *Music*—one from MUSI 496–499; *Theater, Dance, and Performance Studies*—THST 471, 491 or 492

DeVane Lecture Course

The DeVane Lecture course offered for fall 2024 is DEVN 200, *Can It Happen Again? Yale, Slavery, the Civil War, and Their Legacies*, taught by Professor David Blight. For more information, see [Yale Course Search](#).

Directed Studies

Director of undergraduate studies: Katja Lindskog (katja.lindskog@yale.edu), HQ (320 York St.); Chair of Humanities: Francesco Casetti, HQ (320 York St.); directedstudies.yale.edu

Directed Studies (DS), a selective program for first-year students, is a seminar-based interdisciplinary introduction to a wide selection of influential texts that have shaped many Western traditions and cultures. Spanning works from the ancient Mediterranean to the present, Directed Studies is a coherent program of study that encourages students to put rich and complex texts into conversation with one another across time and across disciplinary boundaries. Students in Directed Studies learn to analyze challenging and urgent texts, to participate meaningfully in seminar discussions, and to write clear and persuasive analytic essays.

PREREQUISITES

Directed Studies has no prerequisites and is designed for students with or without any background in humanities or Western thought, ancient or modern. Students must enroll in the full slate of Directed Studies courses in both semesters of the program. (In order to enroll for the second term, students must have completed the first term's courses.)

UNIQUE TO THE PROGRAM

The Directed Studies program consists of three integrated full-year courses in Literature, Philosophy, and Historical and Political Thought. Approximately ten percent of the first-year class are accepted each year. Students entering the program must enroll in all three courses and are expected to enroll for both semesters. Students participating in DS become members of a close-knit and supportive intellectual cohort that endures well beyond the end of the first year.

Each of the three Directed Studies courses meets weekly for two seminars and one lecture. Seminars have a maximum of fifteen students and provide an opportunity to work closely with Yale faculty. The regular lectures and seminars are complemented by guest lectures that feature distinguished speakers from Yale and beyond. Our study of written texts is enhanced by special sessions at the Yale Art Gallery, the Yale Center for British Art, and the Beinecke Rare Book and Manuscript Library.

Directed Studies fulfills a number of Yale College distributional requirements, including the two required course credits in the humanities and arts (HU), the two required course credits in the social sciences (SO), and the two required course credits in writing (WR). Moreover, courses taken in Directed Studies can be counted toward satisfying requirements in a variety of majors. For example, both terms of DS Historical and Political Thought may be counted toward the History major, and one term may be counted toward the major in Political Science; both terms of DS Literature may be counted toward the Comparative Literature major. The program serves as a strong foundation for all majors in Yale College, including many STEM fields, and is an outstanding basis for careers in law, public policy, business, education, the arts, journalism, consulting, engineering, and medicine.

Earth and Planetary Sciences

Directors of undergraduate studies: Celli Hull (pincelli.hull@yale.edu); Jeffrey Park (jeffrey.park@yale.edu); earth.yale.edu

The Earth and Planetary Sciences (EPS) program, formerly Geology and Geophysics, prepares students for the application of scientific principles and methods to the understanding of the Earth system and other planets. Subjects range from the history of Earth and life to present-day environmental processes and climate change, the deep interiors of Earth and other planets, tectonic plates, oceans, atmospheres, climates, land surface, natural resources, and biota. The emphasis of the curriculum is on employing basic principles from the core sciences (physics, chemistry, and biology) to further an understanding of Earth's past and present, and addressing issues relating to its future. Students gain a broad background in the natural sciences, and select a specific concentration to focus their work on planetary or environmental phenomena of particular interest. The four B.S. degree concentrations emphasize hands-on research experience in fieldwork, in laboratories, or in theoretical analyses and computer modeling. While some graduates continue on to research, consulting, or industrial careers in Earth, environmental, and planetary sciences, the major's broad scientific training prepares students for a wide variety of other paths, including medicine, law, public policy, and teaching. There is also a B.A. degree, which is most suitable for students who wish to study Earth and Planetary Sciences as a second major, complementing other majors in, for example, mathematics, economics, physics, biology, or engineering, and who do so in preparation for a career in law, business, government, or environmental fields.

PREREQUISITES

With permission of the director of undergraduate studies (DUS), acceleration credits awarded at matriculation for high scores on national or international examinations (such as Advanced Placement subject tests) may be used to satisfy prerequisites, even if the student does not choose to accelerate. Higher-level courses may, with the permission of the DUS, be substituted for prerequisites and for specific required courses. For prerequisites specific for each concentration, see Requirements of the Major.

REQUIREMENTS OF THE MAJOR

B.S. degree program Majors in the B.S. program in Earth and Planetary Sciences choose from four concentrations: Atmosphere, Ocean, and Climate; Environmental and Energy Geoscience; Paleontology and Geobiology; and Solid Earth Science. The concentrations are suggested pathways to professional careers and major areas of research in earth and planetary sciences. Students may change concentrations during their course of study with guidance from the DUS.

1. The Atmosphere, Ocean, and Climate concentration provides a comprehensive understanding of the atmosphere-ocean-climate system. Topics range from past climate changes, including the ice ages, to present-day atmospheric and ocean circulation, to weather phenomena, to global warming projections. The prerequisites are CHEM 165 or CHEM 167; PHYS 180, 181 and PHYS 205L, 206L; ENAS 130 or equivalent; and mathematics through differential equations

(MATH 120 or ENAS 151, and ENAS 194). The major requirements consist of at least eleven term courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of Earth processes, majors take an introductory course in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; or EPS 125 with 126L. EPS 100 and 101 do not require an accompanying lab. Five core courses, totaling five course credits, introduce students to Earth's climate system (EPS 140), meteorology (EPS 322), physical oceanography (EPS 335), fluid mechanics (MENG 361), and statistics or linear algebra (S&DS 230 or 238 or MATH 222). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives are chosen from topics in the environment and in processes that govern the atmosphere, ocean, and land surface, physics, and statistics. A list of suggested electives is available from the office of the DUS or on the department website. At least one elective must be from EPS.

2. The Environmental and Energy Geoscience concentration provides a scientific understanding of the natural and anthropogenic processes that shape the Earth-atmosphere-biosphere system, including energy and material flows among its components. It emphasizes comparative studies of past and current Earth processes to inform models of humankind's role within the environment's future. The prerequisites are broad and flexible and include CHEM 165 or CHEM 167 and mathematics through multivariate calculus (MATH 120 or ENAS 151). Depending on their area of focus, students may choose a prerequisite in physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), or they may choose cellular biology (BIOL 101 and 102, or MCDB 120) and evolutionary biology (BIOL 103 and 104, or E&EB 122, or EPS 125 and 126L). The major requirements consist of at least eleven term courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of the Earth system, majors take two introductory courses in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; EPS 125 with 126L; or EPS 140. Four core courses are chosen from Earth's surface processes (EPS 232), the microbiology of surface and near-surface environments (EPS 255), fossil fuels and energy transitions (EPS 274), renewable energies (EPS 275), geochemical principles (EPS 310), geology (EPS 210 or EPS 220 or EPS 312), meteorology (EPS 322), and satellite-based image analysis (EPS 362). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives chosen from Earth & Planetary Sciences, Environmental Studies, Ecology and Evolutionary Biology, Engineering, or related fields provide a broad approach to scientific study of the environment. A list of suggested electives is available from the office of the DUS or on the department website. Electives may be chosen from the core courses, and at least two must be from EPS.
3. The Paleontology and Geobiology concentration focuses on the fossil record of life and evolution, geochemical imprints of life, and interactions between life and Earth. Topics range from morphology, function, relationships, and biogeography of the fossils themselves, through the contexts of fossil finds in terms of stratigraphy, sediment geochemistry, paleoecology, paleoclimate, and geomorphology, to analysis of the larger causes of paleontological, geobiological, and evolutionary patterns. Integrative approaches are emphasized that link fossil evidence with the physical and chemical evolution of Earth. The prerequisites are college-level biology

(BIOL 101–104, or MCDB 120 and E&EB 122), CHEM 165 or CHEM 167, and mathematics through multivariate calculus (MATH 120 or ENAS 151). The major requirements consist of at least twelve term courses, for at least eleven and a half course credits, beyond the prerequisites, including either the senior essay or the senior thesis. Students take one of EPS 100; EPS 101; or EPS 110 with 111L, to gain geological and environmental context, and they also take EPS 125 and 126L as an introduction to the fossil record and evolution. Four core courses are chosen from topics in four of the following areas: in sedimentary processes (EPS 232 or EPS 355), the study of evolution (E&EB 225), vertebrates and vertebrate paleontology (EPS 270 or EPS 325 or EPS 375), invertebrate paleontology (EPS 313), paleoecology (EPS 345), microbiology in past and present environments (EPS 255), Earth's carbon cycle and climate (EPS 310 or 402), and statistical data analysis as applied to the life sciences (S&DS 101 or equivalent). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives selected from Earth and Planetary Sciences, Ecology and Evolutionary Biology, Molecular, Cellular, and Developmental Biology, and related fields offer students flexibility in pursuing their specific interests. A list of suggested electives is available from the office of the DUS or on the department website. At least four of the twelve term courses should be upper level (200 or above) paleontology courses and at least one elective must be from EPS.

4. The Solid Earth Science concentration emphasizes an integrated geological, geochemical, and geophysical approach to the study of processes operating within Earth and their manifestations on the surface. It includes the structure, dynamics, and kinetics of Earth's interior and their impacts on our environment both in the long term (e.g., the evolution of the land surface) and in the short term (e.g., the causes of natural disasters such as earthquakes, tsunamis, and volcanic eruptions). Students acquire a fundamental understanding of the solid Earth system, both as it exists today and as it has evolved over geologic timescales. The prerequisites are CHEM 165 or CHEM 167, physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), and mathematics through multivariate calculus (MATH 120 or ENAS 151). The major requirements consist of at least eleven courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of the Earth system, majors take two introductory courses in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; EPS 125 with 126L; or EPS 140. The core of the concentration consists of four courses chosen from topics in mountain building and global tectonics (EPS 210 or EPS 212 or EPS 350), rocks and minerals (EPS 220), sedimentary rocks and processes (EPS 232), isotope geochemistry (EPS 310), and structural geology (EPS 312). Other higher-level courses in EPS can be substituted with the permission of the DUS. Students also select four electives in geology, geochemistry, geophysics, or related topics. A list of suggested electives is available from the office of the DUS or on the department website. Electives may be chosen from core courses, and at least two must be from EPS.

B.A. degree program The B.A. degree in Earth and Planetary Sciences requires fewer upper-level courses than the B.S. degree. It may be more appropriate for students who plan to fulfill the requirements of two majors, who study Earth and Planetary Sciences in preparation for a career in law, business, government, or environmental fields, or

who decide to pursue a science major only after the first year. The prerequisites include mathematics (MATH 115), biology (BIOL 101 and 102, or MCDB 120, or EPS 255), or physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), and a lecture course in chemistry. The major requirements consist of at least nine term courses for at least nine credits, beyond the prerequisites. These include two courses in EPS numbered 100–140, with any accompanying laboratories; courses in natural resources (EPS 274 or EPS 275) and geochemical processes (EPS 220 or EPS 232 or EPS 261 or EPS 310); and five additional courses at the 200 level or higher in Earth and Planetary Sciences or related fields, approved by the DUS and including either the senior essay or the senior thesis. Course selections can be guided by any of the B.S. concentrations described above.

Credit/D/Fail Courses taken Credit/D/Fail may not be applied to the prerequisites or to the requirements of the major.

SENIOR REQUIREMENT

Seniors in both degree programs must prepare either a senior essay based on one term of library, laboratory, or field research (EPS 492) or, with the consent of the faculty, a two-term senior thesis (EPS 490, EPS 491), which involves innovative field, laboratory, or theoretical research. Students electing to do a senior thesis must first select a topic and obtain the consent of a faculty member to act as an adviser. They must then petition the faculty through the DUS for approval of the thesis proposal. The petition should be submitted by the start of the senior year. If the two-term senior thesis is elected, EPS 491 may count as an elective toward the major. A copy of each senior thesis or senior essay is made available on the department website.

ADVISING

Qualified juniors and seniors are encouraged to enroll in graduate courses, with permission of the instructor, the DUS, and the director of graduate studies. Descriptions of graduate courses are available at the office of the DUS.

Practical experience In addition to prerequisites and required courses in Earth and Planetary Sciences, candidates for the B.A. and B.S. degrees are strongly encouraged to gain practical experience. This can be done in two ways: (1) by attending a summer field course at another academic institution, or (2) by participating in summer research opportunities offered by the Department of Earth and Planetary Sciences, by other academic institutions, or by certain government agencies and private industries. Consult the DUS or see the department website for further information.

Combined B.S./M.S. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Earth and Planetary Sciences.

Physics and Geosciences major The Department of Earth and Planetary Sciences also offers a combined major with the Department of Physics. For more information, see Physics and Geosciences.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* — MATH 115; biology (BIOL 101 and 102, or MCDB 120, or EPS 255) or physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201); and a lecture course in chem; *B.S.* — *All concentrations* — CHEM 165 or CHEM 167; MATH 120 or ENAS 151; *Atmosphere, Ocean, and Climate concentration* — ENAS 130 or equivalent; ENAS 194; PHYS 180, 181, 205L, 206L; *Environmental and Energy Geoscience concentration* — physics (PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201) or biology (BIOL 101 and 102, or MCDB 120; and BIOL 103 and 104, or E&EB 122, or EPS 125 and EPS 126L); *Paleontology and Geobiology concentration* — BIOL 101–104, or MCDB 120 and E&EB 122; *Solid Earth Science concentration* — PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201

Number of courses *B.A.* — at least 9 courses beyond prereqs for letter grades (incl senior req); *B.S.* — *Atmosphere, Ocean, and Climate, Environmental and Energy Geoscience, and Solid Earth Science concentrations* — at least 11 courses, for 11 credits, beyond prereqs for letter grades (incl senior req); *Paleontology and Geobiology concentration* — at least 12 courses, for 11.5 credits, beyond prereqs for letter grades (incl senior req)

Specific core courses *B.A.* — EPS 274 or EPS 275; 1 from EPS 220, 232, 261, or 310; *B.S.* — *Atmosphere, Ocean, and Climate concentration* — EPS 140, 322, 335, MENG 361, S&DS 230 or 238 or MATH 222; *Paleontology and Geobiology concentration* — EPS 125, 126L

Distribution of courses *B.A.* — 2 intro courses in EPS, with labs; 5 addtl courses at 200 level or higher in EPS or related fields inc sen req; *B.S. concentrations* — 1 or 2 intro courses in EPS, with labs, as specified; 4 or 5 core courses, as specified; 4 electives, as specified

Substitution permitted *All programs* — with DUS permission, higher-level courses for prereqs or core courses

Senior requirement *All programs* — senior essay (EPS 492) or, with permission of faculty, two-term senior thesis (EPS 490, 491)

FACULTY OF THE DEPARTMENT OF EARTH AND PLANETARY SCIENCES

Professors Jay Ague, David Bercovici, Ruth Blake, Mark Brandon, Derek Briggs, David Evans, Alexey Fedorov, Debra Fischer, Jacques Gauthier, Shun-ichiro Karato, Jun Korenaga, Maureen Long (*Chair*), Jeffrey Park, Noah Planavsky, Peter Raymond, Danny Rye (*Emeritus*), James Sakers, Ronald Smith (*Emeritus*), Mary-Louise Timmermans, John Wettlaufer

Associate Professors Bhart-Anjun Bhullar, Matthew Eisaman, Pincelli Hull

Assistant Professors Juan Lora, Alan Rooney, Lidya Tarhan, Jordan Wostbrock

Lecturer Michael Oristaglio

East Asian Languages and Literatures

Director of undergraduate studies: Luke Bender, (luke.bender@yale.edu) Humanities Quadrangle, 320 York St., Room 111; eall.yale.edu

The major in East Asian Languages and Literatures provides rigorous training in the study of East Asian languages, literatures, cultures, and thought from ancient times through the present, with a strong focus on the reading and analysis of texts, theater, film, and other forms of media. Students select either the Chinese, Japanese, or Korean concentration but are encouraged to take courses across geographical regions to become familiar with East Asian literary culture more broadly. The major is excellent preparation for careers including business, law, academia, foreign service, translation, and journalism that demand advanced linguistic proficiency and analytical sophistication. East Asian Languages and Literatures graduates have gone on to careers in law, business, medicine, academia, film, translation, teaching, and diplomacy.

COURSES FOR NONMAJORS

All courses offered by the Department of East Asian Languages and Literatures are open to nonmajors.

COURSE NUMBERING

Language courses use the subject codes CHNS, JAPN, or KREN. Multiple-titled courses that include CHNS, JAPN, or KREN subject codes and are numbered 200–299 are taught in English with some sections taught in Chinese, Japanese, or Korean. Courses with the subject code EALL are content courses whose focus is critical and humanistic; those numbered 200–299 are introductory, and those numbered 300–399 are advanced. Courses numbered EALL 001–099 are First-Year Seminars with topics on East Asian literature, film, and humanities.

PREREQUISITE

Candidates for the major must complete CHNS 140, JAPN 140, KREN 140, or the equivalent.

PLACEMENT PROCEDURES

Students who enroll in the department's language courses for the first time but who have studied Chinese, Japanese, or Korean elsewhere, and students who have skills in one of these languages because of family background, must take a placement examination before the beginning of the academic year. These exams can be accessed via the department website and must be completed before the end of July. Students of Japanese, Chinese, and Korean languages, returning from programs abroad, must take a placement examination, unless the coursework was completed at an institution preapproved by the Richard U. Light Fellowship program. For questions, consult with the director of undergraduate studies (DUS).

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025,

may be fulfilled by students who declared the major in a prior term. A Korean concentration was added to the Chinese and Japanese concentrations.

The major consists of at least eleven term courses beyond the prerequisite. Students must take two terms of advanced modern Chinese (CHNS 150 and 151 or equivalents), advanced Japanese (JAPN 150 and 151 or equivalents), or advanced Korean (KREN 150 and 151 or equivalents) as well as one term of literary Chinese (CHNS 170), literary Japanese (JAPN 170), or Introduction to Hanja (KREN 170). Students also take a survey course in Chinese, Japanese, Korean, or East Asian history and culture, preferably early in their studies. Three courses are required in literature in translation, taught in English, selected from EALL 200–399; one must be focused primarily on premodern content. These three may include courses on theater and film. In addition, three advanced courses with readings in literary or modern Chinese, Japanese, and/or Korean are required.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be counted toward the requirements of the major, with permission of the DUS.

SENIOR REQUIREMENT

Students prepare a one-term senior essay in EALL 491 or a yearlong senior essay in EALL 492 and 493. Those who elect a yearlong essay effectively commit to taking twelve term courses in the major, because the second term of the essay may not be substituted for any of the eleven required courses.

STUDY ABROAD

Students are encouraged to study abroad. Interested students should consult with the DUS and with the office of the Richard U. Light Fellowship to apply for support for programs in China, Japan, and Korea.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite CHNS 140, JAPN 140, KREN 140, or equivalent

Number of courses 11 courses (incl one-term senior essay) or 12 courses (incl yearlong senior essay) beyond prerequisite

Specific courses required *Chinese concentration*—CHNS 150, 151 or equivalents, and 170; *Japanese concentration*—JAPN 150, 151 or equivalents, and 170; *Korean concentration*—KREN 150, 151 or equivalents, and 170

Distribution of courses 1 survey course in Chinese, Japanese, Korean, or East Asian history and culture; 3 courses in literature in translation numbered EALL 200–399, one of them premodern; 3 adv courses with readings in Chinese, Japanese, or Korean

Senior requirement One-term senior essay (EALL 491) or yearlong senior essay (EALL 492, 493)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of East Asian Languages and Literatures offers a Certificate of Advanced Language Study in Chinese, Korean, and Japanese. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The

Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. (Courses conducted in English, such as CHNS 170 and 171, JAPN 170 and 171, and KREN 170 do not count.) All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at a minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF EAST ASIAN LANGUAGES AND LITERATURES

Professors Aaron Gerow (*Chair*), Tina Lu, Jing Tsu

Associate Professors Lucas Bender, Michael Hunter, Hwansoo Kim

Assistant Professors Kyunghee Eo, Rosa van Hensbergen

Senior Lecturer Pauline Lin

Senior Lectors II Seungja Choi, Angela Lee-Smith, Rongzhen Li, Ninghui Liang, Hiroyo Nishimura, Peisong Xu

Senior Lectors Hsiu-hsien Chan, Min Chen, Fan Liu, Kumiko Nakamura, Jianhua Shen, Wei Su, Chuanmei Sun, Haiwen Wang, Yu-lin Wang Saussy, Mika Yamaguchi, Yongtao Zhang, William Zhou

Lectors Jingjing Ao, Seunghee Back, Xing Gao, Hye Song Kim, Hyun Sung Lim, Saori Nozaki

East Asian Studies

Director of undergraduate studies: Valerie Hansen (valerie.hansen@yale.edu); ceas.yale.edu

In the East Asian Studies major, students focus on a country or an area within East Asia and focus their work in the humanities or the social sciences. The major offers a liberal education that serves as excellent preparation for graduate study or for business and professional careers in which an understanding of East Asia is essential.

The major in East Asian Studies is interdisciplinary, and students typically select classes from a wide variety of disciplines. The proposed course of study must be approved by the director of undergraduate studies (DUS).

PREREQUISITE

The prerequisite to the major is completion of study at the L2 level of an East Asian language taught at Yale or the equivalent.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisite, the major consists of thirteen course credits, which may include up to six taken in a preapproved program of study abroad. Six course credits must be taken in East Asian language courses, including a course at the L4 level and one year of advanced study (L5) with readings in the East Asian language.

Beyond the language requirement, the major includes seven course credits, six in the country or area of focus and one outside it. Areas of focus include: China, Korea, or Japan. Of the course credits in the area of focus, one must be in the premodern period, at least two must be seminars, and one is the senior requirement. Both seminars must be completed before the semester in which students complete their senior essay. These courses are normally taken at Yale during the academic year, but with prior approval of the DUS the requirement may be fulfilled through successful course work undertaken elsewhere.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be counted toward the requirements of the major, with permission of the DUS.

SENIOR REQUIREMENT

Before enrolling in the course in which the senior requirement will be met, students must have completed the two seminars related to their area of focus requirement. During the senior year, all students must satisfy a senior requirement consisting of a major research project that uses Chinese-, Japanese-, or Korean-language materials, reflects an up-to-date understanding of the region, and demonstrates a strong command of written English. This requirement can be met in one of three ways. (1) Students may take a seminar that relates to the country or area of focus, culminating in a senior thesis. Students who are unable to write a senior essay in a seminar may complete (2) a one-term senior essay in EAST 480, or (3) a one-credit, two-term senior research project in EAST 491, 492 culminating in an essay. The adviser for the senior project should be a faculty member associated with the Council on East Asian Studies with a reading knowledge of the target language materials consulted for the essay.

ADVISING

Selection of courses Upon entering the major, students are expected to draw up an intellectually coherent sequence of courses in consultation with the DUS. They must consult with the DUS each term concerning their course schedules. They should identify as soon as possible a faculty adviser in their area of focus. As a multidisciplinary program, East Asian Studies draws on the resources of other departments and programs in the University. Students are encouraged to examine the offerings of other departments in both the humanities and the social sciences, as well as Residential College Seminars, for additional relevant courses. The stated area of focus of each student determines the relevance and acceptability of other courses. For a complete listing of courses approved for the major, see the Council on East Asian Studies website.

Courses in the graduate and professional schools Qualified students may elect pertinent courses in the Graduate School and in some of the professional schools with permission of the instructor, the EAST DUS, and the director of graduate studies of the relevant department or the dean or registrar of the professional school.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS prior to the fifth term of enrollment for specific requirements in East Asian Studies.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite L2 level of an East Asian lang taught at Yale or the equivalent

Number of courses 13 course credits beyond prereq (incl senior req); up to 6 may be in preapproved study abroad

Distribution of courses 6 course credits in East Asian lang courses, incl 1 L4 course and 1 year at L5 level with readings in the lang; 6 addtl course credits in country or area of focus, incl 1 in premodern era and 2 seminars (the two seminars must be completed before starting senior req); 1 course credit on East Asia outside country or focus area

Senior requirement Senior sem culminating in senior thesis, or one-term senior essay in EAST 480, or one-credit, two-term senior research proj in EAST 491, 492 culminating in an essay

FACULTY ASSOCIATED WITH THE PROGRAM OF EAST ASIAN STUDIES

Professors Daniel Botsman (*History*), Fabian Drixler (*History*), Aaron Gerow (*East Asian Languages & Literatures; Film & Media Studies*), Valerie Hansen (*History*), Tina Lu (*East Asian Languages & Literatures*), Helen Siu (*Anthropology*), Chloe Starr (*Divinity School*), Jing Tsu (*East Asian Languages & Literatures; Comparative Literature*), Anne Underhill (*Anthropology*), Arne Westad (*Global Affairs; History*), Mimi Yiengpruksawan (*History of Art*)

Associate Professors Lucas Bender (*East Asian Languages & Literatures*), Eric Greene (*Religious Studies*), Denise Ho (*History*), William Honeychurch (*Anthropology*), Michael Hunter (*East Asian Languages & Literatures*), Hwansoo Kim (*Religious Studies*), Yukiko Koga (*Anthropology*)

Assistant Professors Lucas Bender (*East Asian Languages & Literatures*), Jinyi Chu (*Slavic Languages and Literatures*), Maura Dykstra (*History*), Kyunghee Eo (*East Asian Languages & Literatures*), Daniel Mattingly (*Political Science*), Quincy Ngan (*History of Art*), Hannah Shepherd (*History*), Rosa van Hensbergen (*East Asian Languages & Literatures*), Emma Zang (*Sociology*)

Senior Lecturer Pauline Lin (*East Asian Languages & Literatures*)

Lecturers Jonathan Feuer, Devin Fitzgerald, Victor Fong, Rio Katayama, Gyatso Marnyi, Meghan Howard Masang, Angela McClean, Charles McClean, Peng Peng, Luciana Sanga, Xiaoxiao Shen, Dilrabo Tosheva, Carolyn Wargula

Senior Lectors II Seungja Choi, Angela Lee-Smith, Rongzhen Li, Ninghui Liang, Hiroyo Nishimura, Peisong Xu

Senior Lectors Hsiu-hsien Chan, Min Chen, Fan Liu, Kumiko Nakamura, Jianhua Shen, Wei Su, Chuanmei Sun, Haiwen Wang, Yu-lin Wang Saussy, Mika Yamaguchi, Yongtao Zhang, William Zhou

Lectors Jingjing Ao, Seunghee Back, Hye Seong Kim, Hyun Sung Lim, Saori Nozaki

Ecology and Evolutionary Biology

Director of undergraduate studies: Richard Prum (richard.prum@yale.edu); eeb.yale.edu

The Department of Ecology and Evolutionary Biology (E&EB) offers broad education in the biological sciences, covering subject matter that ranges from molecules, cells, and organs through organisms to communities and ecosystems, and the evolutionary processes that shape them. The department offers a B.S. and a B.A. degree. The B.S. program is designed for students planning to pursue graduate study in ecology and evolutionary biology, other biological disciplines, environmental science, or to attend medical, dental, or veterinary school. The B.A. program is intended for students who are interested in ecology, evolution, and organismal diversity as part of a liberal education but do not intend to pursue graduate work in the discipline, or for students who are interested in a second major. The two programs share the same prerequisites, introductory courses, and core requirements but differ in their electives and senior requirements.

COURSES FOR NONMAJORS

Several E&EB courses have no college-level prerequisites and are suitable for nonmajors. These include all 100-level offerings as well as 200-level courses that deal with particular organism groups such as plants, fish, mammals, birds, and insects or other invertebrates.

CONCENTRATIONS

Students majoring in E&EB select one of two concentrations. The concentration in *Biodiversity and the Environment* (formerly Track 1) emphasizes courses appropriate for careers in ecology, evolutionary biology, and environmental science. The concentration in *Organismal Biology* (formerly Track 2) is appropriate for premedical, pre-dental, and preveterinary students, and for students interested in research in physiology, functional morphology, and anatomy. The E&EB major offers opportunities for independent research in both laboratory and field.

PREREQUISITES

The prerequisites for the major are intended to provide core scientific literacy; they include courses in biology, chemistry, physics, and mathematics. Finishing these introductory courses early allows for a more flexible program in later years, but it is not necessary to complete them before declaring the major.

The introductory biology sequence BIOL 101, 102, 103, and 104 is required. Also required are a two-term lecture sequence in general chemistry, CHEM 161, 165 or CHEM 163, 167, with associated laboratories, CHEM 134L and 136L; one term of mathematics (MATH 115 or 116 or 120) or one term of statistics & data science (S&DS 100 or 230).

Students should take four additional courses, for a total of four credits, from among the following options: MATH 115 or 116, MATH 118 or 120, MATH 222 or 225, MATH 230 or 231, MATH 235, 241, 242, 244, 246, 247, 250, 255, S&DS 100–106, 220, 230, 238, 240, CPSC 100, 112, 123, 201, CHEM 174 or 220, CHEM 175 or 221, CHEM 222L, 223L,

PHYS 170 or 180, PHYS 171 or 181, EPS 110, 212, 220, 222, 232, 240, and 255. No more than two of these four additional courses may originate in the same department.

An online program, ONEXYS for Physics, will be offered in the summer by the Mathematics and Physics departments and by the Poorvu Center for Teaching and Learning, to review math skills needed in preparation for introductory physics courses.

Acceleration credit awarded in chemistry, mathematics, and physics, or completion of advanced courses in those departments, may be accepted in place of the corresponding introductory courses for the E&EB major. Students who have mathematics preparation equivalent to MATH 115 or higher are encouraged to take a statistics course (usually S&DS 101–106) and/or additional mathematics or statistics courses such as MATH 120, 121, MATH 222 or 225 or 226, and S&DS 220 or 230. Students are strongly urged to take general chemistry in the first or second year. Students who place out of general chemistry can take organic chemistry during their first year.

PLACEMENT PROCEDURES

Students can place out of the introductory biology sequence (BIOL 101, 102, 103, 104) by means of the biology placement examination administered jointly by the biological science departments, E&EB, MB&B, and MCDB, at the beginning of the first year.

Potential E&EB majors are expected to take the mathematics placement test. Those who place above the level of MATH 112 may proceed to introductory courses for the E&EB major; those who place into MATH 112 must take that course first.

For information about placement examinations, refer to the *Calendar for the Opening Days of College* and the Yale College Dean's Office website. The Chemistry department arranges placement in chemistry courses.

REQUIREMENTS OF THE MAJOR

B.S. degree program Beyond the prerequisites, the B.S. degree requires three lecture courses and one laboratory, for three and one-half course credits; two electives for two course credits, one of which must be a lecture or a seminar; and the senior requirement. The required courses in the *Biodiversity and the Environment* concentration are E&EB 220, 225, and a lecture course on organismal diversity usually chosen from E&EB 246–272 or E&EB 280, along with its associated laboratory, or E&EB 326 and 327L. Other lecture courses on organismal diversity, with laboratory, are permitted with approval of the DUS, including MCDB 290 and 291L. Required courses in the *Organismal Biology* concentration include E&EB 290; E&EB 295 or BENG 350; MCDB 300 or MB&B 300; and E&EB 291L. Most E&EB, MCDB, or MB&B courses numbered 200 or above qualify as electives, as do most research courses and laboratories in a biological sciences department or in the Yale School of Medicine. Courses from other science departments as well as Mathematics, Statistics and Data Science, and Computer Science may qualify with permission of the DUS. Residential College Seminars may not be counted toward the requirements of the major.

B.A. degree program Beyond the prerequisites, the B.A. degree requires the same courses as the B.S. degree, except for the two electives for a total of three and one-half course credits (not counting the senior requirement).

Limit on research courses While independent research courses may be taken multiple times for credit, there are restrictions on the number of such courses

that can be included in a student's curriculum. See Academic Regulations, section C, Course Credits and Course Loads. Interested sophomores and juniors can take E&EB 469 and E&EB 474. For information on how to become involved in research, see the E&EB Guide to Research and Undergraduate Research Opportunities. For information on fellowships and summer experiences, see the E&EB Guide to Fellowships and Summer Experiences.

Limit on courses taken in the professional schools Undergraduates may apply up to 4 courses taken in the professional schools for credit towards graduation. See Academic Regulations, section L, Special Academic Arrangements for more information.

Graduate courses of interest to undergraduates Graduate courses in the biological and biomedical sciences that may be of interest to undergraduates are listed in the Graduate School online bulletin, and many are posted on the Biological and Biomedical Sciences website. There is no limit on the number of courses students may take in the Graduate School of Arts and Sciences. Additional information is available from the DUS and the director of graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

Credit/D/Fail No course, including prerequisites, taken Credit/D/Fail may be counted toward the E&EB major.

SENIOR REQUIREMENT

B.S. degree program Students in the B.S. degree program fulfill the senior requirement by completing two terms of original research in E&EB 475 and 476, or in E&EB 495 and 496. Students interested in conducting research before their senior year may do so by taking E&EB 469 or E&EB 474, but they do not count toward the senior requirement.

B.A. degree program Students in the B.A. degree program fulfill the senior requirement either by completing one term of independent study in E&EB 470 or by writing a senior essay. The senior essay may be related to the subject matter of a course, but the senior essay is a separate departmental requirement in addition to any work done in a course and does not count toward the grade in any course. Students intending to write a senior essay must obtain an approval form from the office of the DUS and have it signed by the senior essay adviser before the end of the course selection period. Senior essays must be submitted to the DUS by the last day of classes.

ADVISING

First-year students considering a major in Ecology and Evolutionary Biology are invited to consult with the DUS. After the first year, students should choose an adviser from the department faculty who has interests comparable to their own and/or is a fellow of their residential college. For additional information, visit the E&EB website. Students in E&EB should consult one of the advisers assigned to their class (see below). The course schedules of all E&EB majors (including sophomores intending to major in E&EB) must be reviewed by a faculty member in E&EB; the signature of the DUS is not required, but is valid for any student. Students whose regular adviser is on leave can consult the DUS to arrange for an alternate.

PEER MENTORS

Peer mentors provide a helpful student perspective to navigating the major and the department. Students are encouraged to contact them.

YEEBUG is an undergraduate group of Yale's Ecology and Evolutionary Biology majors. The student members organize social events and panels, lead field trips, and represent the group at bazaars and academic fairs.

STUDY ABROAD

Participation in study abroad field programs is encouraged. The Organization for Tropical Studies (OTS) and the School for Field Studies (SFS) provide specific opportunities for study of tropical and conservation biology. Credit for such programs may apply toward the major; interested students should consult the DUS prior to going abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites 13 courses for 11 credits, as specified

Number of courses *B.S.* — 5½ course credits beyond prereqs (not incl senior req); *B.A.* — 3½ course credits beyond prereqs (not incl senior req)

Specific courses required For both the *B.A.* and the *B.S.* degrees in *Biodiversity and the Environment* — E&EB 220, 225; in *Organismal Biology* — E&EB 290; E&EB 295 or BENG 350; MCDB 300 or MB&B 300; and E&EB 291L

Distribution of courses For both the *B.A.* and the *B.S.* degrees in *Biodiversity and the Environment* — 1 lecture course from E&EB 246–272 or E&EB 280 with associated lab, or E&EB 326 and 327L; Additionally for the *B.S.* — 2 electives as specified

Substitutions permitted MCDB lecture/lab courses on organismal diversity for E&EB lecture/lab

Senior requirement *B.S.* — two terms of E&EB 475 and 476, or E&EB 495 and 496; *B.A.* — E&EB 470 or senior essay

CONCENTRATIONS

Students majoring in E&EB select one of two concentrations.

The concentration in *Biodiversity and the Environment* (formerly Track 1) emphasizes courses appropriate for careers in ecology, evolutionary biology, and environmental science.

Required courses:

- E&EB 220 General Ecology
- E&EB 225 Evolutionary Biology
- a lecture course on organismal diversity usually chosen from E&EB 246–272 or E&EB 280, along with its associated laboratory, or E&EB 326 and 327L

The concentration in *Organismal Biology* (formerly Track 2) is appropriate for premedical, predental, and preveterinary students, and for students interested in

research in physiology, functional morphology, and anatomy. The E&EB major offers opportunities for independent research in both laboratory and field.

Required courses:

E&EB 290 Comparative Developmental Anatomy of Vertebrates

E&EB 295 Life in Motion: Ecological and Evolutionary Physiology or BENG 350 Physiological Systems

MCDB 300 Biochemistry or MB&B 300 Principles of Biochemistry I

E&EB 291L Comparative Anatomy of Vertebrates Laboratory

FACULTY OF THE DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Professors †Richard Bribiescas, †Nicholas Christakis, Michael Donoghue, Casey Dunn, Erika Edwards, †Vivian Irish, Walter Jetz, Thomas Near (*Chair*), David Post, Jeffrey Powell, Richard Prum, †Eric Sargis, †Oswald Schmitz, †David Skelly, Stephen Stearns, †Jeffrey Townsend, Paul Turner, †J. Rimas Vaišnys, Günter Wagner

Associate Professors †Craig Brodersen, †Liza Comita, †Forrest Crawford, †James Noonan, Carla Starver, †Alison Sweeney, David Vasseur

Assistant Professors Martha Munoz, Alvaro Sanchez

Senior Lecturer Marta Martínez Wells

Lecturers Adalgisa Caccone, Linda Puth

†A joint appointment with primary affiliation in another department or school.

Economics

Director of undergraduate studies: Giovanni Maggi (giovanni.maggi@yale.edu), 115 Prospect St., Rosenkranz Hall, Room 334; 432-3574; economics.yale.edu/undergraduate-program

Economics is much broader than the study of recessions and inflation or stocks and bonds. Economists study decision making and incentives such as how taxes create incentives for labor market and savings behavior. Many current public policy debates concern questions of economics, including causes and consequences of inequality and gender and racial wage gaps; how to address poverty; the impact of immigration and trade on the well-being of a country's citizens; the cause of the Great Recession; and how to predict future downturns.

At Yale, economics is regarded and taught as part of a liberal arts education, not as a preparation for any particular vocation. It can, however, provide a good background for several professions. The economics major strengthens critical reasoning skills and gives students experience manipulating and analyzing data, skills that will serve students well on the job market both inside and outside academia. Recent majors have pursued careers in business, government, and nonprofits. Others have entered law, medical, or business school, or have gone on to graduate work in economics, often after working in related fields for two or three years.

REQUIREMENTS OF THE MAJOR

There are no prerequisites for the major. Twelve credits are necessary to complete the major (11 Economics courses and 1 Mathematics course). The required distribution of courses is as follows:

Math requirement This can be fulfilled by MATH 110/111, 112, 115, 116, ENAS 151, or preferably MATH 118 or 120. MATH 118 and 120 are recommended because they emphasize economics applications. Any Math course numbered 200 or higher can also be used to fulfill the math requirement. Note that MATH 110 and 111 together count as one course toward the economics major.

Introductory microeconomics ECON 108 or ECON 110 or ECON 115. You can skip or Cr/D/F introductory microeconomics courses based on pre-college testing or other circumstances, but in this case, an extra elective course is required.

Introductory macroeconomics ECON 111 or ECON 116. You can skip or Cr/D/F introductory macroeconomics courses based on pre-college testing or other circumstances, but in this case, an extra elective course is required.

Intermediate microeconomics ECON 121 or ECON 125

Intermediate macroeconomics ECON 122 or ECON 126

Econometrics ECON 117 or ECON 123 or ECON 136 (Students are required to complete a second semester of econometrics either before or during the first semester of senior year.)

Four electives Any ECON course numbered 123 or above can count as an elective, if not already applied towards the core requirements. With DUS approval, a non-ECON course that is related to economics can be used to fulfill one of the electives.

Senior requirement Two courses numbered ECON 400–491 (at least one taken in senior year) are required.

Senior essay Writing a senior essay is optional (see more details below), but it is necessary to earn distinction in the major.

Distinction in the major To earn Distinction, a student must write a senior thesis earning a grade of A- or better and receive A- or better in three-quarters of the courses that are counted toward the major (not including introductory microeconomics, introductory macroeconomics, the math requirement or courses taken outside of Yale). Economics courses taken beyond the requirements of the major are counted toward the Distinction calculation.

Credit/D/Fail Courses taken Cr/D/Fail may not be counted toward the requirements of the major.

Note Residential College Seminars and First Year Seminars (ECON 001/002) may not be counted toward the requirements of the major.

INTRODUCTORY COURSES

Many Yale students, regardless of what major they later choose, take introductory courses in economics. The department offers introductory courses in microeconomics, macroeconomics, and data analysis and econometrics. Microeconomics examines how individuals, firms, markets, and governments allocate scarce resources; macroeconomics studies growth, unemployment, inflation, and international economics; data analysis and econometrics teaches students statistical fundamentals and how to manipulate data to answer economic questions. Students must take introductory microeconomics before taking either introductory macroeconomics or data analysis and econometrics. Some students may wish to take introductory data analysis and econometrics before or concurrently with introductory macroeconomics, as data skills may be useful in the latter class.

ECON 115 is concerned with microeconomics and includes such topics as markets, prices, production, distribution, and the allocation of resources. ECON 116 covers such macroeconomic issues as unemployment, inflation, growth, and international economics. ECON 117 introduces students to basic aspects of working with data to answer economic questions, as well as to the fundamentals of statistical analysis. ECON 116 and 117 have microeconomics as a prerequisite. Despite the numbering, students may wish to take ECON 117 before or concurrently with ECON 116, as the data skills taught in ECON 117 may be helpful in ECON 116. ECON 115, 116, and 117 are lecture courses with accompanying discussion sections.

ECON 110 and 111 are smaller, slightly more discussion-oriented versions of introductory microeconomics and macroeconomics. Those with little or no experience in calculus may be better served by ECON 108, which covers microeconomics with greater discussion of quantitative methods and examples. ECON 108, 110, and 115 are similar in substance; ECON 111 and 116 are similar in substance as well.

The department recommends that students interested in majoring in Economics take at least two introductory economics courses in the first year. To make the introductory courses available to all first-year students and to students majoring in other subjects, the introductory courses do not have a mathematics requirement.

In the summer before they enter, all first-year students receive, through the University's electronic bulletin board, a personalized recommendation for a first course in economics, based on application data and AP (or equivalent) exam scores. In general, students who receive a score of 5 on the Microeconomics or Macroeconomics AP exam *and* a score of 5 on the AP Calculus BC exam are recommended to place out of the corresponding introductory course and instead enroll in intermediate-level courses (ECON 121 or 125 for microeconomics, ECON 122 or 126 for macroeconomics).

Because of its emphasis on data analysis, the department recommends that even students with a background in statistics begin their econometrics and data analysis training with ECON 117.

MATHEMATICS COURSES

Students are advised to meet the mathematics requirement for the major during their first year. To fulfill the requirement, the department recommends that majors take MATH 118 or MATH 120, or a higher-level course. Also acceptable, but less preferred, are MATH 112, 115, 116, ENAS 151, or MATH 110 and 111. Students who intend to pursue a graduate degree in economics should take additional math courses, including linear algebra (MATH 222 or even better, a proof-based course such as MATH 225 or 226) and real analysis (MATH 255 or 256 or 300 or 301).

DATA ANALYSIS AND ECONOMETRICS COURSES

Students are strongly advised to take a two-term sequence of data analysis and econometrics courses, especially if they are interested in a research experience on or off campus. The statistical analysis of economic data has become central to the work of economists, and the ability to analyze large data sets is a skill that will serve students in the job market both inside and outside of academia. Most students should take ECON 117, followed by 123. Students with a stronger mathematics background, who prefer a more theoretical treatment of the material or who plan to pursue a graduate degree in economics, are encouraged to take ECON 135 or S&DS 241 and S&DS 242, followed by ECON 136. Prospective majors are urged to start their econometrics sequence by the fall of sophomore year.

Note S&DS 241 and 242 together count as one course toward the economics major. Further note that neither ECON 135 nor S&DS 241 and 242 fulfill the major's requirement of one econometrics course as they are courses in probability and statistics that are prerequisites for ECON 136, a course in econometrics. However, either ECON 117 or ECON 123 fulfills the econometrics requirement.

INTERMEDIATE MICROECONOMICS AND MACROECONOMICS COURSES

Two course options are available in both microeconomics and macroeconomics. The standard intermediate courses are ECON 121 and 122. Students with a stronger mathematics background who are interested in a more theoretical treatment of the material are encouraged to take ECON 125 and 126 instead. The intermediate courses

need not be taken in sequence: in particular, ECON 125 is not required for 126; ECON 121 is not required for 122.

FIELD COURSES

The department offers a wide selection of upper-level courses in a variety of fields, such as theoretical and mathematical economics, market organization, human resources, finance, international trade, development economics, public finance, health economics, labor economics, inequality, environmental economics, and economic history. These courses are numbered ECON 159 and above. Some field courses have no prerequisites or only introductory microeconomics as a prerequisite. Others apply intermediate-level theory or econometrics to economic problems and institutions, and for this reason list one or more of the theory or econometrics courses as prerequisites.

SENIOR REQUIREMENT

Two courses numbered ECON 400–491 (at least one taken in senior year) are required.

Advanced lecture courses, generally numbered ECON 400–449, are limited-enrollment courses that cover relatively advanced material in more depth than regular field courses. While these courses vary in approach, they share features of other Economics courses: like field courses, they devote some time to traditional lecturing, and like seminars, they emphasize class interaction, the writing of papers, and the reading of journal articles. Advanced lecture courses may be applied toward the senior requirement.

Senior seminars are generally numbered ECON 450–490. Although there is diversity in approaches in the various seminars, all have in common an emphasis on class interaction, the writing of papers, and the reading of journal articles. Seminars represent an opportunity for students to apply and extend the economics they have learned through their earlier coursework.

Enrollment in seminars and advanced lecture courses is limited. Senior Economics majors who have not yet completed the senior requirement for the major are given priority for these courses and may enter preference selection before the registration period for these courses; see the department website for instructions. Other majors and non-majors may enroll in Economics seminars and advanced lecture courses as space permits, but they may not enter preference selection.

SENIOR ESSAY

Students have the option to write a Senior Essay; it is not required. There are four types of senior essays: (1) students may write a one-term essay in the fall of the senior year as an independent project on a topic of their own design under the close and regular supervision of a faculty adviser (ECON 491); (2) students may write a two-term essay starting in the fall and continued into the spring of the senior year as an independent project on a topic of their own design under the close and regular supervision of a faculty adviser (ECON 491 and ECON 492); (3) students may write a one-term essay in an advanced departmental course (numbered 400–490) taken during the fall term of the senior year; or (4) students may write a two-term essay beginning in an advanced departmental course (numbered 400–490) taken during the fall term, and completed in the spring of the senior year as an independent project under the close and regular supervision of a faculty adviser (ECON 492). Under this final option, the instructor of

the advanced departmental course taken in the fall term typically serves as the faculty adviser for the full academic year.

Students are required to complete a second semester of econometrics either before or during the first semester of senior year.

ADVISING

The Economics department has faculty representatives/advisers for each residential college. Students majoring in economics should consult with an economics adviser for their college during course enrollment. Questions concerning the major or programs of study may also be directed to the college representative. College representatives can be found on the department website.

Transfer credits

Students who take courses outside of Yale may petition the DUS to count some of them toward the requirements of the major. Students should consult with the DUS before taking such courses. Courses taken outside of Yale's Economics department may not be counted toward the major requirements in intermediate microeconomics, intermediate macroeconomics, econometrics, mathematics, or the senior requirement. See the department website section on transferring credits.

Graduate courses

Well-qualified students who have acquired the requisite background in undergraduate courses may be admitted to graduate courses and seminars. Descriptions of courses are available on the department website.

Students who are planning graduate work in economics should take additional mathematics courses beyond the one-term course required for the major. Many graduate programs in economics require courses in multivariate calculus, linear algebra, and real analysis. Please see the department website on Ph.D. program preparation. Students are urged to discuss their plans for graduate work with the DUS as early in their college careers as possible.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (including math req and senior req)

Distribution of courses Introductory micro and macro; intermediate micro (ECON 121 or 125); intermediate macro (ECON 122 or 126); econometrics (ECON 117 or 123 or 136); one math course (MATH 112 or above, see Math requirement options); four electives (see above)

Substitutions permitted 1 non-ECON course related to economics, with DUS approval, can replace an elective course. If you place out of an introductory course you must take an additional elective.

Senior requirement 2 courses numbered ECON 400–491 (at least one of which taken in senior year)

FACULTY OF THE DEPARTMENT OF ECONOMICS

Professors Joseph Altonji, Donald Andrews, Costas Arkolakis, Orazio Attanasio, Dirk Bergemann, Steven Berry, Xiaohong Chen, Ray Fair, John Geanakoplos, Pinelopi Goldberg, Philip Haile, Marina Halac, Gerald Jaynes, Amit Khandelwal, Yuichi Kitamura, Alvin Klevorick, Samuel Kortum, Giovanni Maggi, Konstantinos Meghir, Mushfiq Mobarak, Giuseppe Moscarini, Kaivan Munshi, Christopher Neilson, William Nordhaus, Gerard Padró i Miquel, Rohini Pande, Benjamin Polak, Mark Rosenzweig, Larry Samuelson, Katja Seim, Anthony Smith, Philipp Strack, Aleh Tsyvinski, Edward Vytlačil, Fabrizio Zilibotti

Associate Professors Jose-Antonio Espin-Sanchez, Mira Frick, Zhen Huo, Mitsuru Igami, Ryota Iijima, Ilse Lindenlaub, Michael Peters, Nicholas Ryan

Assistant Professors Lauren Falcao Berquist, Max Cytrynbaum, Eduardo Dávila, Charles Hodgson, John Eric Humphries, Yusuke Narita, Cormac O'Dea, Winnie van Dijk

Senior Lecturers Marnix Amand, Michael Boozer, Evangelia Chalioti, William Hawkins, Tolga Koker, Guillermo Noguera, Soenje Reiche, María Saez Martí, Rebecca Toseland

Economics and Mathematics

Directors of undergraduate studies: Giovanni Maggi (giovanni.maggi@yale.edu) (Economics), 115 Prospect St., Rosenkranz Hall, Rm. 334; Richard Kenyon (Mathematics); Miki Havlickova (Mathematics); Math DUS (math.dus@yale.edu)

The Economics and Mathematics major is intended for students with a strong interest in both mathematics and economics, and for students who may pursue a graduate degree in economics.

PREREQUISITES

The major has prerequisites in both mathematics and economics: MATH 120; ECON 110 or 115; and ECON 111 or 116. Upper level economics courses may be substituted for prerequisite economics courses. With Math DUS permission, students familiar with multivariable calculus may substitute an upper level mathematics course in the same area for MATH 120. Upper-level courses substituted for prerequisites do not count toward the total of twelve term courses (beyond the introductory level in economics and mathematics) required for the major.

REQUIREMENTS OF THE MAJOR

A total of twelve term courses is required beyond the introductory level in economics and in mathematics: seven term courses in economics numbered above 120, and five term courses in mathematics numbered above 200 (except MATH 470). These courses must include:

1. One intermediate microeconomics course (ECON 125 is preferred, but ECON 121 is also acceptable) and one intermediate macroeconomics course (ECON 126 is preferred, but ECON 122 is also acceptable).
2. Two mathematical economics courses, ECON 351 or 425 and one of ECON 350, 417, or 433.
3. Two courses in econometrics, ECON 135 (or equivalent) and 136. ECON 135 can be replaced by S&DS 241 and 242, in which case they count as one economics course and not as mathematics courses. Neither S&DS 241 nor 242 can be counted toward the major in parallel to ECON 135.
4. One proof-based linear algebra course (MATH 225 or 226) and one real analysis course (MATH 255 or 256).
5. A senior seminar as described in the "Senior requirement" section below. MATH 480 or 481 counts toward the required mathematics courses; an Economic theory seminar counts toward the required economics courses.

A course must be listed with a MATH number to count toward the mathematics requirements—substitutions from other departments are not permitted.

Distinction in the Major To be considered for Distinction in the Major, students must meet minimum grade standards, as specified under “Honors” in The Undergraduate Curriculum, and submit a senior essay in Economics that earns a grade of A or A–. One-term essays may be written in either an Economics department senior seminar or in ECON 491. Two-term senior essays may be written in either an Economics senior seminar and ECON 492 or in ECON 491 and 492. (The paper must be written in

a course or courses taken in the senior year.) For details see Economics. All courses beyond the introductory level in Mathematics and Economics are counted in the computation of grades for Distinction.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must take either a senior seminar in mathematics, MATH 480 or 481, or an Economic theory seminar, designated as YC ECON: Theory Seminar. A senior essay in Economics is optional.

ADVISING

Students interested in the major should consult both DUSs, and verify with each that their proposed program meets the relevant guidelines.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120; ECON 110 or 115; ECON 111 or 116

Number of courses 12 term courses beyond prerequisites (incl senior req)

Distribution of courses 7 economic courses above 120 and 5 math courses above 200, excluding MATH 470

Specific courses required ECON 125 or 121; ECON 126 or 122; ECON 135; ECON 136; ECON 350 or 417 or 433; ECON 351 or 425; MATH 225 or MATH 226; MATH 255 or MATH 256, as specified

Substitution permitted S&DS 241 and 242 for ECON 135, with permission of Economics DUS

Senior requirement Senior sem in math (MATH 480 or MATH 481) or an ECON theory seminar; optional senior essay in economics

Education Studies Certificates

Executive director: Mira Debs (mira.debs@yale.edu), C-45 Humanities Quadrangle, 320 York Street, 432-4631; <https://educationstudies.yale.edu/>, Program FAQ

The Education Studies Program in Yale College provides a structure for students interested in the research, policy, and practice of education. By virtue of studying education at Yale, students engage in the interdisciplinary study of a primary institution impacting citizenship, governance, social reproduction, child development, and social inequality. Yale courses across the disciplines address these varying aspects of education through two area categories: (1) social contexts and policy and (2) individuals in society.

Students seeking to engage with Education Studies can pursue one of *two pathways* alongside their major: the Scholars Intensive Certificate, with a focus on learning with a cohort of Yale students and completing a senior year research or creative capstone project, or the uncapped Education Studies Certificate, which offers an individualized pathway to develop expertise through Education Studies coursework. Students should choose either the Education Studies Scholars Intensive Certificate or the Education Studies Certificate.

- To apply for the Education Studies Scholars Intensive Certificate, see the Education Studies website.
- To pursue the Education Studies Certificate, submit the Declaration of Candidacy form.

No more than two course credits fulfilling the requirements of either of the Education Studies certificates may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Any Yale College student interested in education studies may take the introductory survey course, EDST 110, Foundations in Education Studies. This lecture course explores the historical, social, philosophical, and theoretical underpinnings of the field and helps students to understand the critical role of education in society through research, policy, and practice.

SCHOLARS INTENSIVE CERTIFICATE IN EDUCATION STUDIES

The Education Studies Scholars Intensive Certificate in Yale College provides a structure for students interested in completing an intensive Education Studies senior project and learning alongside a cohort of peers from sophomore through senior year.

In the fall of the sophomore year, students who have successfully completed or are currently enrolled in EDST 110 may apply to become a Yale Education Studies Scholar alongside their major course of study. Selected students join a cohort of undergraduate peers who study education in several small seminars together. They are closely guided by faculty, peers, and alumni towards educational opportunities tailored to their individual interests. Education Studies Scholars also gain practical field experience

through an appropriate academic-year educational opportunity or summer field experience.

REQUIREMENTS

To fulfill the requirements of the program, students must complete six courses including EDST 110, EDST 261; a field experience; two or three electives (depending on senior requirement), with at least one elective in each of two area categories (Social Contexts & Policy; Individuals in Society) and one or two senior capstone courses including EDST 400 alone or in combination with EDST 410 or 490. Two of the six courses may overlap with the student's major, and one elective course may be taken Credit/D/Fail. Graduate and professional school courses may count, with approval from the Education Studies director. For a listing of courses in the area categories, see the Education Studies website.

YCS Searchable Attributes: EDST: Social Context and EDST: Indv Society

Transcripts will note the successful completion of the Scholars Intensive Certificate.

SUMMARY OF REQUIREMENTS

Prerequisite EDST 110

Number of courses 6 courses (including EDST 110, EDST 261, and senior req)

Distribution of courses 2 or 3 electives (depending on senior req) with at least one elective in each area category

Other requirement Field experience as described on the EDST website

Senior requirement EDST 400 alone or in combination with EDST 410 or 490

CERTIFICATE IN EDUCATION STUDIES

Certificate director: Mira Debs (mira.debs@yale.edu), C-45 Humanities Quadrangle, 320 York Street, 432-4631; <https://educationstudies.yale.edu/>

This certificate, available to all interested Yale Students, provides the opportunity for students to pursue an interdisciplinary study of education to complement their major.

To earn the certificate, students must take the prerequisite EDST 110, one course in each of the two area categories, and two electives. No more than two course credits may overlap in the fulfillment of the requirements of the Education Studies certificate or of a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Graduate and professional school courses may count, with approval from the certificate director. With the exception of EDST 110, certificate students may take one of their EDST courses Credit/D/Fail. For a listing of courses in the area categories, see the Education Studies Courses webpage.

YCS Searchable Attributes: EDST: Social Context and EDST: Indv Society

Declaration of Candidacy

Once students are enrolled in the prerequisite EDST 110, they should submit a Declaration of Candidacy for a Certificate form. Students must submit the

form as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 term courses

Specific course required EDST 110

Distribution of courses one course credit each of two area categories: (1) social contexts and policy, and (2) individuals in society; 2 EDST electives

Electrical Engineering

Director of undergraduate studies: Fengnian Xia

(fengnian.xia@yale.edu); seas.yale.edu/departments/electrical-engineering

The Electrical Engineering (EE) program at Yale College is designed to equip students with the skills and knowledge needed to thrive in today's rapidly evolving technological landscape. Our undergraduate program broadly encompasses disciplines such as microelectronics, photonics, energy, semiconductor technology, computer engineering, signal and information processing, decision and control systems, and communications. Students engage in hands-on projects and experimental design, honing their ability to analyze complex problems and communicate their findings effectively. Whether pursuing careers in government, industry, or academia, graduates of our program are prepared to make significant contributions to society and address pressing global challenges.

Three electrical engineering degree programs are offered, as well as a joint degree between the electrical engineering and computer science departments.

1. The **B.S. in Electrical Engineering**, accredited by the Engineering Accreditation Commission of ABET, Inc., is the flagship degree program and is the most challenging program in electrical engineering. This program is appropriate for highly motivated students who are interested in entering the engineering profession, and who wish for a flexible enough program to consider a variety of other career paths.

Upon graduation, Yale's B.S. Electrical Engineering (ABET) students are expected to achieve "student outcomes" as defined by ABET and the program. The Electrical Engineering major produces graduates who demonstrate: (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics; (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors; (3) an ability to communicate effectively with a range of audiences; (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts; (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives; (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions; (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

2. The **B.S. in Engineering Sciences (Electrical)** provides similar technical exposure and equivalent rigor as the ABET program, while retaining the flexibility for students to take a broader range of courses than those mandated by the ABET curriculum. The B.S. in Engineering Sciences (Electrical) is suitable for careers in technology and is a popular choice for those choosing academic, industrial, or entrepreneurial career paths.

3. The **B.A. in Engineering Sciences (Electrical)** is suitable for careers outside of technology, including managerial, financial, and entrepreneurial career options.

4. The fourth program is a joint **B.S. in Electrical Engineering and Computer Science**, which offers a unique blend of electrical engineering and computer science courses that retains the rigor of both fields. This degree is a popular choice for those interested in information technology careers.

The program's educational objectives prepare students for four potential paths. An academic path qualifies graduates to enter a top-tier graduate program conducting research with broad applications or significant consequences, and eventually to teach at an academic or research institution. Graduates following an industrial path can enter a technical path or a managerial path. An entrepreneurial path allows graduates to bring broad knowledge to a startup company, which can deliver a product or service that meets societal needs. Graduates who elect a nontraditional engineering path might complete a professional program in business, law, or medicine, for which their engineering knowledge will be valuable.

PREREQUISITES

All three engineering degree programs require MATH 112 and MATH 115 if applicable, ENAS 151 or MATH 120 or higher, ENAS 130 (CPSC 100 and 112 do not fulfill this requirement), and PHYS 180, 181 or higher (PHYS 170, 171 is acceptable for the B.A. degree). Acceleration credits awarded on entrance can be used to satisfy the MATH 112 and 115 requirements. Students whose preparation exceeds the level of ENAS 151 or MATH 120 are asked to take a higher-level mathematics course instead, such as MATH 222, MATH 225, MATH 226, MATH 255, or MATH 256. Similarly, students whose preparation at entrance exceeds the level of PHYS 180, 181 are asked to take higher-level physics courses instead, such as PHYS 200, 201. Students whose programming skills exceed the level of ENAS 130 are asked to take a more advanced programming course instead, such as CPSC 201; consult with the director of undergraduate studies (DUS).

Prerequisites taken Credit/D/Fail may not be counted toward the requirements of the major.

REQUIREMENTS OF THE MAJOR

Because the introductory courses are common to all three degree programs, students do not usually need to make a final choice before the junior year. Each student's program must be approved by the DUS.

B.S. degree program in Electrical Engineering The ABET-accredited B.S. in Electrical Engineering requires, beyond the prerequisites, four term courses in mathematics and science and thirteen term courses covering topics in engineering. These courses include:

1. Mathematics and basic science (four term courses): ENAS 194; MATH 222 or MATH 225 or MATH 226; APHY 322 or equivalent; S&DS 238, or S&DS 241, or equivalent.
2. Electrical engineering and related subjects (thirteen term courses): EENG 200, 201, 202, 203, 310, 320, 325, 348, and 481 (the ABET design project senior requirement); and four engineering electives, at least three of which should be at the 400 level. CPSC 365 or CPSC 366, MENG 390L, MENG 400, MENG 403, BENG 411, PHYS 430, APHY 458, and all 400-level computer science courses qualify as ABET

electives. One of EENG 468 or EENG 469, Advanced Special Projects, also qualify as a 400-level elective.

The introductory engineering courses are designed such that they may be taken concurrently in the sophomore year; for example, in the fall term students may take EENG 200 and EENG 202, followed by EENG 201 and EENG 203 in the spring term. These courses may be taken in any order, with the exception of EENG 203, which requires EENG 200 as a prerequisite. In this case, it would be helpful to take ENAS 194 and/or ENAS 130 in the first year.

A sample ABET-accredited B.S. degree schedule for students who have taken the equivalent of one year of calculus in high school (and thus are not required to take MATH 112 and MATH 115) could include:

First Year: EENG 200, EENG 201, ENAS 151, PHYS 180, and PHYS 181
 Sophomore: EENG 202, EENG 203, ENAS 130, ENAS 194, and MATH 222
 Junior: EENG 310, EENG 320, EENG 325, EENG 348, S&DS 238, and 1 elective
 Senior: APHY 322, EENG 481, and 3 electives

A sample schedule for students who enter into the ABET-accredited B.S. major at the sophomore year could include:

First Year: ENAS 151, ENAS 130, ENAS 194, PHYS 180, and PHYS 181
 Sophomore: EENG 200, EENG 201, EENG 202, EENG 203, and MATH 222
 Junior: EENG 310, EENG 320, EENG 325, EENG 348, S&DS 238, and 1 elective
 Senior: APHY 322, EENG 481, and 3 electives

A sample schedule for students who enter into the ABET-accredited B.S. major in the first year (and are required to take MATH 112 and MATH 115) and only seek to fulfill basic distribution requirements with no engineering courses, could be:

First Year: MATH 112, MATH 115, PHYS 180, PHYS 181, and ENAS 130
 Sophomore: ENAS 151, EENG 200, EENG 201, EENG 202, EENG 203, and MATH 222
 Junior: ENAS 194, EENG 310, EENG 320, EENG 325, EENG 348, and S&DS 238
 Senior: APHY 322, EENG 481, and 4 electives

B.S. degree program in Engineering Sciences (Electrical) This program requires fewer technical courses and allows more freedom for work in technical areas outside the traditional electrical engineering disciplines (e.g., biomedical engineering, mechanical engineering, physics, etc.). It requires thirteen technical term courses beyond the prerequisites, specifically: MATH 222 or MATH 225 or MATH 226; ENAS 194; EENG 200, 201, 202, 203; EENG 471 and/or 472 (the senior requirement), or with permission of the instructor and the DUS, EENG 481; and five or six electives (depending on senior requirement) approved by the DUS, at least three of which must be at the 400 level. All electives listed for the ABET-accredited B.S. major qualify as electives for this degree.

For students who have taken the equivalent of one year of calculus in high school (and thus are not required to take MATH 112 and MATH 115), a sample schedule for the B.S. degree in Engineering Science (Electrical) could be:

First Year: EENG 200, EENG 201, ENAS 151, PHYS 180, and PHYS 181
 Sophomore: EENG 202, EENG 203, ENAS 130, ENAS 194, and MATH 222

Junior: 3 electives

Senior: EENG 471 and/or 472, and two or three electives depending on the senior project

The B.S. degree in Engineering Sciences (Electrical) requires fewer specific courses and 4 fewer courses overall than the ABET-accredited degree. Any of the courses required for the ABET-accredited major qualify as electives for this degree, as well as other courses with substantial electrical engineering context, subject to the approval of the DUS. For students entering the major during the sophomore year, or those who need introductory calculus in their first year, sample schedules are similar to those described for the ABET-accredited degree program, with the differences in the B.S. Engineering Sciences (Electrical) degree applied.

The flexibility during the junior and senior years in the schedule above is often used to accommodate a second major, such as Economics, Applied Physics, Computer Science, Physics, or Mechanical Engineering.

B.A. degree program in Engineering Sciences (Electrical) This program is appropriate for those planning a career in fields such as business, law, or medicine where scientific and technical knowledge is likely to be useful. It requires eight technical term courses beyond the prerequisites, specifically: MATH 222, MATH 225, MATH 226 or ENAS 194; EENG 200, 201, 202, and 471 and/or 472 (the senior requirement); and two (or three) approved electives.

Credit/D/Fail Courses, including the prerequisites, taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

A research or design project carried out in the senior year is required in all three programs and must be approved by the DUS. Students take EENG 471 and/or 472, or EENG 481, present a written report, and make an oral presentation. EENG 481 is required for students earning the B.S. degree in Electrical Engineering (ABET). Students taking both EENG 471 and 472, Senior Advanced Special Projects, may count one as an elective. Arrangements to undertake a project in fulfillment of the senior requirement must be made by the end of the course selection period in the term in which the student will enroll in the course; by this date, a prospectus approved by the intended faculty adviser must be submitted to the DUS.

ADVISING AND APPROVAL OF PROGRAMS

All Electrical Engineering and Engineering Sciences majors must have their programs approved by the DUS. Arrangements to take EENG 471, 472, or 481 are strongly suggested to be made during the term preceding enrollment in the course. Independent research courses (EENG 468 or EENG 469) are graded on a Pass/Fail basis, and one (1) can be counted toward the requirements of the major.

SUMMARY OF MAJOR REQUIREMENTS

ELECTRICAL ENGINEERING, B.S.

Prerequisites MATH 112, 115 if needed; ENAS 151 or MATH 120 or higher; ENAS 130 or higher; PHYS 180, 181 or higher

Number of courses 17 term courses beyond prereqs, incl senior req

Specific courses required ENAS 194; MATH 222 or MATH 225 or MATH 226; APHY 322; S&DS 238 or S&DS 241; EENG 200, 201, 202, 203, 310, 320, 325, 348

Distribution of courses 4 engineering electives, 3 at 400 level

Senior requirement One-term design project (EENG 481) with DUS approval

ENGINEERING SCIENCES (ELECTRICAL), B.S. AND B.A.

Prerequisites *Both degrees*—MATH 112, 115; ENAS 151 or MATH 120 or higher; ENAS 130 or higher; *B.S.*—PHYS 180, 181 or higher; *B.A.*—PHYS 170, 171 or higher

Number of courses *B.S.*—13 term courses beyond prereqs, incl senior req; *B.A.*—8 term courses beyond prereqs, incl senior req

Specific courses required *B.S.*—ENAS 194; MATH 222 or MATH 225 or MATH 226; EENG 200, 201, 202, 203; *B.A.*—1 from ENAS 194, MATH 222, MATH 225, or MATH 226; EENG 200, 201, 202

Distribution of courses *B.S.*—5 or 6 electives, depending on senior req, approved by DUS, 3 at 400 level; *B.A.*—2 or 3 electives, depending on senior req, approved by DUS

Senior requirement *B.S.*—one or two-term research or design project, EENG 471 and/or 472, or EENG 481, approved by DUS; *B.A.*—one or two-term research or design project, EENG 471 and/or 472, approved by DUS

FACULTY OF THE DEPARTMENT OF ELECTRICAL ENGINEERING

Professors †Hui Cao, †James Duncan, Jung Han, Roman Kuc, Rajit Manohar, A. Stephen Morse, Kumpati Narendra, †Daniel Prober, Peter Schultheiss (*Emeritus*), †Lawrence Staib, †Hemant Tagare, Hongxing Tang, Leandros Tassiulas, J. Rimas Vaišnys, †Y. Richard Yang

Associate Professors Richard Lethin (*Adjunct, Lecturer*), Jakub Szefer, †Sekhar Tatikonda, Fengnian Xia

Assistant Professors Wenjun Hu, Amin Karbasi, Priyadarshini Panda

†A joint appointment with primary affiliation in another department.

Electrical Engineering and Computer Science

Directors of undergraduate studies: Rajit Manohar (rajit.manohar@yale.edu) (Electrical Engineering), 523 BCT, 432-4306; Y. Richard Yang (yang.r.yang@yale.edu) (Computer Science), AKW 208A, 432-6400

Electrical Engineering and Computer Science is an interdepartmental major designed for students who want to integrate work in these two fields. It covers discrete and continuous mathematics, algorithm analysis and design, digital and analog circuits, signals and systems, systems programming, and computer engineering. It provides coherence in its core program, but allows flexibility to pursue technical electives.

PREREQUISITES

The prerequisites for the major are MATH 112, 115 (these prerequisites may be waived for students who have taken the equivalent of one year of calculus in high school) and ENAS 151 or MATH 120 (or a higher-level course); CPSC 112 (for students without previous programming experience); and PHYS 180 and 181, or PHYS 200 and 201. PHYS 170, 171 are acceptable for students taking MATH 112. Acceleration credits may not be used to satisfy prerequisites, and because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) both limit the use of such credits, students who wish to retain the option of switching to these programs should consult the director of undergraduate studies (DUS) in Electrical Engineering when planning their course schedules.

REQUIREMENTS OF THE MAJOR

The major requires fifteen term courses beyond the prerequisites: CPSC 201; 202; 223; 323; and either CPSC 365 or 366; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238, or S&DS 241; four advanced electives, two in electrical engineering, two in computer science; and a senior project. MATH 244 may be substituted for CPSC 202. Electives must be 300- or 400-level courses in the departments of Electrical Engineering or Computer Science or must be approved by the DUSs of both departments. Cross-titled courses may be counted either way to fulfill this requirement. CPSC 290 and 490 may not be used as electives. Only one of CPSC 365 and 366 may be taken for major credit. With permission of the DUSs of both departments, one of EENG 468 or 469 may be used as an electrical engineering elective.

For students who have taken the equivalent of one year of calculus in high school and have some programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
EENG 200	CPSC 201	CPSC 202	Senior project
ENAS 151	EENG 202	CPSC 323	One elective
PHYS 180			
EENG 201	CPSC 223	CPSC 365 or 366	Two electives
PHYS 181	EENG 203	One elective	
	MATH 222		

Students with no programming experience should take CPSC 112 in the fall of their first year and either postpone EENG 200 until their sophomore year or take ENAS 151 or MATH 120 in the spring.

For students with one term of calculus and no programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
CPSC 112	CPSC 201	CPSC 202	Two electives
MATH 115	EENG 200	CPSC 323	
PHYS 180	EENG 202	S&DS 241	
EENG 201	CPSC 223	CPSC 365 or 366	Senior project
MATH 120	EENG 203	One elective	One elective
PHYS 181			

For students with no calculus and no programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
CPSC 112	CPSC 201	CPSC 202	Two electives
MATH 112	EENG 200	CPSC 323	
PHYS 170	ENAS 151	EENG 202	
EENG 201	CPSC 223	CPSC 365 or 366	Senior project
MATH 115	MATH 222	EENG 203	One elective
PHYS 171		One elective	

Students who start with MATH 112 may satisfy the physics prerequisite by taking PHYS 170 and 171 in their first year, as shown in the table above. However, because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) do not allow this substitution, students who wish to retain the option of switching to these programs should postpone physics until their sophomore year.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major, including prerequisites.

SENIOR REQUIREMENT

The senior project must be completed in CPSC 490 or EENG 471 and/or 472, depending on the adviser's department, and must be approved by the DUS in each department.

ADVISING AND APPROVAL OF PROGRAMS

The entire program of a student majoring in Electrical Engineering and Computer Science must be approved by the DUS in each department.

Accreditation Students interested in pursuing an ABET-accredited degree should consider the B.S. program in Electrical Engineering. See Electrical Engineering.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 112, 115, and ENAS 151 or MATH 120; CPSC 112 (students without previous programming experience); PHYS 180, 181, or PHYS 200, 201 with exceptions as indicated

Number of courses 15 term courses beyond prerequisites (including senior project)

Specific courses required CPSC 201, 202, 223, 323, and one of CPSC 365 or 366; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238 or 241

Distribution of courses 4 additional 300- or 400-level electives, 2 in electrical engineering, 2 in computer science

Substitution permitted MATH 244 for CPSC 202; advanced courses in other depts, with permission of DUS in each department

Senior requirement Independent project (CPSC 490 or EENG 471 and/or 472) approved by DUS in each department

Energy Studies Certificate

Certificate director: Michael Oristaglio (michael.oristaglio@yale.edu); earth.yale.edu/energy-studies

The Interdisciplinary Certificate in Energy Studies is designed to provide undergraduates with the knowledge and skills needed for advanced studies, leadership, and success in energy-related fields through a curriculum requiring coursework in three multidisciplinary tracks: Energy Science & Technology, Energy & Environment, Energy & Society. Activities such as field trips, funded on-campus projects, and internships will be available to students interested in hands-on experience and training in the modern world of energy technology, finance, regulation, and policy. More information about the special activities is listed on the Energy Studies website.

REQUIREMENTS

Students are required to complete two course credits in each of the three tracks of Energy Studies: (1) Energy Science & Technology, (2) Energy & Environment, (3) Energy & Society.

ENRG 300, Multidisciplinary Topics in World Energy—which is required as one of the six course credits (exceptions can be granted by the certificate director) and counts toward the Energy & Society track—should be taken during the junior or senior year. ENRG 400, Senior Capstone Seminar, is not required, but is offered to students wishing to undertake a special energy-related project. ENRG 400 can count toward the six required course credits in any one of the three tracks, depending on the project's topic.

Approved courses are listed on the Energy Studies website and are searchable in Yale Course Search. Graduate and professional school courses and non-Yale courses accepted for full course credit by Yale College may count toward the certificate; language courses may not count toward the certificate. Students are invited to present syllabi to the certificate director for courses that they think might be suitable for fulfilling the requirements of the certificate. It is the discretion of the certificate director to approve all courses that meet the curated curriculum of the certificate.

No more than two course credits fulfilling the requirements of the Energy Studies Certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Yale Course Search **Searchable Attributes:**

- YC ENRG: Energy Science & Tech
- YC ENRG: Energy & Environment
- YC ENRG: Energy & Society

Credit/D/Fail Only one course taken Credit/D/Fail or one independent study course graded Pass/Fail may be counted toward the program.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Prerequisites None

Number of courses 6 course credits

Required course ENRG 300

Distribution of courses 2 courses in each of the three tracks of Energy Studies listed above

Engineering

Dean of the School of Engineering & Applied Science: Jeffrey F. Brock
engineering@yale.edu; seas.yale.edu

Programs are offered in the departments of Applied Physics, Biomedical Engineering, Chemical and Environmental Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering & Materials Science. These departments are administered by the Dean of the School of Engineering & Applied Science. The School also offers interdisciplinary courses bearing on engineering programs.

Curricula in Yale's undergraduate engineering and applied science programs range from technically intensive ones to those with lesser technical content allows students considerable freedom to include courses of a nontechnical nature in their studies. Programs accredited by the Engineering Accreditation Commission of ABET, Inc., the accreditor for university programs in engineering, are the most intensive. ABET-accredited programs include B.S. degrees in Chemical Engineering, Electrical Engineering, and Mechanical Engineering.

Some students find that less intensive programs better meet their needs when considering two majors and/or careers in fields requiring less comprehensive technical knowledge. Such non-ABET programs include the B.S. in Applied Physics, Biomedical Engineering, Computer Science, or Environmental Engineering and the B.S. in Engineering Sciences—Chemical, Electrical, or Mechanical—as well as the B.A. in Computer Science or in Engineering Sciences—Electrical, Environmental, or Mechanical—designed for students planning careers in business, law, medicine, journalism, or politics who want their liberal arts education to include study of the impact that science and technology have on society. A related major in Applied Mathematics is also available.

For engineering courses and descriptions of the major programs mentioned above, see Applied Mathematics, Applied Physics, Biomedical Engineering, Chemical Engineering, Computer Science, Electrical Engineering, Engineering and Applied Science, Environmental Engineering, and Mechanical Engineering.

Engineering and Applied Science

Director of undergraduate studies: Vincent Wilczynski
(vincent.wilczynski@yale.edu), 107 BCT, 436-5971

Courses in Engineering and Applied Science fall into three categories: those intended primarily for students majoring in one of the several engineering and applied science disciplines; those designed for students majoring in subjects other than engineering, the applied sciences, and the natural sciences; and those designed to meet common interests of students majoring in engineering, the applied sciences, or the natural sciences.

In the first category, the departments of Applied Physics, Biomedical Engineering, Chemical and Environmental Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering and Materials Science offer courses intended primarily for majors in engineering and applied science disciplines. Courses in these departments may also be relevant for students with appropriate backgrounds who are majoring in Chemistry, Physics, Biology, Earth and Planetary Studies, and Mathematics. For information about majors in engineering and their related courses, see Applied Physics, Biomedical Engineering, Chemical Engineering, Computer Science, Electrical Engineering, Environmental Engineering, and Mechanical Engineering.

The School of Engineering and Applied Science is responsible for courses in the other two categories: technology for students majoring in subjects other than engineering, the applied sciences, and the natural sciences; and topics common to students majoring in engineering, the applied sciences, and the natural sciences. Courses for nonscience majors are intended for all students seeking a broad perspective on issues of scientific and technological import, and they introduce students who may be planning careers in law, business, or public service to concepts and methods of engineering and applied science. Courses for science and engineering majors include topics in applied mathematics and computation.

English Language and Literature

Director of undergraduate studies: Stefanie Markovits (stefanie.markovits@yale.edu, 107 LC, 432-2224; associate director of undergraduate studies: Naomi Levine (naomi.levine@yale.edu, 107 LC, 432-2224; registrar: Erica Sayers (erica.sayers@yale.edu, 106 LC, 432-2226; assistant registrar: Jane Bordiere (jane.bordiere@yale.edu), 107 LC, 432-2224; english.yale.edu/welcome-english-major

The undergraduate program in English cultivates students' powers of argument and analysis while developing their understanding of important works of English, American, and world literatures in English. Courses offered by the department are designed to teach students foundational research and writing skills; to provide historical perspectives from which to read and analyze literary works; and to deepen students' insight into their own experience. For students interested in creative writing, the department offers an array of courses taught by renowned professional writers in all of the major genres, including fiction, poetry, play and film writing, nonfiction prose, and journalism.

The ability to write well remains a rare but prized skill in almost every domain of our world, and English majors go on to careers in many fields of endeavor. The analytic talents and the writing and speaking skills honed in the major can lead graduates to careers in fields such as advocacy, publishing, teaching, the arts, law, venture capital, medicine, and policy making.

COURSES FOR NONMAJORS AND MAJORS

All English courses are open to both majors and nonmajors, although advanced seminars are intended primarily for junior and senior majors.

Introductory courses English courses numbered from ENGL 114–130 are introductory and are open to all students in Yale College. New students planning to elect a section of ENGL 114 or ENGL 115 in the fall term should refer to the department website for information about preregistration. Once registered, students must attend the first and all subsequent course meetings for that particular section until the end of the add/drop period in order to retain a place. Students who miss a class meeting during this period without informing the instructor beforehand may have their places filled from the waiting list.

Advanced courses Advanced courses are open to upper-level students; the faculty recommends that students both within and outside the major prepare for such work with two terms of introductory English. Sophomores and juniors are encouraged to enroll in lecture courses in order to gain broad perspectives in preparation for more focused study. Seminars offer more intensive treatment of their topics, which are also often more specialized. While both lectures and seminars are frequently offered more than once, students should not expect the same courses to be offered from one year to the next.

Writing courses Besides courses that concentrate on the writing of expository prose (ENGL 114, 115, 120, and 121), the English department offers a number of creative writing courses. The introductory creative writing course, ENGL 123, is open to any student who has not taken an intermediate or advanced course in the writing of fiction, poetry, or drama. Interested students need not submit a writing sample to

gain admission to ENGL 123. Many of the more advanced creative writing courses require an application in advance, with admission based on the instructor's judgment of the student's work. Application details and forms for these courses are available on the department website. Students with questions about this process should consult the department registrar. Students may in some cases arrange a tutorial in writing (ENGL 487), normally after having taken intermediate and advanced writing courses. All students interested in creative writing courses should also consult the current listing of Residential College Seminars.

FOUNDATIONAL COURSES

It is valuable for students majoring in English to have both a detailed understanding of major poets who have written in English and some acquaintance with the classics of American and world anglophone literature. All majors are accordingly required to take three of the four foundational courses from ENGL 125, 126, 127, 128. Prospective English majors are strongly encouraged to complete these requirements by the end of the sophomore year. Those who did not enroll in the Directed Studies program should also consider taking both ENGL 129 and 130, foundational courses in the European literary tradition.

Students may substitute for one foundational course either (1) DRST 001 and 002, or (2) ENGL 129 and 130. If, due to a late change of major or other circumstances, it is impossible to take three foundational courses, students may satisfy the requirements of the major by taking, with permission of the DUS, two advanced courses that deal substantially and intensively with similar material. Note: while DRST 001 and DRST 002 count together as one foundational course, they count as two courses toward the major.

REQUIREMENTS OF THE MAJOR

At least fourteen courses are required for the major, including the senior requirement. Each student, in consultation with a departmental faculty adviser, bears the responsibility for designing a coherent program, which must include the following elements:

Each student must take: (1) three foundational courses chosen from ENGL 125, 126, 127, and 128 (see exceptions above); (2) at least one course in each of the following four historical periods, as indicated in the course listings: Medieval, Renaissance, 18th/19th century, 20th/21st century; (3) at least one seminar in both the junior and the senior years.

A student whose program meets these requirements may, with permission of the DUS, count as electives toward the major as many as two courses in other departments. One of these courses should normally be a literature course in English translation or in another language, and neither may be counted toward any requirement of the major. Certain Residential College Seminars, with permission of the DUS, may also be substituted for electives in the major.

A student may count up to five introductory courses and up to two creative writing courses toward the English major. ENGL 123 counts towards the introductory rather than towards the creative writing limit.

Library requirement Each English major must meet with Yale's Librarian for Literature in English or another research librarian within the first four weeks of the term during which the student is fulfilling the first of the two-term senior requirement for the major. Workshops will be offered to fulfill this requirement.

Credit/D/Fail Courses taken Credit/D/Fail may be counted toward the requirements of the major, but they may affect whether Distinction in the Major is granted.

THE CREATIVE WRITING CONCENTRATION

The creative writing concentration is an intensive track for English majors who want more sustained work in creative writing. While there are many ways to pursue creative writing at Yale and within the English department, the creative writing concentration provides a structure for creative work and a community of support that many writers find rewarding. The creative writing concentration is not a separate degree or certificate; it is a part of the English major and builds on the wealth of its literary offerings. It aims to give English majors with demonstrated interest and achievement in writing an opportunity to plan the writing courses they take in a coordinated way and to do advanced work in tutorial. The creative writing concentration accepts students with demonstrated commitment to creative writing at the end of the junior year or, occasionally, in the first term of senior year.

Students who enter the creative writing concentration must fulfill the same requirements as all English majors, except that they count four creative writing courses toward the major, including ENGL 489, a tutorial in which students produce a single sustained piece of writing or a portfolio of shorter works. It is expected that senior applicants will have completed by the end of the fall term the following: (1) at least two creative writing courses that require an application with a writing sample, numbered 451 or higher, with at least one of these courses in the genre in which they plan to complete ENGL 489 (i.e., poetry, fiction, nonfiction, or drama) and (2) one course in another genre, which may include a creative writing course numbered 400 or higher. Creative writing concentrators must complete at least eleven literature courses in addition to their creative writing courses, for a total of fifteen courses. All courses numbered 130 or below count as literature courses. Residential College Seminars are not acceptable for credit toward the creative writing concentration, except by permission of the DUS. The creative writing concentration senior project may be offered in partial fulfillment of the senior requirement. Concentrators should fulfill the senior library requirement in the term in which they do the literature component of their senior requirement.

Proposals for the creative writing concentration should be submitted to the English department office in 107 LC or online as directed on the department website, during the designated sign-up period in the term before enrollment is intended.

SENIOR REQUIREMENTS

Seniors must complete a two-course senior requirement consisting of one of the following combinations: (1) two senior seminars; (2) a senior seminar and a one-term senior essay; (3) a two-term senior essay, with permission of the DUS. For students in the creative writing concentration, the senior requirement is a senior seminar or one-term senior essay and ENGL 489, the senior project in the creative writing concentration. Each English major must make an appointment to meet with Yale's

Librarian for Literature in English or another research librarian within the first four weeks of the term during which the student is fulfilling the first part of the two-term requirement for the major. A junior seminar in which the student, with the permission of the DUS and of the instructor, fulfills the senior requirement may be counted as a senior seminar. At the start of term the student must arrange with the instructor to do any additional work necessary to make the course an appropriate capstone experience.

Senior seminar Senior seminars are designated “Senior Seminar” in the course listings, but they are open to interested juniors, as well. The final essays written for senior seminars are intended to provide an appropriate culmination to the student’s work in the major and in Yale College. Such essays should rest on significant independent work and should be of substantial length. In researching and writing the essay, the student should consult regularly with the seminar instructor, and may consult with other faculty members as well. Senior seminars may only be counted toward the requirement beginning in the sixth semester of a student’s course of study.

Senior essay The senior essay is an independent literary-critical project on a topic of the student’s own design, which is undertaken in regular consultation with a faculty adviser. Writing a senior essay provides a structure for English majors who want the opportunity to explore a research topic in a more sustained and intensive way, as well as a community of support that many majors find rewarding. It should ordinarily be written in an area on which the student has focused in previous studies. It may be written during one or two terms; single-term essays may be converted to two-term essays through application to the DUS. See the course listings for ENGL 490 and 491 for procedures. Students fulfilling the senior requirement through a two-term senior essay or through a senior essay and the senior creative writing concentration project must take a seminar during their senior year, but it need not be a senior seminar.

Prospectuses and applications for senior essays should be submitted to the office of the English department in 107 LC or online as directed on the department website, during the designated sign-up period in the term before enrollment is intended.

ADVISING

Students planning a program of study in English are strongly encouraged to consult a faculty adviser in the English department, the departmental representative in their residential college, or the DUS or Associate DUS for advice about their course choices.

In the fall of the junior year, each English major is formally assigned or chooses a faculty adviser from the English department, and in consultation with that adviser completes a statement outlining progress in the major. Course schedules for all majors should be discussed with and approved by their faculty advisers. The DUS and the Associate DUS can also discuss and approve schedules, if necessary.

For interdepartmental programs that include courses covering English literature, see Comparative Literature; Directed Studies; American Studies; African American Studies; Ethnicity, Race, and Migration; Theater and Performance Studies; and Women’s, Gender, and Sexuality Studies.

Graduate school Students considering graduate work in English should be aware that a reading knowledge of certain classical and modern European languages is often

required for admission to graduate study, and that a course orienting them to critical theory can be especially helpful preparation.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in English Language and Literature.

SUMMARY OF MAJOR REQUIREMENTS

Number of courses *Standard major* – 14 courses (incl senior req); *Creative Writing concentration* – 15 courses (incl senior req)

Distribution of courses 3 courses chosen from ENGL 125, 126, 127, and 128; 1 course in each of four historical periods as specified (intro courses do not fulfill this requirement); 1 junior seminar; *Creative Writing concentration* – same, except 4 creative writing courses including at least 2 numbered 451 or higher that require an application with a writing sample, one in the same genre as ENGL 489; and 1 in another genre, numbered 131 or higher; at least 11 literature courses

Substitutions permitted DRST 001 and 002 or ENGL 129 and 130 may substitute for one foundational course (but count as two courses toward the major.) With DUS permission: two upper-level courses with overlapping material may substitute for one foundational course; up to 2 relevant upper-level courses in other departments may substitute for electives in the major; Residential College Seminars may substitute for electives in the major

Senior requirement *Standard major* – 2 senior sems, or 1 senior sem and 1 senior essay (ENGL 490), or a two-term senior essay (ENGL 490, 491); *Creative Writing concentration* – senior sem or senior essay, and ENGL 489

All seniors must meet with a research librarian in the first term of their senior requirement.

FACULTY OF THE DEPARTMENT OF ENGLISH

Professors Jessica Brantley, Leslie Brisman, David Bromwich, Ardis Butterfield, Jill Campbell, Joe Cleary, Jacqueline Goldsby, Langdon Hammer, Margaret Homans, Cajetan Ihaka, Jonathan Kramnick, Stefanie Markovits, Feisal Mohamed, Stephanie Newell, Catherine Nicholson, John Durham Peters, Caryl Phillips, Marc Robinson, Caleb Smith, Katie Trumpener, Shane Vogel, Michael Warner, Ruth Yeazell

Associate Professors Ben Glaser, Emily Thornbury, R. John Williams, Sunny Xiang

Assistant Professors Anastasia Eccles, Marcel Elias, Jonathan Howard, Elleza Kelley, Naomi Levine, Joseph Miranda, Ernest Mitchell, Priyasha Mukhopadhyay, Joseph North, Juno Richards, Nicole Sheriko, Lloyd Sy

Professors in the Practice Michael Cunningham, Anne Fadiman, Donald Margulies, Meghan O'Rourke

Senior Lecturers James Berger, Richard Deming, Peter Grund, Cynthia Zarin

Lecturers Felisa Baynes-Ross, Marie-Helene Bertino, Kate Bolick, Steven Brill, Alan Burdick, Lincoln Caplan, Danielle Chapman, Alison Coleman, Susan Dominus, Andrew Ehrgood, Craig Eklund, Greg Ellermann, Randi Epstein, Amity Gage, Rona Johnston Gordon, Derek Greene, Jacob Halpern, Christopher Hawthorne, Samuel Huber, Rosemary Jones, Rachel Kauder Nalebuff, Heather Klemann, Verlyn Klinkenborg, Timothy Kreiner, Sarah Mahurin, Anthony Marra, Christopher McGowan, Maggie Millner, Carol Tell Morse, Pamela Newton, Barbara Riley, Timothy Robinson, Madeleine Saraceni, Pamela Schirmeister, Adam Sexton, Kim Shirkhani, Steven Shoemaker, Emily Skillings, R. Clifton Spargo, Margaret Spillane, Sarah Stillman, Jennifer Stock, James Surowiecki, Rasheed Tazudeen, Aaron Tracy, Seth Colter Walls, Ryan Wepler, Christian Wiman

Environment

At Yale, the environment is studied from a variety of perspectives. Majors are offered in Architecture, Chemical Engineering, Ecology and Evolutionary Biology, Environmental Engineering, Environmental Studies, Earth and Planetary Sciences and Urban Studies. The program in Environmental Studies offers courses in environmental science, policy, and management. Many other departments and programs offer courses pertinent to the study of environment, including American Studies, Anthropology, Chemistry, Economics, English, Global Affairs, History, History of Art, Political Science, Sociology, and Study of the City. Some professional schools and programs offer relevant courses that may admit undergraduates, including the School of Public Health, the School of the Environment, the Law School, and the School of Management.

Environmental Engineering

Director of undergraduate studies: John Fortner (john.fortner@yale.edu); seas.yale.edu/departments/chemical-and-environmental-engineering

Environmental engineering encompasses the scientific assessment and development of engineering solutions to environmental problems affecting land, water, and air (the biosphere). The field addresses broad environmental issues, including the safety of drinking water, groundwater protection and remediation, wastewater treatment, indoor and outdoor air pollution, climate change, solid and hazardous waste disposal, cleanup of contaminated sites, the prevention of pollution through product and process design, and strategies for sustainable water and energy use and production.

Environmental engineers must balance competing technical, social, and legal issues concerning the use of environmental resources. Because of the complexity of these challenges, environmental engineers need a broad understanding not only of engineering disciplines but also of chemistry, biology, geology, and economics. Accordingly, the program allows students in the major to select an emphasis on environmental engineering technology, sustainability, global health, economics, or energy and climate change. The program prepares students for leadership positions in industry and government agencies or for further studies in engineering, science, business, law, and medicine.

Two degree programs are offered: the B.S. in Environmental Engineering, and the B.A. in Engineering Sciences (Environmental). The B.S. degree program in Environmental Engineering is designed for students who desire a strong background in environmental engineering leading to a career in the field. The B.A. degree program in Engineering Sciences (Environmental) is intended for students whose careers will involve, but not be dominated by, the skills of environmental engineering. The B.A. program is appropriate for those contemplating a career in which scientific and technological problems can play an important role, as is often the case in law, business, medicine, or public service.

Students are held to the requirements in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following prerequisites and major requirements, updated for the academic year 2023–2024, may be fulfilled by students who declared the major in a prior term.

PREREQUISITES

B.A. degree program in Engineering Sciences (Environmental) The B.A. degree program requires MATH 112 and 115; a two-term lecture sequence in chemistry; and PHYS 170, 171.

B.S. degree program in Environmental Engineering The B.S. degree program has the following prerequisites in mathematics and basic sciences: MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; ENAS 130 or S&DS 230; a two-term lecture sequence in chemistry, with corresponding labs; PHYS 180, 181; BIOL 101 and 102 or BIOL 103 and 104.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program requires nine term course credits beyond the prerequisites, including the senior requirement. Students take ENVE 120, 360, and either ENVE 373 or 377. Five electives must be chosen in consultation with the director of undergraduate studies (DUS). Elective courses may build toward an optional concentrated area of emphasis, including (a) Climate and Energy, (b) Environmental Science and Technology, (c) Sustainability and Policy, and (d) Self-designed.

B.S. degree program The B.S. degree program requires at least thirteen term course credits beyond the prerequisites, including the senior requirement. Students take CENG 300 or MENG 211; ENVE 120; ENVE 360; ENVE 373; ENVE 314 or 448; EVST 444 or ENVE 438; ENVE 441; and ENAS 642. At least four electives must be chosen in consultation with the DUS; of these, three must be technical electives. Elective courses may build toward an optional concentrated area of emphasis, including (a) Climate and Energy, (b) Environmental Science and Technology, (c) Sustainability and Policy, and (d) Self-designed.

Credit/D/Fail No course taken Credit/D/Fail may count toward the major, including prerequisites.

SENIOR REQUIREMENT

B.A. degree program Students in the B.A. program must pass ENVE 416 or ENVE 490 in their senior year.

B.S. degree program Students in the B.S. program must pass ENVE 416 or ENVE 490 in their senior year.

SUMMARY OF MAJOR REQUIREMENTS

ENGINEERING SCIENCES (ENVIRONMENTAL), B.A.

Prerequisites MATH 112, 115; two-term lecture sequence in chemistry; PHYS 170, 171

Number of courses 9 term courses beyond prereqs (incl senior req)

Specific courses required ENVE 120; ENVE 360; and ENVE 373 or 377

Distribution of courses 5 electives approved by DUS

Senior requirement ENVE 416 or ENVE 490

ENVIRONMENTAL ENGINEERING, B.S.

Prerequisites MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; ENAS 130 or S&DS 230; two-term lecture sequence in chemistry, with labs; PHYS 180, 181; BIOL 101 and 102 or BIOL 103 and 104

Number of courses 13 term courses beyond prereqs (incl senior req)

Specific courses required CENG 300 or MENG 211; ENVE 120; ENVE 360; ENVE 373; ENVE 314 or 448; EVST 444 or ENVE 438; ENVE 441; ENAS 642

Distribution of courses 4 electives approved by DUS, three of which must be technical electives

Senior requirement ENVE 416 or ENVE 490

FACULTY ASSOCIATED WITH THE PROGRAM IN ENVIRONMENTAL ENGINEERING

Professors Paul Anastas (*Forestry & Environmental Studies*), Michelle Bell (*Forestry & Environmental Studies*), Ruth Blake (*Geology & Geophysics*), Menachem Elimelech (*Chemical & Environmental Engineering*), Edgar Hertwich (*Forestry & Environmental Studies*), Edward Kaplan (*School of Management*), Jaehong Kim (*Chemical & Environmental Engineering*), Jordan Peccia (*Chemical & Environmental Engineering*), Lisa Pfefferle (*Chemical & Environmental Engineering*), Julie Zimmerman (*Chemical & Environmental Engineering*)

Associate Professors John Fortner (*Chemical & Environmental Engineering*), Drew Gentner (*Chemical & Environmental Engineering*)

Environmental Studies

Directors of undergraduate studies: Michael Fotos (michael.fotos@yale.edu) for B.A. students, Kealoha Freidenburg (kealoha.freidenburg@yale.edu) for B.S. students; www.yale.edu/evst

Environmental Studies offers the opportunity to examine human relations with their environments from diverse perspectives. The major encourages interdisciplinary study in (1) social sciences, including anthropology, political science, law, economics, and ethics; (2) humanities, to include history, literature, religion, and the arts; and (3) natural sciences, such as biology, ecology, human health, geology, and chemistry. Students work with faculty advisers and the directors of undergraduate studies (DUS) to concentrate on some of the most pressing environmental and sustainability problems of our time: energy and climate change, food and agriculture, urbanism, biodiversity and conservation, human health, sustainable natural resource management, justice, markets, and governance.

Students may pursue either a B.A. or a B.S. degree within Environmental Studies. The B.A. program is intended for students who wish to concentrate in the social sciences and humanities. The B.S. program is intended for students interested in the natural sciences, especially fields such as environmental health and medicine, ecology, energy and climate change. Both degree programs culminate in a senior essay project that is commonly preceded by independent summer research.

Students must declare a major in Environmental Studies before the end of the second term of junior year.

PREREQUISITES

The B.A. degree program has no prerequisites.

The B.S. degree program has prerequisites in mathematics, chemistry, life sciences, and a natural science lab. The prerequisites include a term course in mathematics, physics, or statistics selected from MATH 112 or higher (excluding MATH 190), or PHYS 170 or higher, or S&DS 101 or higher; the two-term lecture sequence in chemistry or, for students qualifying for advanced placement in chemistry, one term of CHEM 167 or higher; the two-credit BIOL sequence BIOL 101, 102, 103 and 104, or EPS 125; and a natural science lab* such as those listed on the environmental studies website or by searching Yale Course Search (YC EVST B.S. NatSci Lab).

*Students who have taken approved field science courses in Spring 2023 or earlier may substitute one such course for the natural science lab prerequisite.

Students in the B.S. program are advised to take chemistry and biology during the first year before enrolling in the EVST core courses in the natural sciences. It is recommended but not required that students complete the prerequisites by the end of their sophomore year.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree requires at least fourteen course credits, consisting of the core requirements, the concentration, and the senior requirement.

B.S. degree program In addition to the prerequisites, the B.S. degree requires at least twelve course credits, consisting of the core requirements, the concentration, and the two-term senior requirement.

B.A. core courses One course in statistics or mathematics selected from S&DS 101 or higher, MATH 110 and 111 or MATH 112 or higher; two core courses in the social sciences or humanities and three core courses in the natural sciences. Students may select core courses from among the list of approved core courses posted on the environmental studies website or by searching Yale Course Search (YC EVST: Core BA Natural Scie and YC EVST: Core Human/Social Sci). Completing one course in each core area before the end of the sophomore year is recommended.

B.S. core courses Two core courses in the humanities or social sciences and two natural science core courses from among the list of approved core courses posted on the environmental studies website or by searching Yale Course Search (YC EVST: Core BS Natural Scie and YC EVST: Core Human/Social Sci). Completing one course in each area before the end of the sophomore year is recommended.

Areas of concentration Students plan their concentration in consultation with the DUS and the student's adviser. A concentration is defined as six courses that provide analytical depth in a particular environmental problem or issue of interest, as well as disciplinary expertise. For the B.A. degree, one of these six courses must be an advanced seminar (YC EVST: Advanced Seminar) that exposes students to primary literature, extensive writing requirements, and experience with research methods. For the B.S. degree, two of the six courses must provide interdisciplinary context to the concentration and three of the six courses must have the science (SC) distributional designation. Of the three SC-designated concentration courses in the B.S. degree program, at least two must have departmental numerical ratings of 125 or higher. Concentrations include biodiversity and conservation, climate change and energy, environmental humanities, environmental justice, environmental policy, food and agriculture, human health and environment, sustainability and natural resources, and urban environments. Students also can design a unique concentration within the major, in consultation with the DUS.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the major, including prerequisites.

Searchable attributes YC EVST: Advanced Seminar; YC EVST B.S. NatSci Lab; YC EVST: Core Human/Social Sci; YC EVST: Core BA Natural Scie; YC EVST: Core BS Natural Scie

SENIOR REQUIREMENT

B.A. degree program For the B.A. degree, students most often complete one term of EVST 496, a colloquium in which they write their senior essay. Students writing the one-term essay must also complete an additional advanced seminar in the environment. The additional advanced seminar is in addition to the six-course concentration requirement. Two-term senior research projects require the permission of the DUS before the end of the second term of the junior year.

B.S. degree program For the B.S. degree, students complete two terms of EVST 496.

ADVISING

Summer Environmental Fellowship During the spring term, EVST majors may apply for the Summer Environmental Fellowship (SEF) to gain experience in the field through research or internships in an area pertinent to their academic development or their senior essay project. Sophomores and juniors may arrange internships with nonprofit organizations, government agencies, or corporations. Rising seniors typically focus on research for their senior essay. You can find a list of past SEF awards on the Environmental Studies website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* — no prerequisites; *B.S.* — one statistics, math, or physics course from MATH 112 or higher (excluding MATH 190), or PHYS 170 or higher, or S&DS 101 or higher; two-term lecture sequence in chemistry, or CHEM 167 or higher; BIOL 101, 102, 103 and 104, or EPS 125; and one natural science lab

Number of courses *B.A.* — at least 14 course credits, including the senior req; *B.S.* — at least 12 course credits, beyond prereqs and incl the senior req

Specific courses required *B.A.* — 6 core courses, as specified; *B.S.* — 2 core courses in humanities and social sciences and 2 core courses in natural sciences, as specified

Distribution of courses *B.A.* — 6 courses in area of concentration, including 1 adv seminar as specified; *B.S.* — 6 courses in area of concentration, 3 of which must have SC designation with 2 of the 3 numerically rated at 125 or higher, and 2 must provide interdisciplinary context as specified

Senior requirement *B.A.* — one-term senior essay, EVST 496 and an adv seminar in the environment or, with petition to the DUS before the end of the junior year, a two-term research project; *B.S.* — two-term research project, EVST 496

FACULTY ASSOCIATED WITH THE PROGRAM OF ENVIRONMENTAL STUDIES

Professors Mark Ashton (*School of the Environment*), Michelle Bell (*School of the Environment*), Gaboury Benoit (*School of the Environment*), Graeme Berlyn (*School of the Environment*), Ned Blackhawk (*History and American Studies*), Mark Bradford (*School of the Environment*), Derek Briggs (*Earth and Planetary Sciences*), Gary Brudvig (*Chemistry, Molecular Biophysics and Biochemistry*), Ingrid Burke (*School of the Environment*), Susan Clark (*School of the Environment, Adjunct*), Deborah Coen (*History*), Michael Donoghue (*Ecology and Evolutionary Biology, School of the Environment*), Michael Dove (*School of the Environment, Anthropology*), Robert Dubrow (*School of Public Health*), Anna Dyson (*Architecture, School of Environment*), Keller Easterling (*Architecture*), Menachem Elimelech (*Chemical Engineering, Environmental Engineering*), Daniel Esty (*School of the Environment, Law School*), Eduardo Fernandez-Duque (*School of the Environment*), Walter Jetz (*Ecology and Evolutionary Biology, School of the Environment*), Ben Kiernan (*History*), Matthew Kotchen (*School of the Environment, Economics*), Douglas Kysar (*Law School*), William Lauenroth (*School of the Environment*), Xuhui Lee (*School of the Environment*), Robert Mendelsohn (*School of the Environment, Economics*), Alan Mikhail (*History*), Jeffrey Park (*Earth and Planetary Sciences*), Peter Perdue (*History*), Stephen Pitti (*History, American Studies*), Alan Plattus (*Architecture*), David Post (*Ecology and Evolutionary Biology*), Jeffrey Powell (*Ecology and Evolutionary Biology*),

School of the Environment), Daniel Prober (*Applied Physics, Electrical Engineering, and Physics*), Peter Raymond (*School of the Environment*), Paul Sabin (*History*), James Saiers (*School of the Environment*), Oswald Schmitz (*School of the Environment, Ecology and Evolutionary Biology*), James Scott (*Political Science, Anthropology*), Karen Seto (*School of the Environment*), Kalyanakrishnan Sivaramakrishnan (*Anthropology, School of the Environment*), David Skelly (*School of the Environment, Ecology and Evolutionary Biology*), Stephen Stearns (*Ecology and Evolutionary Biology*), Peter Swenson (*Political Science, Institution for Social and Policy Studies*), Dorceta Taylor (*School of the Environment*), Charles Tomlin (*School of the Environment*) (*Visiting*), Gerald Torres (*School of the Environment, Law*), Paul Turner (*Ecology and Evolutionary Biology*), John Wargo (*School of the Environment*), John Warner (*History of Medicine, American Studies, History*), Michael Warner (*English, American Studies*), Harvey Weiss (*Near Eastern Languages and Civilizations, Anthropology*), Carl Zimmer (*Molecular Biophysics and Biochemistry, Adjunct*) Julie Zimmerman (*Chemical Engineering, Environmental Engineering*)

Associate Professors Laura Barraclough (*American Studies*), Craig Brodersen (*School of the Environment*), Marian Chertow (*School of the Environment*), Kenneth Gillingham (*School of the Environment, Economics, School of Management*), Jennifer Raab (*History of Art*), Elihu Rubin (*Architecture*), Carla Staver (*Ecology and Evolutionary Biology*), David Vasseur (*Ecology and Evolutionary Biology*)

Assistant Professors Anjelica Gonzalez (*Biomedical Engineering*), Krystal Pollitt (*Engineering and Applied Science*), William Rankin (*History, History of Science*)

Senior Lecturers Shimon Anisfeld, Carol Carpenter, Amity Doolittle, John Grim, Mary Evelyn Tucker, Marta Wells

Lecturers Alan Burdick, Ian Cheney, Mary Beth Decker, Marlyse Duguid, Michael Fotos, Kealoha Freidenburg, Gordon Geballe, Robert Klee, Linda Puth, Catherine Skinner

Ethics, Politics, and Economics

Director of undergraduate studies: Sarah Khan (sarah.khan@yale.edu), 31 Hillhouse Ave.; epe.yale.edu

The major in Ethics, Politics, and Economics joins the analytic rigor of the social sciences and the enduring normative questions of philosophy to promote an integrative and critical understanding of the institutions, practices, and policies that shape the contemporary world.

INTRODUCTORY REQUIREMENTS

Students must successfully complete eight introductory courses before they can declare as an EP&E major. Students are very strongly encouraged to complete these introductory courses before the beginning of their fifth semester, because of the demands of the overall EP&E course load and the related need to demonstrate ability to complete the major.

After completion of introductory requirements, students may declare the EP&E major, following the process outlined on the EP&E website.

Introductory courses required to declare the Ethics, Politics, and Economics major include the following:

1. The Ethics course PHIL 175 or Directed Studies*
2. A course in Other Perspectives, from disciplines such as Anthropology; Ethnicity, Race, and Migration; History; Sociology; Women's, Gender, and Sexuality Studies; or Directed Studies*
3. A course in Political Philosophy, choosing from PHIL 178, PLSC 108, 114, 118, 119, or Directed Studies*

*Students completing two full terms of Directed Studies fulfill the first three introductory requirements.

4. A Political Science introductory course in one of the following Political Science subfields: international relations (PLSC 111), comparative politics (PLSC 116), or American politics (PLSC 113)
5. A course in Introduction to Microeconomics, choosing from ECON 108, ECON 110 or ECON 115
6. A course in Introduction to Macroeconomics, choosing from ECON 111 or ECON 116
7. A course in Econometrics, choosing from ECON 117, 123, 135, GLBL 121, S&DS 230, or S&DS 238
8. A course in Game Theory, choosing from EP&E 220, 231, 295, 297, or ECON 159

MAJOR REQUIREMENTS

Students must take fifteen term courses including eight introductory requirements; Intermediate Microeconomics (ECON 121 or 125); three core seminars with one selected from the Classics series of EP&E courses (EP&E 212, 213, 214, 215, 216, or 217) and the remaining two seminars selected from two of the three core areas of the major (Ethics,

Politics, Economics); and three courses in the chosen area of concentration (which includes the senior requirement).

Intermediate Microeconomics Students must take ECON 121 or ECON 125.

Core courses The major requires that students take three core courses: one course selected from EP&E 212, 213, 214, 215, 216, or 217 and two additional core courses from the major's three core areas (Ethics, Politics, Economics), one of which must be an advanced seminar anchored in at least two of the major's three core areas of ethics, politics, or economics. The approved core courses, specified annually, can be found on a list of approved EP&E core courses on the EP&E website and by searching Yale Course Search for attributes: YC EP&E Ethics Core; YC EP&E Politics Core; YC EP&E Economics Core.

Areas of Concentration Each student defines an area of concentration with review by the DUS by the end of their junior year. The concentration enables students to frame an important problem and shape a systematic course of inquiry, employing analytical methods and substantive theories drawn from the three fields. For many students, the concentration treats a contemporary problem with a substantial policy dimension (domestic or international), but some students may wish to emphasize philosophical and methodological issues. The area of concentration culminates in the senior essay.

Areas of concentration must consist of three courses appropriate to the theme, including the seminar or independent study course in which the senior essay is written (see "Senior Requirement" below.) At most, one of these three courses may be a lecture course. In designing the area of concentration, students are encouraged to include seminars from other departments and programs (see "graduate work" below.) Students are encouraged to include a seminar or a lecture that covers advanced research design and/or data analysis when the area of concentration requires it.

The following are examples of possible areas of concentration: distributive justice, government regulation of market economies, environmental policy, philosophy of law, gender relations, democracy and multiculturalism, contemporary approaches to public policy, war and coercion, war crimes and crimes against humanity, medical ethics, international political economy, philosophy of the social sciences, social theory and ethics, cultural analysis and political thought, and civil society and its normative implications. However, students may wish to frame their own area of concentration more precisely.

Credit/D/Fail Students admitted to the major may take one of their Ethics, Politics, and Economics courses Credit/D/Fail, excluding the seminar in which the senior essay is written. Such courses count as non-A grades in calculations for Distinction in the Major.

Searchable attributes YC EP&E Ethics Core; YC EP&E Politics Core; YC EP&E Economics Core

SENIOR REQUIREMENT

A senior essay is required for the major and should constitute the intellectual culmination of the student's work in Ethics, Politics, and Economics. The essay should fall within the student's area of concentration. Students may enroll in EP&E 491 to write a term-long essay; or in EP&E 492 and EP&E 493 to write a year-long essay. They

must secure the approval of a faculty member who will serve as advisor for the essay. Alternatively, students may write their essay within a relevant seminar, with the consent of the seminar instructor to serve as the essay advisor, and approval of the DUS.

The senior essay reflects more extensive research than an ordinary Yale College seminar paper and employs a method of research appropriate to its topic. Some papers might be written entirely from library sources; others may employ field interviews and direct observation; still others may require statistical or econometric analysis. The student should consult frequently with the seminar instructor or adviser, offering partial and preliminary drafts for criticism. Students are encouraged to incorporate analysis using the tools of all three of the major's fields.

Senior essays written in the fall term are due in early December. Senior essays written in the spring term and yearlong essays are due in mid-April. One-term essays are normally expected to be 40–50 pages in length; yearlong essays are normally expected to be 80–100 pages in length.

GRADUATE WORK

Some graduate and professional school courses are open to qualified undergraduates and may be of interest to EP&E majors, especially as potential concentration courses (e.g., courses in the Schools of Nursing, Forestry and Environmental Studies, Management, and Public Health). Permission to enroll is required from the instructor as well as the appropriate representative of the graduate or professional program. EP&E requires that graduate and professional school courses carry one, full Yale College course credit, and it is important to note that not all such courses yield a full course credit in Yale College. See Academic Regulations, section L, Special Academic Arrangements, "Courses in the Yale Graduate and Professional Schools."

SUMMARY OF MAJOR REQUIREMENTS

Introductory requirements 8 introductory courses as indicated

Number of courses 15 (including intro and senior requirement)

Specific courses required ECON 121 or ECON 125

Distribution of courses 3 core seminars (one of which is EP&E 212, 213, 214, 215, 216, or 217) and 2 from the 3 core areas, one of which must be an advanced seminar; 3 concentration courses including the senior requirement course

Senior requirement Senior essay in area of concentration (in an advanced seminar or in EP&E 491 or in EP&E 492 and EP&E 493)

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHICS, POLITICS, AND ECONOMICS

Director: Ana de la O (*Political Science*)

Professors David Cameron (*Political Science*), Stephen Darwall (*Philosophy*), Bryan Garsten (*Political Science*), Jacob Hacker (*Political Science*), Shelly Kagan (*Philosophy*), Giovanni Maggi (*Economics*), William Nordhaus (*Economics*), John Roemer (*Political Science*), Ian Shapiro (*Political Science*), Jason Stanley (*Philosophy*), Peter Swenson (*Political Science*), Steven Wilkinson (*Political Science*)

Lecturers Gregory Collins, Elaine Dezenski (*Global Studies*), Kevin Elliott, Michael Fotos (*Political Science*), Karen Goodrow (*Political Science*), Robin Landis, Stephen Latham (*Political Science*), Mordechai Levy-Eichel (*Political Science*), Max Lewis, Daniel Schillinger, Ximena Benavides Reverditto

Ethnicity, Race, and Migration

Director of undergraduate studies: Albert Laguna (albert.laguna@yale.edu), 318 HQ, 432-6333

The program in Ethnicity, Race, and Migration enables students to engage in an interdisciplinary, comparative study of forces that have created a multicultural, multiethnic, and multiracial world. The major emphasizes familiarity with the intellectual traditions and debates surrounding the concepts of indigeneity, ethnicity, nationality, and race; grounding in both the history of migration and its contemporary manifestations; and knowledge of and direct engagement with the cultures, structures, and peoples formed by these migrations.

REQUIREMENTS OF THE MAJOR

Students must complete twelve term courses in Ethnicity, Race, and Migration, including the senior requirement. These twelve normally include ER&M 200, an introductory course on the issues and disciplines involved in the study of ethnicity, race, and migration. In the junior year, all majors are required to take ER&M 300, a seminar that introduces majors to scholarship in ethnic studies, postcolonial studies, and cultural studies. Students may take up to two courses required for the major in other departments, if the courses have content related to topics of ethnicity, race, and migration. These courses must be approved by the DUS.

Area of interest In consultation with the director of undergraduate studies (DUS), each student defines an area of interest consisting of six term courses, one of which must be a methods course; these interest area courses do not include the senior essay or project. Advanced work in a language related to a student's area of interest is advised.

Credit/D/Fail No more than two courses taken Credit/D/Fail may be counted toward the major with permission of the DUS. ER&M 300 and courses counting toward the senior requirement may not be taken Credit/D/Fail.

SENIOR REQUIREMENT

There are two options for the senior requirement. Majors may choose a yearlong senior essay or project and take the senior colloquium (ER&M 491) on theoretical and methodological issues in the fall and then complete the requirement by writing a senior essay in the senior project seminar (ER&M 492) during the spring term. Alternatively, students may take two upper-level ER&M seminars, and in one of the seminars, with the instructor's approval, write a final paper of 20-25 pages in addition to completing other course requirements. These seminars may be taken during either the fall or spring term.

ADVISING

Prospective majors should consult the DUS early in their academic careers to discuss an individual plan of study. Enrollment in the major requires permission of the DUS before the beginning of the fall term of the junior year.

As a multidisciplinary program, Ethnicity, Race, and Migration draws on the resources of other departments and programs in the University. Students are encouraged to examine other departments' offerings in the humanities and the social sciences, interdisciplinary programs of study housed in the MacMillan Center and elsewhere,

and Residential College Seminars for additional relevant courses. The stated area of interest of each student determines the relevance and acceptability of other courses. Students are also encouraged to engage in community-based learning opportunities.

STUDY ABROAD

Because of the major's emphasis on international and transnational work, students are encouraged to undertake a term abroad. They should consult with the DUS to identify courses from study abroad programs that may count toward the major.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required ER&M 200, ER&M 300

Distribution of courses 6 courses in area of interest, 1 of which must be a methods course; 2 additional courses with ER&M content and DUS approval

Senior requirement Senior colloq (ER&M 491) and senior essay or project (ER&M 492); or senior essay in upper-level seminar and one additional upper-level seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHNICITY, RACE, AND MIGRATION

Professors Laura Barraclough (*American Studies*), Ned Blackhawk (*History, American Studies*), Alicia Schmidt Camacho (*Ethnicity, Race, and Migration, American Studies*), Michael Denning (*American Studies, English*), Fatima El-Tayeb (*Ethnicity, Race, and Migration, Women's, Gender, & Sexuality Studies*), Roderick Ferguson (*American Studies, Women's, Gender, & Sexuality Studies*), Daniel Martínez HoSang (*American Studies, Ethnicity, Race, and Migration*), Matthew Jacobson (*American Studies, African American Studies, History*), Grace Kao (*Sociology*), Lisa Lowe (*American Studies*), Mary Lui (*American Studies, History*), Stephen Pitti (*History, American Studies*), Ana Ramos-Zayas (*American Studies, Ethnicity, Race, and Migration, Women's, Gender, & Sexuality Studies*), Kalindi Vora (*Ethnicity, Race, and Migration, Women's, Gender, & Sexuality Studies*)

Associate Professors Zareena Grewal (*American Studies, Ethnicity, Race, and Migration*), Albert Laguna (*American Studies, Ethnicity, Race, and Migration*)

Assistant Professors Tarren Andrews (*Ethnicity, Race, and Migration*), Leigh-Anna Hidalgo (*Ethnicity, Race, and Migration*), Hi'ilei Hobart (*Ethnicity, Race, and Migration*), Sunny Xiang (*English*)

Lecturers Ximena Lopez Carillo (*Ethnicity, Race, and Migration*), Fadila Habchi (*Ethnicity, Race, and Migration*) Quan Tran (*American Studies, Ethnicity, Race, and Migration*)

Visiting Lecturer Gary Okihiro (*Ethnicity, Race, and Migration, American Studies*)

Ethnography Certificate

Certificate director: Zareena Grewal (zareena.grewal@yale.edu)

Ethnography is both a set of qualitative research methods employed in the humanities and social sciences and a mode of presenting that research—in books and articles, in film and video, in embodied performance, and, increasingly, in digital formats and multiple media.

REQUIREMENTS

Students must successfully complete six courses. At least four of the six courses must be at the 300-level or above. At least two of the six courses, including at least one at the 300-level or above, must include substantial methods training and/or a practical ethnographic component. The minimum grade for all courses is a C.

Courses that fulfill these requirements are listed on the Ethnography Certificate website (coming soon) and are searchable in Yale Course Search (YCS) using the following attributes: YC Ethnography: Elective and YC Ethnography: Methods. Other courses may be approved by permission of the certificate director.

Students must also attend two public talks or other events that feature ethnography and submit to the certificate director one-page critical reflections on each of these talks. The Ethnography Certificate website will maintain updated links to the Ethnography Hub, Ethnography and Social Theory Colloquium series, Workshop in Urban Ethnography, Qualitative Social Science Initiative, and other campus series that regularly feature ethnography-informed events.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Ethnography certificate and of a major, a simultaneous degree, or another certificate; and no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Approved graduate and professional school courses may count toward the certificate. Non-Yale courses may not count toward the certificate.

Yale Course Search Searchable Attributes: YC Ethnography: Elective, YC Ethnography: Methods

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 6 course credits

Distribution of courses 4 courses at 300-level or above; 2 courses indicated as methods course with 1 at 300-level or above

Additional requirements attendance at 2 public talks and submission of 1-page critical reflections for each

Film and Media Studies

Director of undergraduate studies: John Durham Peters; filmstudies.yale.edu/undergraduate

The major in Film and Media Studies focuses on the history, theory, criticism, and production of cinema and other moving-image media. Courses examine cinema and the broader landscape of audiovisual media as significant modern art forms, and the contributions of moving-image media as cultural and communicative practices of enduring social significance. As an interdisciplinary program centered in the humanities, Film and Media Studies offers students latitude in defining their course of study within the framework established by the Film and Media Studies Committee. With this freedom comes the responsibility of carefully planning a coherent and well-focused program. Because of the special demands of Film and Media Studies and the diversity of its offerings, potential majors are encouraged to consult the director of undergraduate studies (DUS) early in their academic careers.

PREREQUISITE

Students normally take FILM 150 in their first or second year. This course is useful preparation, and in some cases a prerequisite for other courses in the major.

REQUIREMENTS OF THE MAJOR

The Film and Media Studies major consists of twelve term courses, including the prerequisite and the senior requirement. Students are required to take FILM 160 and FILM 320, preferably by the end of their sophomore year. In addition, students are required to take one upper-level course in the study of representative films from a non-American national cinema (e.g. German expressionist cinema, Italian cinema, or world cinema) and one upper-level course in critical studies: these are designated by attributes (YC FILM: World Cinema, YC FILM: Critical Studies) in Yale Course Search. Students also must take at least one course on the creative process in film, designated by the attribute YC FILM: Production in Yale Course Search. Courses taken outside the Film and Media Studies department do not count toward the major without the permission of the DUS. Admission to senior-level seminars is at the instructor's discretion, but the Film and Media Studies program ensures that every senior major gains admission to the required number of seminars.

The intensive major Students of substantial accomplishment and commitment to film and media studies are encouraged to pursue the intensive major. Students in the intensive major complete a senior project in production and also write a senior essay. The intensive major in Film and Media Studies is intended for students who are not pursuing two majors. Students must request approval from the Film and Media Studies Committee at the end of their junior year by submitting a proposal that outlines their objectives and general area of study.

Credit/D/Fail No more than one course taken Credit/D/Fail may be counted toward the major with permission of the DUS.

SENIOR REQUIREMENT

During the senior year, each student takes one or two senior-level seminars or the equivalent and submits a senior essay or senior project, which should represent

a culmination of work in the major and in Yale College. The senior requirement requires both critical writing and writing in images. Those undertaking creative senior projects should be expected to produce a paper of approximately fifteen pages in which the student discusses such questions as the genre to be used in the project, existing precedents for the topic, and his or her strategy in working on the project. Those undertaking to fulfill the senior requirement by writing a senior essay should additionally take a course in which they are expected to do, minimally, a small production assignment.

See the Film and Media Studies website for dates and deadlines for the senior requirement. A second reader assigned by the DUS participates in evaluating the essays and/or projects.

Preparation for a senior project Those students hoping to produce a film script or video as their senior project should make sure that they have taken enough courses in video production and screenwriting to be accepted into an advanced course in screenwriting or production. Senior creative projects in Film and Media Studies must be produced in conjunction with one such upper-level course. Students often start by completing FILM 161, 162 by the end of their sophomore year, and continue with FILM 355, 356 by the end of their junior year, to prepare for FILM 455, 456 or FILM 483, 484 in their senior year. Those students interested in screenwriting often begin with FILM 350. Students interested in filmmaking should also take courses in screenwriting, and vice versa. Some production courses are available in the summer program in Prague.

Senior project Students who wish to complete a senior project as an alternative to an essay must petition the Film and Media Studies Committee for approval of their project at the end of the junior year. Projects might include writing a screenplay in Advanced Screenwriting (FILM 487, 488) or producing a video. Students electing such an alternative should note that the project must be undertaken and accomplished over two terms. A limited number of students making films or videos are admitted to either the Advanced Fiction Film Workshop (FILM 483, 484) or the Documentary Film Workshop (FILM 455, 456), and receive three credits for their projects (two credits for FILM 483, 484 or FILM 455, 456, and one for FILM 493 or 494). Such a choice effectively commits students to one extra course in addition to the twelve courses required for the major, because FILM 493 or 494 does not count toward the twelve required courses when taken in conjunction with FILM 483, 484 or FILM 455, 456. Students may undertake a production project outside the workshops if (1) the Film and Media Studies Committee approves their petition, (2) they have found a primary adviser *qualified* and willing to provide the necessary supervision, and (3) they have identified the equipment necessary to execute the project. Such students may count FILM 493 and 494 toward the twelve courses required for the major.

Preparation for a senior essay Students in their senior year may prefer to write a senior essay rather than work on a creative project. To prepare, they should take advantage of the variety of courses in film and media history, criticism and theory offered by the program, including such topics as American independent cinema, film theory, and African American cinema.

Senior essay For the student writing a senior essay, several options are possible. First, the student may enroll in two terms of relevant senior-level seminars (usually courses

numbered in the 400s) and write a substantial term paper of twenty-five pages, double-spaced, for one of these courses. Second, the student may do independent research on a yearlong senior essay (FILM 491, 492). This option is intended for students with clearly defined topics that do not relate closely to a senior-level seminar. Such research receives two terms of credit; the product of a two-term research essay is a work of at least fifty pages. Third, the senior requirement may be completed by combining one single-term senior-level seminar with one term of an independent research project (FILM 491 or 492), resulting in a paper of thirty-five pages. Whichever option is chosen, the essay should be written on a topic informed by the student's previous coursework at Yale College. The student intending to write a senior essay should submit a brief prospectus, approved by the proposed faculty adviser, to the DUS by the end of reading week in their junior year. If this petition is approved, the student should plan to submit an updated and elaborated prospectus for final approval by the DUS during the first two weeks of the first term of senior year. In researching and writing the essay, the student should consult regularly with the seminar instructor or adviser, supplying preliminary drafts as appropriate, and may consult with other faculty members as well.

ADVISING

Foreign languages Study of relevant languages is urged for all Film and Media Studies majors. Students considering graduate work should become proficient in French or another modern language. Those choosing to study film in relation to a foreign culture must have good listening and reading abilities in that language.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite FILM 150

Number of courses 12 term courses (incl prereq and senior req)

Specific courses required FILM 160 and FILM 320

Distribution of courses 1 upper-level national or world cinema course as specified; 1 upper level critical studies course; 1 production course

Senior requirement *For senior essay*—2 terms of senior-level seminars, or 2 terms of senior essay (FILM 491, 492), or 1 term of a senior-level seminar and one term of FILM 491 or 492; *for senior project*—2 terms of senior project in FILM 455, 456, or FILM 483, 484, and either FILM 493 or 494, for a total of 13 term courses; or 2 terms of senior project in FILM 487, 488; or 2 terms of senior project in FILM 493, 494 *with approved petition*

Intensive major Both senior project in production and senior essay

FACULTY ASSOCIATED WITH THE PROGRAM OF FILM AND MEDIA STUDIES

Professors *Marijeta Bozovic (*Slavic Languages and Literatures, Film & Media Studies, Women's, Gender, and Sexuality Studies*) *Francesco Casetti (*Humanities, Film & Media Studies*), *Marta Figlerowicz (*Comparative Literature, English, Film & Media Studies*) *Aaron Gerow (*East Asian Languages and Literatures, Film & Media Studies*), *John MacKay (*Film & Media Studies, Slavic Languages and Literatures*), Brian Kane (*Music, Film & Media Studies*), *Millicent Marcus (*Italian, Film & Media Studies*), *Charles Musser (*American Studies, Film & Media Studies*), *Fatima Naqvi (*German, Film*

& Media Studies), *John Durham Peters (*English, Film & Media Studies*), *Katie Trumpener (*Comparative Literature, English, Film & Media Studies*), Laura Wexler (*American Studies, Women's, Gender, and Sexuality Studies*), *R. John Williams (*English, Film & Media Studies*)

Associate Professors Moira Fradinger (*Comparative Literature*), Zareena Grewal (*Ethnicity, Race, & Migration*)

Assistant Professor Neta Alexander (*Film & Media Studies*)

Professor in the Practice, Thomas Allen Harris (*African American Studies, Film & Media Studies*)

Senior Lecturer Camille Thomasson (*Film & Media Studies*)

Lecturers Jonathan Andrews (*Art, Film & Media Studies*), Shakti Bhagchandani (*Film & Media Studies*), Oksana Chefranova (*Film & Media Studies*), Claire Demoulin (*Film & Media Studies*), Wanda Strauven (*Film & Media Studies*)

Senior Lectors Krystyna Illakowicz (*Slavic Languages and Literatures*)

Visiting Professors Leighton Pierce (*Film & Media Studies*)

*Member of the Film and Media Studies Advisory Committee.

First-Year Seminar Program

The First-Year Seminar program offers a diverse array of courses open only to first-year students and designed with first-year students in mind. Enrollment in seminars is limited to fifteen or eighteen students, depending on the nature of the course. Most seminars meet twice each week and do not, unless otherwise noted, presume any prior experience in the field.

Course descriptions for first-year seminars can be found in Yale Course Search (under Yale College Attributes). The online listings contain course titles, descriptions, and prerequisites. Course syllabi are available on Canvas@Yale.

Students apply to first-year seminars during registration. Students may enroll in no more than one first-year seminar in a given term, and no more than two first-year seminars in their first year of Yale College.

Food, Agriculture, and Climate Change Certificate

Certificate director: Mark Bomford, (mark.bomford@yale.edu) Yale Sustainable Food Program (YSFP)

This interdisciplinary certificate prepares Yale College students for creative, critical, and unconventional engagement with multiple pressing challenges facing food and agriculture at local and global scales.

Central to the success of this certificate is the Yale Sustainable Food Program (YSFP) and the Yale Farm, which has served as a place of innovative hands-on learning on campus for over twenty years. Learning at the Farm is active, reflexive, embodied, and relational, and these qualities provide an enriching complement to the classroom regardless of the discipline. The YSFP will support those enrolled in the certificate to draw out the important cross-disciplinary connections and contributions they can make to food and agriculture through the lens of their chosen major, even when the subject matter may appear only tangentially related at first appraisal.

REQUIREMENTS

Students must successfully complete five courses (5 credits) from three areas that reflect the scope of the certificate: food, agriculture, and climate change.

1. **Consumption** (food): 2 required courses; search YC FOOD: Consumption in Yale Course Search. These courses are concerned with the cultivation of plants for harvest as food, feed, fiber, and fuel, and the husbandry or harvest of non-human animals destined for human consumption.
2. **Environment** (climate change): 1 required course; search YC FOOD: Environment in Yale Course Search. These courses concern the broad substrates and surroundings of food and agriculture, particularly those linked to processes of climate change.
3. **Production** (agriculture): 2 required courses; search YC FOOD: Production in Yale Course Search. These courses are concerned with the broad practices of eating, both as essential to human nutrition and health, and also inextricably entwined with cultures, histories, values, identities, politics, and economies.

Students must also participate in 5 co-curricular events identified by the YSFP as directly supporting the academic goals of the certificate and write a 6–8 page (double-spaced) summary. The summary should reflect observations of a recurring theme, an area of controversy, and a proposed resolution. Students should confirm eligibility for these events with the certificate director. The certificate director will provide more information about the scope and format of the written report.

No more than two course credits fulfilling the requirements of the Food, Agriculture, and Climate Change certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Graduate and professional school courses may count toward the certificate.

Courses accepted by Yale College for full course credit but taken outside of regular fall and spring semesters—for example, in the summer term or during a year abroad—can provisionally count towards satisfying the certificate requirements. Before considering such courses, students should consult with the certificate director.

Yale Course Search Searchable Attributes: YC FOOD: Consumption, YC FOOD: Environment, YC FOOD: Production

Credit/D/Fail Courses taken Credit/D/Fail may not count toward the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

REQUIREMENTS OF THE CERTIFICATE

Number of courses 5 course credits

Distribution of courses two courses in consumption area; one course in environment area; two courses in production area; 6–8 page summary of five co-curricular events

French

Director of undergraduate studies: Morgane Cadieu

(morgane.cadieu@yale.edu); Language program director: Candace Skorupa

(candace.skorupa@yale.edu); french.yale.edu

The Department of French has two distinct but complementary missions: to provide instruction in the French language at all levels of competence, and to lead students to a broad appreciation and deep understanding of the literatures and cultures of France and other French-speaking countries.

The major in French is a liberal arts major, designed for those who wish to study French-language literatures, arts, and cultures in depth. The department offers courses devoted to authors, works, and literary and cultural movements that span ten centuries and four continents. The curriculum also includes interdisciplinary courses on relations between literature and other areas of study such as history, law, medicine, religion, politics, business, translation, and the arts. Majors are encouraged to explore all periods and genres of literature in French, as well as a wide variety of critical approaches.

Excellent knowledge of a non-English language and a mature, informed appreciation of a non-English literature and culture can open doors to various professions. The French major provides ideal preparation for careers in a wide range of fields from law and diplomacy to journalism, teaching, academia, publishing, and the arts. Recent graduates have gone on to selective law schools, medical schools, and graduate programs in French and Comparative Literature. Others work in business, government, primary and secondary education, and a variety of nongovernmental agencies and international organizations.

French can be taken either as a primary major or as one of two majors, in consultation with the director of undergraduate studies (DUS). Regulations concerning the completion of two majors can be found in the Academic Regulations, section L, Special Academic Arrangements, “Two Majors.”

COURSE NUMBERING

Group A courses (FREN 110–159) This group consists of language courses that lead to courses counting toward the major. Preregistration is required for all Group A courses except FREN 125 and 145. FREN 121 (the stand-alone L2) is offered only during the fall term. For this reason, students placed into L1 or L2 who were not enrolled in a fall-term course will have to wait until the next fall to enroll. For further details, students should consult Candace Skorupa, (candace.skorupa@yale.edu) the language program director (LPD).

Group B courses (FREN 160–449, not including Group C courses) This group contains more advanced courses that are taught in French and count toward the major. FREN 160 and 170 are gateway courses that prepare students for courses numbered FREN 200 and above. Courses in the FREN 180–189 range are advanced language courses. Courses in the 190–199 range are translation courses. Courses numbered 200–449 are advanced courses in literature and culture. The 200–299 range contains courses devoted to broad, general fields defined by century or genre; the 300–

449 range contains courses devoted to specific topics within or across those general fields.

Group C courses This group comprises courses taught in English; readings may be in French or English. Two courses from this group may be counted for credit toward the major.

LANGUAGE PLACEMENT PROCEDURES

The departmental placement exam in French is accessible online. Dates and information for the exam will be available on the French department website, in the Calendar for the Opening Days of College, and on the Center for Language Study website. Placement exam results remain valid for one year.

All students who have not yet studied French at Yale (except those who have had no previous exposure to French whatsoever) are expected to take the departmental placement exam. Students who studied abroad over the summer with non-Yale programs must take the placement exam to be eligible to receive credit for their work.

Students who earned superior scores on standardized tests may be able to enroll in a course designated L5. The department strongly recommends, however, that advanced students of French take the departmental placement exam in order to be directed to the most appropriate courses. Students who earned a score of 5 on the Advanced Placement exam, a score of 6 or 7 on the advanced-level International Baccalaureate (IB) exam, a rating of C1 on the CEFR European test, or an A or B on the GCE A-level exam are normally placed into a course at the 150 level and above.

PREREQUISITE

The prerequisite may be fulfilled by taking FREN 150, which should be taken during the first or second year. In consultation with the DUS, students may instead choose to select a course numbered 200–449 to fulfill the prerequisite. Prospective majors are strongly encouraged to take at least one literature course numbered 170 or above before the end of the second year.

REQUIREMENTS OF THE MAJOR

The standard major The standard major consists of ten term courses numbered 160 or above, including a one-term senior essay (see below). One of these ten courses must be FREN 170 which should be completed early in a candidate's studies, or, in consultation with the DUS, an equivalent course in French from the 200–449 range; at least four must be Group B courses numbered 200 or above. Students may count no more than two courses in the FREN 180–199 range (unless they opt for the translation concentration, see below). No more than two courses conducted entirely in English (Group C) may count toward the major. With prior approval of the DUS, a maximum of four term courses taught outside the Yale Department of French but bearing directly on the student's principal interest may be counted toward the major. Up to two of these may be taken in other departments at Yale, and up to four may be taken as part of a Year or Term Abroad or summer study abroad program. However, the combined number of courses from other departments and from study abroad may not exceed four. The DUS may grant exceptions to this limit for students who spend two academic terms in an approved study abroad program. Relevant first-year seminars may count toward the major, with permission of the DUS.

The intensive major The intensive major is designed for students who wish to undertake a more concentrated study of literature and culture in French. It is recommended for students considering graduate study in French or in a related field. The intensive major consists of twelve term courses numbered 160 or above, including a one-term or two-term senior essay (see below). At least five courses must be from Group B numbered 200 or above. The requirement of FREN 170 (or an equivalent 200–449 course), and the stipulations for courses in the 180–199 range, courses conducted in English, and courses taken outside the department are identical to those for the standard major.

Period requirement A minimum of one of the ten courses toward the major, or one of the twelve courses toward the intensive major, must deal predominantly with materials from the period preceding 1800. The pre-1800 course may be either a Group B (taught in French) or a Group C course (taught in English). This requirement applies to all French majors, including those who opt for the standard or intensive translation concentration.

Translation concentration Students may elect to pursue the translation concentration within the French major. Translation concentration majors are expected to take a minimum of two courses in French translation as two of the ten credits required for the standard major, or as two of the twelve credits required for the intensive major. Within the department, this requirement can be fulfilled by taking FREN 191 and 192. Students who opt for the translation concentration may in this case take up to four courses numbered 180–199, rather than the standard two courses. For their senior requirement, translation concentration students undertake a literary translation project of similar length to the senior essay (see below).

Credit/D/Fail One required course taken Credit/D/Fail may be counted toward the major (excluding the senior essay requirement).

SENIOR REQUIREMENT

All majors must write a senior essay showing evidence of careful reading, appropriate research, and substantial independent thought. Essays may be written in either French or English and must be prepared under the direction of a ladder faculty member in the Department of French. Students planning to pursue advanced work in French after graduation are encouraged to write their senior essay in French.

Students writing a one-term essay enroll in FREN 491 in the senior year. A one-term essay may be written in either the fall or the spring term and should be approximately thirty pages in length. A preliminary statement indicating the general area to be addressed and the name of the adviser must be submitted to the DUS by April 15, 2024 (fall-term essay), or November 1, 2024 (spring-term essay). A one-page prospectus and bibliography are due September 13, 2024 (fall term), or January 24, 2025 (spring term). A rough draft must be submitted to the adviser by October 28, 2024 (fall term), or March 24, 2025 (spring term). Two copies of the final essay are due in the department by November 29, 2024 (fall term), or April 21, 2025 (spring term).

Students electing a two-term essay must select their subject and adviser before the end of the junior year and enroll in FREN 493 and FREN 494 during the senior year. The essay should be around sixty pages in length. A preliminary statement indicating the general area to be addressed and the name of the adviser must be submitted to the

DUS by April 15, 2024. A one-page prospectus and bibliography are due September 13, 2024. Students must submit an initial rough draft to their adviser by January 24, 2025, and a complete draft by March 24, 2025. Two copies of the final essay are due in the department by April 21, 2025.

Translation concentration majors undertake a literary translation project from French into English of similar length to the senior essay, working with a member of the French department ladder faculty. The senior translation project should include a critical introduction, of a length to be determined by the student in consultation with the directing faculty member. The same submission dates as for the one-term essay and the two-term essay apply to the senior translation project. Translation concentration students should sign up for FREN 492 for the single-term senior translation project or for FREN 495 and 496 for the two-term senior translation project, in the fall and spring terms respectively. Materials submitted for the senior translation project cannot be the same as the materials submitted for any translation courses that count toward a major at Yale College.

ADVISING

All students in the major are encouraged to take as many advanced courses as possible from all historical periods, covering as many genres and critical approaches as possible. As stipulated above, majors are also required to take at least one course dealing predominantly with pre-1800 materials. Candidates for the major should make contact with the DUS as early as the beginning of the sophomore year and no later than the fall term of the junior year. Students planning to study abroad or to petition for completion of two majors should contact the DUS during the sophomore year.

Special Divisional Major The department will support the application of qualified students who wish to pursue an interdisciplinary course in French studies. Under the provisions of the Special Divisional Major, students may combine courses offered by the French department with courses from other departments. Close consultation with the relevant departmental advisers is required. Candidates for the Special Divisional Major should consult the DUS in French by the fall term of the junior year.

Study abroad Students are encouraged to spend a term or a year abroad, for which appropriate course credit is granted. With prior approval of the DUS, summer study abroad may also receive course credit. Further information may be obtained from the Center for International and Professional Experience, from Yale Study Abroad, and from French Department's Study Abroad Coordinator, Constance Sherak (constance.sherak@yale.edu).

Combined B.A./M.A. degree program Yale College undergraduate students of distinguished ability and extraordinary commitment who are interested in pursuing advanced research in French and Francophone literatures may undertake graduate work for the simultaneous award of the bachelor's and master's degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should reach out to the DUS prior to the sixth term of enrollment and consult the B.A./M.A. section on the French department's website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite FREN 150 or equivalent as approved by the DUS

Number of courses *Standard major and translation concentration*—10 term courses numbered 160 or above (including senior essay); *Intensive major and translation concentration*—12 term courses numbered 160 or above (including senior essay)

Specific course required FREN 170 or equivalent

Distribution of courses *Standard major*—at least 4 courses in Group B numbered 200 or above; no more than 2 courses numbered FREN 180–199; no more than 2 courses conducted in English; one pre-1800 course; *Intensive major*—same as standard, plus 1 additional Group B course numbered 200 or above; *Translation concentration (both standard and intensive)*—same as standard, except minimum of 2 translation courses and no more than 4 courses numbered FREN 180–199

Substitution permitted With prior approval of DUS, up to 4 term courses outside French Department, as specified

Senior requirement *Standard major*—one-term senior essay in French or English (FREN 491); *Translation concentration*—one-term literary translation from French into English (FREN 492); *Intensive major*—one-term (FREN 491) or two-term senior essay in French or English (FREN 493, 494); *Translation concentration, Intensive major*—one-term senior translation from French into English (FREN 492) or two-term literary translation from French into English (FREN 495, 496)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The French Department offers a Certificate of Advanced Language Study to Yale College undergraduates who are not French majors.

REQUIREMENTS

Non-majors seeking to earn the Certificate of Advanced Language Study in French are required to take four courses beyond the L4 level, at least two of which must be Yale courses designated as L5. Additionally, the French Department requires that a minimum of one of the four required courses be a French Department course listed at the 200–449 level range. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the DUS, one advanced non-L5 course, conducted in the target language, such as an independent study course or a graduate seminar may count toward certification requirements.

The DUS may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes a weekly discussion section conducted entirely in French. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The DUS may also approve up to two study abroad courses taught in French to count as electives toward the certificate requirements. If the DUS approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate. *(Please note that this rule does not apply to courses awarded a universal pass in Spring 2020.)*

Declaration of Candidacy

The French DUS advises students on the certification process. Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

If you have any questions, please contact the French DUS or the French Department Registrar Bethany Hayes (bethany.hayes@yale.edu).

FACULTY OF THE DEPARTMENT OF FRENCH

Professors R. Howard Bloch, Dominique Brancher, Ardis Butterfield, Marlene L. Daut, Carolyn Dean, Kaiama L. Glover, Alice Kaplan, Pierre Saint-Amand, Maurice Samuels

Associate Professors Morgane Cadieu, Thomas C. Connolly, Jill Jarvis

Senior Lecturer Lauren Pinzka

Senior Lectors Soumia Koundi, Matuku Ngame, Constance Sherak, Candace Skorupa

Lecturer Nichole Gleisner

Lectors Ramla Bedoui, Léo Tertrain

German Studies

Director of undergraduate studies: Theresa Schenker (theresa.schenker@yale.edu);

Language program director: Theresa Schenker (theresa.schenker@yale.edu)

The major in German Studies covers a broad tradition of more than five centuries in Germany, Austria, Switzerland, and neighboring lands. Students gain deep competence in the German language while also reading celebrated literature, analyzing distinctive artworks in many media, deducing intensive theories, and exploring political, linguistic, and cultural histories. The German faculty works closely with undergraduates to develop their special areas of interest within the rich currents of German culture.

German language courses emphasize listening, speaking, reading, and writing in interaction with authentic cultural materials. The curriculum also introduces students to the basic questions and methods of literary criticism, with a focus on rigorous reading practices for a wide range of works from different genres, disciplines, and historical moments.

German Studies courses are diverse in their topics and highly relevant to other fields of study today. Pioneers in philosophy, political theory, sociology, psychology, history, classical philology, the visual arts, architecture, and music wrote and thought in German, as did founders of the modern natural and practical sciences. Majors discover Kant, Goethe, Beethoven, Einstein, Freud, Kafka, Arendt, and many other thinkers and writers who laid the groundwork for modernity and still hold keys to understanding it.

Germany is the fourth-largest economy in the world, and German is the first language of over 95 million people worldwide. Students with a foundation in the language, literature, history, and intellectual revolutions of Germany are prepared to enter a wide variety of vocations. Majors have gone on to postgraduate study in Germany and the United States, and many have entered top-tier law schools and graduate programs. Recent graduates work in fields as diverse as environmental policy, journalism, arts management, consulting, and engineering, as well as in governmental and nongovernmental organizations and businesses.

PREREQUISITES

Prerequisite to the major are first- and second-year German or the equivalent.

COURSE NUMBER

Group A courses Courses in Group A (GMAN 110–159) correspond to Yale's L1 to L5 designation of elementary, intermediate, and advanced language courses.

Group B courses Courses in Group B (GMAN 160-level and 170-level) are advanced L5 courses. Readings are in German, and the language of instruction is German. There is no restriction on the number of Group B courses that may count toward the major, provided all requirements are met.

Group C courses Courses in Group C (above GMAN 200) are all other courses. The language of instruction is typically English, but readings may be in German and/or English. Course level and prerequisites vary according to the expectations of the instructors.

PLACEMENT PROCEDURES

An online placement examination is accessible all year. See the department website for details. Students may also consult with the director of undergraduate studies (DUS) or the language program director for advice about placement and about language study. Regardless of previous German study, students without a score of 5 on the German Advanced Placement test must take the departmental placement exam in order to enroll in any course above GMAN 110 or 125.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies, the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

The requirements of the major in German Studies consist of ten term courses, including the senior essay. All majors must complete at least one GMAN course numbered in the 150s, one in the 160s, and one in the 170s, plus six additional courses numbered GMAN 160 and above.

Areas of interest The Yale German Studies program offers a variety of courses. Covered fields include (1) literature, (2) media and media theory, (3) history and politics, (4) critical thought, and (5) aesthetics and the arts. Students are encouraged to select courses based on their preference and may find it rewarding to focus on one or more of these fields. *Literature* courses give students access to worlds of thought and action. Students learn to read critically poetry, novels, plays, short stories, aphorisms, songs, and other genres. *Media and media theory* courses explore a vibrant tradition of experimentation in new cultural forms and media in the nineteenth and twentieth centuries. Students investigate photography, radio, film, television, and computer media alongside landmark works in media theory. Courses in *History and politics* focus on world-altering historical events and thought-altering theories of history from the Germanic tradition. Students become familiar with explosive political and social events, including the emancipation of the Jews and the Holocaust, the world wars, unification and reunification, and concepts and models for development in economy, social welfare, law, and environmental policies. *Critical thought* focuses on traditions of theoretical reflection on society, history, art, and language. Students become familiar with authors such as Kant, Hegel, Marx, Nietzsche, Freud, Benjamin, and Habermas. *Aesthetics and the arts* courses survey the rich Germanic traditions in the visual and musical arts, as well as the philosophical study of art beginning in eighteenth-century Germany.

Credit/D/Fail A maximum of two courses taken Credit/D/Fail may count toward the major, with permission of the DUS.

SENIOR REQUIREMENT

Seniors in the standard German Studies major enroll in GMAN 492, a guided senior essay tutorial course. Students meet biweekly with the DUS and staff, and work under the direction of a faculty adviser. The culmination of the tutorial is an essay of approximately thirty pages that gives evidence of careful reading and substantial independent thought. The essay may be written in either English or German, although only native speakers are encouraged to write an essay in German. Seniors typically write the essay during the fall term. A preliminary statement indicating the general

area to be addressed and the choice of adviser should be submitted to the DUS by early September; the final essay is judged by the faculty adviser and a second reader. See Senior Essay Deadlines on the Department of Germanic Languages and Literatures website for more information.

Intensive major Requirements for the intensive major are the same as for the standard major, except that the intensive major replaces one advanced seminar with a second term of the senior essay. In the fall term seniors in the intensive major enroll in GMAN 492 and begin work on their project under the guidance and supervision of a faculty adviser. A significant portion of the research for the essay should involve materials in German. The essay may be written in either English or German, although only native speakers are encouraged to write an essay in German. A detailed prospectus, no longer than three pages, and a bibliography must be submitted to the DUS by October 18, 2024. The student must submit a draft of at least fifteen pages of the essay by November 29, 2024, to receive credit for the first term of the course. The second term, GMAN 493, is devoted to completing the essay, which should be substantial (between fifty and sixty pages); the completed essay must be submitted by April 10, 2025. The senior essay is judged by the faculty adviser and a second reader. See the Department of Germanic Languages and Literatures website for more information.

ADVISING

Candidates for the major in German Studies should consult the DUS.

Graduate courses Courses in the Graduate School are open to undergraduates with permission of the instructor and of the directors of undergraduate and graduate studies. Course descriptions may be obtained on the German department website or from the office of the director of graduate studies.

STUDY ABROAD

Students are strongly encouraged to study in Germany for a summer, or for one or two terms on the Year or Term Abroad program. Appropriate course credit toward the major is granted for work in approved programs in Germany. Study abroad is valuable not only for achieving comfortable fluency in German, but also for gaining firsthand knowledge of the German cultural context. The department offers diverse opportunities for study abroad and a scholarship program for summer courses at German universities. Members of the faculty advise and consult with any students wishing to plan study in Germany. Students who have been approved to study abroad and who receive financial aid from Yale are eligible for aid while abroad. For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs, “Year or Term Abroad.” Students who study abroad for one term may count up to two courses toward the major, with approval of the DUS. Students who study abroad for an academic year may count up to four courses toward the major, with approval of the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites First- and second-year German or equivalent

Number of courses 10 courses (incl senior req)

Distribution of courses At least 1 GMAN course in the 150s, at least 1 in the 160s, and at least 1 in the 170s; 6 courses (numbered GMAN 160 and above) from Groups B and C

Substitution permitted With DUS approval, some substitutions and exceptions may be possible

Senior requirement Senior essay tutorial (GMAN 492)

Intensive major Two-term senior essay (GMAN 492 and 493)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Germanic Languages and Literatures offers a Certificate of Advanced Language Study in German. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in German. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in German to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student’s last semester at Yale. The form can be found on the University Registrar’s Office website. Once declared, Degree Audit tracks students’ progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF GERMANIC LANGUAGES AND
LITERATURES

Professors Rüdiger Campe, Astrid Dueber-Mankowsky (*Visiting Fall 2024*), Fatima Naqvi, Paul North, Brigitte Peucker, Kirk Wetters (*Chair*)

Assistant Professor Sophie Schweiger

Senior Lectors II Marion Gehlker, Theresa Schenker

Lectors Austen Hinkley, Joshua Price

Affiliated Faculty Jeffrey Alexander (*Sociology*), Jennifer Allen (*History*), Seyla Benhabib (*Political Science*), David Cameron (*Political Science*), Paul Franks (*Philosophy, Judaic Studies*), Gundula Kreuzer (*Music*), Patrick McCreless (*Music*), Steven Smith (*Political Science*), David Sorkin (*History*), Nicola Suthor (*History of Art*), Katie Trumpener (*Comparative Literature, English*), Jay Winter (*History*)

Global Affairs

Director of undergraduate studies: Bonnie Weir (bonnie.weir@yale.edu); jackson.yale.edu/academics/the-global-affairs-major/

The Global Affairs major prepares Yale students for global citizenship and service by enhancing their understanding of the world around them. Students in this multidisciplinary major develop expertise in contemporary global affairs that is strongly grounded in the social sciences.

Students in the Global Affairs major have the flexibility to shape their own curriculums according to their interests and ambitions. In the past, students have concentrated their coursework on economic development and poverty, global health, global climate policy, international relations, and foreign policy and diplomacy, with topics relevant to national and human security.

COURSES FOR NONMAJORS

Most Global Affairs courses are open to both majors and nonmajors. If a Global Affairs course requires an application, the application will be posted on the Jackson School of Global Affairs website.

PREREQUISITES

There are no prerequisites for the Global Affairs major. However, students interested in applying to the major are strongly encouraged to complete the introductory economics sequence (ECON 108, 110, or 115; and ECON 111 or 116) and work toward the language requirement early in their course planning. Students are also encouraged to take the quantitative analysis course GLBL 121. These courses are all required for the major and progress toward completing them, at the time of application, will be considered.

REQUIREMENTS OF THE MAJOR

Thirteen term courses are required for the major in addition to a language requirement. Introductory courses in microeconomics (ECON 108, 110, or 115) and macroeconomics (ECON 111 or 116) are required, as is one intermediate course in either microeconomics or macroeconomics (ECON 121, 122, 125 or 126). All majors must take the core courses GLBL 225 and 275, and two courses in quantitative analysis, GLBL 121 and 122. All majors must take GLBL 122. Majors also take four global affairs electives and one additional methods course chosen from an approved group of courses in the departments of Global Affairs, History, Political Science, Economics, and other social science departments; and GLBL 499, the Senior Capstone Project. For information about which courses qualify as electives, students may search by filtering for the global affairs elective attribute in course listings on Yale Course Search. The courses GLBL 121, 122, 225, and 275 may not count as electives.

Language requirement Global Affairs majors are required to take a course designated L5 in a modern language other than English. In exceptional cases, a demonstration of proficiency can fulfill this requirement with DUS approval.

Credit/D/Fail Courses taken Credit/D/Fail may not be applied to the requirements of the major, with the exception that a grade of Credit in an L5 language course may be used to demonstrate proficiency in a foreign language.

Searchable attributes YC GLBL: Elective; YC GLBL: Addtl Methods Course; YC GLBL: 121 Alternative Crse

SENIOR REQUIREMENT

In the fall term of the senior year, majors must complete a capstone project in GLBL 499. Small groups of students are each assigned to a policy task force in which they apply their academic training in the social sciences to a specific problem relevant to global affairs. Each task force presents its findings and recommendations to a real-world partner such as a government agency, a nongovernmental organization or nonprofit group, or a private-sector organization in the United States or abroad.

ADVISING AND APPLICATION TO THE MAJOR

Students apply to the Global Affairs major in the fall of the sophomore year. The number of students accepted into the major is limited, and selection is competitive. The call for applications is posted each year on the Jackson School of Global Affairs website, circulated through the residential college deans' offices, and noted on the Advising Resources website. For application information, visit the Jackson School of Global Affairs website.

Internships Students in the major are encouraged to take a summer internship in the field of global affairs after their junior year. The Jackson School Career Resources Office can help students find appropriate internships.

STUDY ABROAD

Global Affairs majors who plan to study abroad should consult the DUS to devise a course of study prior to the term abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 (incl senior req; excl lang req)

Specific courses required ECON 108, 110, or 115; ECON 111 or 116; ECON 121, 122, 125, or 126; GLBL 225; GLBL 275; GLBL 121; GLBL 122

Distribution of courses 4 approved electives and 1 methods course

Language requirement Advanced ability (L5) in 1 modern language other than English

Substitution permitted With DUS approval, GLBL 121 may be replaced by other analysis courses incl ECON 117 and S&DS 100–106

Senior requirement GLBL 499, senior capstone project

13 courses (13 credits), including the senior requirement, but not the language requirement

- ECON 108, ECON 110, or ECON 115
- ECON 111 or ECON 116
- ECON 121, ECON 122, ECON 125, or ECON 126
- GLBL 121 (substitutions allowed with DUS approval)
- GLBL 122

- GBL 225
- GBL 275
- 4 approved electives
- 1 methods course
- Advanced ability (L5) in 1 modern language other than English
- GBL 499

FACULTY ASSOCIATED WITH THE PROGRAM OF GLOBAL AFFAIRS

Professors David Engerman (*History*), John Gaddis (*History*), Jacob Hacker (*Political Science*), Oona Hathaway (*Law*), Robert T. Jensen (*School of Management*), Amy Kapczynski (*Law, Global Health*), Paul Kennedy (*History*), James Levinsohn (*Director*) (*School of Management*), A. Mushfiq Mobarak (*School of Management*), Samuel Moyn (*Law*), Catherine Panter-Brick (*Anthropology*), Peter Schott (*Economics, School of Management*), Ian Shapiro (*Political Science*), Timothy Snyder (*History*), Jing Tsu (*East Asian Languages and Literatures*), Aleh Tsyvinski (*Economics*), Arne Westad (*History*), Steven Wilkinson (*Political Science*), Ernesto Zedillo (*International Economics & Politics*)

Associate Professors Alexandre Debs (*Political Science*), Kaveh Khoshnood (*School of Public Health*), Jason Lyall (*Political Science*), Nuno Monteiro (*Political Science*), Marci Shore (*History*), Jonathan Wrytzen (*Sociology, International Affairs*)

Assistant Professors Lorenzo Caliendo (*Economics, School of Management*), Zack Cooper (*School of Public Health*), Gregg Gonsalves (*School of Public Health*), Lloyd Grieger (*Sociology*), Alice Miller (*School of Public Health, Law*), Thania Sanchez (*Political Science*), Kristina Talbert-Slagle (*School of Medicine, Global Health*)

Senior Lecturers Marnix Amand, Sigríður Benediktsdóttir, Charles Hill (*International Security Studies*), Asha Rangappa, Justin Thomas

Lecturers Michael Brenes, Christopher Fussell, William Casey King, Nicholas Lotito (*Political Science*), Alice Miller (*Public Health, Law*), Jaimie Morse, Nathaniel Raymond, Daniel Steinmetz-Jenkins, Edward Wittenstein

Senior Fellows Eric Braverman, David Brooks, Howard Dean, Janine di Giovanni, Robert Ford, Clare Lockhart, Stanley McChrystal, Rakesh Mohan, David Rank, Stephen Roach, Emma Sky

Global Health Studies Certificate

Program director and chair: Catherine Panter-Brick; (catherine.panter-brick@yale.edu) **Director of undergraduate studies:** Cara Fallon (cara.fallon@yale.edu); Global Health Studies Program

GLOBAL HEALTH STUDIES CERTIFICATE

The Global Health Studies Program is a Multidisciplinary Academic Program that prepares students to critically engage with global health and its multifaceted concerns in contemporary societies. Global health is an interdisciplinary field, and as such, students develop a sophisticated understanding of the roles of politics, history, and economics, engage with the insights of anthropology, ethics, law, and sociology, and relate this knowledge to public health and the biomedical sciences. Students will be expected to complete interdisciplinary coursework to gain a broad understanding of global health research, practice, and leadership.

Students apply to the Program, typically in the fall of their sophomore year. Those accepted into the Program are called “Global Health Scholars.” Global Health Scholars are expected to complete interdisciplinary coursework across four global health competency areas chosen from six options: Biological & Environmental Influences on Health (YC GLHTH: Bio & Env Influences); Health & Societies (YC GLHTH: Health & Societies); Historical Approaches (YC GLHTH: Hist Approaches); Performance, Representation & Health (YC GLHTH: Perf, Rep & Health); Political Economy & Governance in Health (YC GLHTH: Polit Econ & Govern); and Understanding & Interpreting Quantitative Data (YC GLHTH: Quantitative Data).

Moreover, in the summer after junior year, Scholars can apply for funding support to pursue mentored experiential learning projects (such as internships, archival work, or field-based research). During their senior year, they enroll in a colloquium course that meaningfully integrates the skills and knowledge acquired throughout the Program.

REQUIREMENTS

To fulfill the requirements of the program, Scholars must complete the global health introductory lecture course (HLTH 230), senior colloquium (HLTH 490), and four elective courses that fulfill four of the global health competency areas. Upon completion of the Global Health Studies Program, Scholars earn a Global Health Studies certificate.

No more than two course credits fulfilling the requirements of the Global Health Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Qualified undergraduates may take graduate courses at the School of Public Health, subject to restrictions on graduate and professional school enrollment described in Academic Regulations, section L, Special Academic Arrangements. Further information about these courses can be found in the School of Public Health online bulletin. For information about the five-year B.A.–B.S./M.P.H. program offered jointly with the School of Public Health, see Public Health.

Yale Course Search **Searchable Attributes**

- Biological & Environmental Influences on Health (YC GLHTH: Bio & Env Influences)
- Health & Societies (YC GLHTH: Health & Societies)
- Historical Approaches (YC GLHTH: Hist Approaches)
- Performance, Representation & Health (YC GLHTH: Perf, Rep & Health)
- Political Economy & Governance in Health (YC GLHTH: Polit Econ & Govern)
- Understanding & Interpreting Quantitative Data (YC GLHTH: Quantitative Data)

SUMMARY OF REQUIREMENTS

Prerequisite None

Number of courses 6 courses (incl senior req)

Specific course required HLTH 230

Distribution of courses 4 electives to achieve four of the six global health competencies as indicated

Senior requirement HLTH 490, Senior colloquium

Hellenic Studies

Chair: John Geanakoplos (john.geanakoplos@yale.edu), 30 Hillhouse Ave., 432-3397; **Director:** George Syrimis (george.syrimis@yale.edu), 34 Hillhouse Ave., 432-9342; <https://hsp.macmillan.yale.edu>

Hellenic Studies is a program of the European Studies Council. The core of the program is the teaching of modern Greek, supplemented with other courses and events related to the study of postantiquity Greece, as well as the society and culture of modern Greece and its interaction with the rest of Europe and the world. Related courses can be found in the listings of Anthropology, History, History of Art, Comparative Literature, Political Science, Religious Studies, and Russian and East European Studies. A major in Ancient and Modern Greek is described under Classics. Students who have an interest in postantiquity Greek language, society, or culture are advised to consult with the program director of the Hellenic Studies program.

FACULTY ASSOCIATED WITH THE PROGRAM OF HELLENIC STUDIES

Professor John Geanakoplos (*Economics*)

Senior Lecturer George Syrimis (*Comparative Literature*)

Lecturer Paris Aslanidis (*Political Science*)

Senior Lector Maria Kaliambou (*Language and Folklore*)

History

Director of undergraduate studies: Daniel Magaziner (daniel.magaziner@yale.edu), 190 York St., 432-2724; history.yale.edu

The History major is for students who understand that shaping the future requires knowing the past. History courses explore many centuries of human experimentation and ingenuity, from the global to the individual scale. History majors learn to be effective storytellers and analysts, and to craft arguments that speak to broad audiences. They make extensive use of Yale's vast library resources to create pioneering original research projects. Students of history learn to think about politics and government, sexuality, the economy, cultural and intellectual life, war and society, and other themes in broadly humanistic—rather than narrowly technocratic—ways.

History is one of Yale College's most popular and intellectually diverse majors, encompassing nearly every region and time period of the global past. The study of history is excellent preparation for careers in many fields, including law, journalism, business and finance, education, politics and public policy, social activism, and the arts.

COURSE NUMBERING

Courses numbered HIST 001–099 are first-year seminars, with enrollment limited to eighteen. Remaining course numbers are organized by region, not by rigor or difficulty. Courses numbered in the 100s explore the history of the United States or Canada; those in the 200s, Europe, Russia, and Britain; and those in the 300s, Africa, Asia, Latin America, and the Middle East. Courses numbered in the 400s address global topics. Most of these courses are lecture courses, although some are seminars. Courses whose numbers end with the letter “J” are departmental seminars, which are research focused; all departmental seminars are available for preregistration by History majors and are capped at fifteen students.

PREREQUISITE

The prerequisite for the major is two term courses in History. Courses completed in fulfillment of the prerequisite may be applied toward the requirements of the major.

REQUIREMENTS OF THE MAJOR

Ten term courses in History are required, including prerequisites, and in addition to the senior essay.

Upon declaration, all History majors select either the global or the specialist concentration. The global concentration is designed for students seeking a broad understanding of major trends in the history of human societies throughout the world. The specialist concentration is for students seeking to focus in a particular geographic region, such as the United States, or in a thematic pathway, such as empires and colonialism. Majors may change concentrations until the end of the course selection period in the second term of the junior year.

The global concentration requires one course in five of the six different geographic regions (see below). Students must also take two preindustrial courses, covering material before the year 1800, and two departmental seminars, identified by a “J” suffix to the course number (such as HIST 156J).

The specialist concentration requires at least five (and up to eight) courses in a particular geographic region or in a thematic pathway (see list below). Courses appropriate for each region and pathway are listed on the department website. Students must also take at least two courses outside their area of specialization, and their overall coursework must include at least three geographic regions. Like students in the global concentration, students in the specialist concentration must take two preindustrial courses, covering material before the year 1800, and at least two departmental seminars, identified by a “J” suffix to the course number (e.g. HIST 156J). Students in the specialist concentration may design an area of specialization with the approval of a faculty adviser and the director of undergraduate studies (DUS).

Regions: Africa, Asia, Europe, Latin America, Middle East, and United States

Pathways: cultural history; empires and colonialism; environmental history; ideas and intellectuals; international and diplomatic history (formerly international history); politics, law, and government (formerly politics and law); race, gender, and sexuality; religion in context; science, technology, and medicine; social change and social movements; war and society; the world economy

Students in either concentration may count the same courses toward geographical, preindustrial, and seminar requirements. For instance, a departmental seminar on premodern Japan simultaneously fulfills the preindustrial, seminar, and Asia geographical requirements.

Departmental seminars All students who declare the History major are entitled to preregister for two departmental seminars (designated by a course number ending in J, such as HIST 156J). Many seminars are popular and fill up quickly. Students may use their preregistration privileges at any time after declaring the major, in their sophomore, junior, or senior years. Sophomores contemplating study abroad are urged to consider taking at least one seminar in the sophomore year. Residential College Seminars, study abroad courses, and courses in other departments that count toward the History major do not fulfill the departmental seminar requirement. Please note that the department offers seminars that are not J seminars and do not satisfy the departmental seminar requirements, although they can satisfy other requirements (preindustrial, region, pathway, etc.) Such non-J seminars are either a) cross-listed with other departments, or b) do not require the primary source research that departmental “J” seminars require. Students cannot preregister for non-J seminars during departmental preregistration.

Distinction in the major Students who receive an A or A– on the two-term senior essay and who receive the requisite grades in their remaining coursework are awarded Distinction in the Major. (See The Undergraduate Curriculum, Honors.) Students who do not complete the two-term senior essay are not eligible for Distinction.

Credit/D/Fail Departmental seminars cannot be taken Credit/D/Fail.

SENIOR REQUIREMENT

Students in the History major are not passive consumers of historical knowledge: they create original works of history themselves. As seniors, History majors complete a work of original research in close consultation with a faculty adviser. The range of

acceptable topics and methodological approaches is wide. The aim is to take on study of a significant historical subject through research in accessible primary source materials.

Most students choose to write a two-term independent senior essay, for two course credits toward the major. The two-term essay is required to earn Distinction in the Major. A smaller number of students choose to write an independent one-term senior essay, for one course credit toward the major.

The one-term senior essay History majors may choose to write a one-term independent senior essay during the fall term under the guidance of a faculty adviser. However, students who choose the one-term option are not eligible for Distinction in the Major or history prizes. The one-term essay is a substantial research paper (roughly half the length of the two-term senior essay) based on primary sources, along with a bibliographic essay. Seniors receive course credit for their departmental essays by enrolling in HIST 497 during the fall of senior year. In rare circumstances, with permission of the adviser and senior essay director, a student enrolled in HIST 497 during the fall term may withdraw from the course in accordance with Yale College regulations on course withdrawal and enroll in HIST 497 during the spring term. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website.

The two-term senior essay History majors seeking to earn Distinction in the Major must complete a two-term independent senior essay under the guidance of a faculty adviser. The typical senior essay is 40–50 pages (no more than 12,500 words), plus a bibliography and bibliographical essay. Seniors receive course credit for their departmental essays by enrolling in HIST 495 (first term of senior year) and HIST 496 (second term of senior year). The grade for the final essay, determined by an outside reader in consultation with the faculty adviser, is applied retroactively to both terms. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website. History majors graduating in December may begin their two-term senior essay in the spring term and complete the senior essay during fall term.

Additional option for the senior essay Some students embark on the two-term essay but discover that their choice is not a good fit. Students who enroll in HIST 495 during the first term may opt out in consultation with their faculty adviser and the senior essay director. This decision must be made in accordance with Yale College regulations on course withdrawal. Instead, the student will enroll in HIST 497 in the spring term to write a one-term senior essay. Students who opt out will not be eligible for Distinction in the Major or History prizes. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website.

ADVISING

All students who declare the History major are assigned an adviser from among the departmental faculty. The adviser is available throughout the year for consultation about courses and the major. Students in the global concentration are assigned an adviser from the general History faculty. Students in the specialist concentration are assigned an adviser in their area of specialization. At the beginning of each term, students majoring in History must have their schedule signed and approved by their departmental adviser or by the DUS. Students may request a specific adviser in

consultation with the DUS, though the department cannot always accommodate such requests. In addition, a small group of advanced undergraduate students serve as peer advisors and are available to assist students in navigating the major.

Course substitution History majors are permitted to include up to two courses taught outside the department toward fulfillment of the major, with the approval of the DUS. Nondepartmental courses may fulfill geographic, region/pathway, and preindustrial distribution requirements. They may not fulfill departmental seminar or senior requirements.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in History.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites 2 term courses in History

Number of courses 10 term courses (incl prereqs, not incl senior essay)

Distribution of courses *Both concentrations*—2 courses in preindustrial hist as specified; 2 departmental sems; *Global concentration*—1 course in each of 6 geographical regions (Africa, Asia, Europe, Latin America, Middle East, U.S.); *Specialist concentration*—at least 5 courses in specific region or pathway; at least 2 courses outside region or pathway; overall course work must include 3 regions

Substitution permitted 1 or 2 nondepartmental courses approved by DUS

Senior requirement Two-term senior essay (HIST 495 and 496) or one-term senior essay (HIST 497)

FACULTY OF THE DEPARTMENT OF HISTORY

Professors Abbas Amanat, Sunil Amrith, Lauren Benton, Ned Blackhawk, David Blight, Edyta Bojanowska, Daniel Botsman, Paul Bushkovitch, Deborah Coen, Carolyn Dean, Fabian Drixler, Marcela Echeverri, Carlos Eire, David Engerman, Paul Freedman, Joanne Freeman, John Gaddis, Beverly Gage, Bruce Gordon, Greg Grandin, Valerie Hansen, Robert Harms, Matthew Jacobson, Gilbert Joseph, Paul Kennedy, Benedict Kiernan, Jennifer Klein, Regina Kunzel, Naomi Lamoreaux, Bentley Layton, Noel Lenski, Kathryn Lofton, Mary Lui, Daniel Magaziner, Joseph Manning, Ivan Marcus, John Merriman, Joanne Meyerowitz, Alan Mikhail, Samuel Moyn, Nicholas Parrillo, Peter Perdue, Mark Peterson, Stephen Pitti, Naomi Rogers, Paul Sabin, Stuart Schwartz, Timothy Snyder, David Sorkin, Harry Stout, John Warner, Arne Westad, John Witt, Keith Wrightson, Taisu Zhang

Associate Professors Paola Bertucci, Rohit De, Marcela Echeverri, Anne Eller, Crystal Feimster, Elizabeth Hinton, Andrew Johnston, Isaac Nakhimovsky, Joanna Radin, William Rankin, Edward Rugemer, Marci Shore, Eliyahu Stern, Jonathan Wyrzten

Assistant Professors Jennifer Allen, Sergei Antonov, Denise Ho, Jessica Lamont, Ben Machava, Nana Quarshie, Carolyn Roberts

Senior Lecturers Jay Gitlin, William Klein, Stuart Semmel, Rebecca Tannenbaum

Lecturers Sakena Abedin, Ria Chae, Ivano Dal Prete, Suzanne Gay, Maria Jordan, Tyler Kynn, George Levesque, Chitra Ramalingam, Terence Renaud, Miriam Rich

History of Art

Director of undergraduate studies: Craig Buckley
(craig.buckley@yale.edu); arthistory.yale.edu

Art history is the study of all forms of art, architecture, and visual culture in their social and historical contexts. The History of Art major can serve either as a general program in the humanities or as the groundwork for more specialized training. Unless otherwise indicated, all courses in History of Art are open to all students in Yale College.

COURSE NUMBERING

100-level courses are broad introductory lecture courses that address basic art history from a number of thematic perspectives. Prospective majors are encouraged, but not required, to take these courses as early in their course of study as possible. Under certain circumstances, students who have taken the Advanced Placement test in art history may earn acceleration credit and, in consultation with the director of undergraduate studies (DUS), may substitute an upper-level class for one required 100-level course.

Intermediate and advanced courses, numbered above 200, encompass more specialized surveys and themes in art history.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required to complete the major: two introductory courses at the 100 level; four intermediate and advanced courses at the 200 and 300 levels; two seminars at the 350–498 level; a methods seminar, HSAR 401; two electives; and the senior essay, HSAR 499.

The major requires that the six intermediate and advanced courses must satisfy both a geographical and a chronological distribution requirement. These courses must be chosen from four geographical areas and four time periods. The geographical requirement is divided into five areas: Africa and the Pacific; the Americas; Asia and the Near East; Europe; and transregional. The chronological requirement is similarly divided into five segments: earliest times to 800; 800–1500; 1500–1800; 1800 to the present; and transchronological. A single course can fulfill both a geographical and a chronological requirement. Only classes originating in the History of Art department can fulfill the distribution requirements.

Junior seminar The methods seminar HSAR 401, *Critical Approaches to Art History*, is a wide-ranging introduction to the practices of the art historian and the history of the discipline. It is to be taken during the fall or spring term of the junior year.

Credit/D/Fail courses Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

Searchable attributes YC HSAR: Pre-800; YC HSAR: 800–1500; YC HSAR: 1500–1880; YC HSAR: Post 1800; YC HSAR: Africa & Pacific; YC HSAR: Asia & Near East; YC HSAR: Europe; YC HSAR: The Americas; YC HSAR: Transchron; YC HSAR: Transregional

SENIOR REQUIREMENT

The senior essay is a research paper written usually in one term in HSAR 499. Students choose their own topics, which may derive from research done in an earlier course. The essay is planned during the previous term in consultation with a qualified instructor and/or with the DUS. It is also possible to write a two-term senior essay, however students wishing to do so must submit a petition to the DUS and the prospective adviser, normally by the first week after spring break of the junior year.

ADVISING

Electives may include courses from other departments if they have direct relevance to the major program of study. Approval of the DUS is required.

History of Art majors are urged to study foreign languages. Students considering graduate work should discuss with their advisers the appropriate language training for their field of interest.

Graduate courses Courses in the Graduate School are open to undergraduates with permission of the instructor and of the director of graduate studies. Course descriptions are available in the History of Art office in the Jeffrey H. Loria Center, 190 York St.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required HSAR 401

Distribution of courses 2 courses at 100 level; 6 courses numbered above 200, 2 of which must be 350–498 level seminars, fulfilling distribution requirements in 4 geographical and 4 chronological categories; 2 electives

Substitution permitted With DUS permission, electives from related depts

Senior requirement Senior essay (HSAR 499)

FACULTY OF THE DEPARTMENT OF HISTORY OF ART

Professors Carol Armstrong, Tim Barringer, Marisa Bass, Edward S. Cooke, Jr., Milette Gaifman, Jacqueline Jung, Pamela Lee, Kishwar Rizvi, Nicola Suthor, Mimi Yiengpruksawan

Associate Professors Molly Brunson (*Slavic Languages and Literatures*), Craig Buckley, Jennifer Raab

Assistant Professors Nana Adusei-Poku, Allison Caplan, Alexander Ekserdjian, Joanna Fiduccia, Morgan Ng, Quincy Ngan, Catalina Ospina

History of Science, Medicine, and Public Health

Director of undergraduate studies: Ivano Dal Prete (ivano.dalprete@yale.edu), HQ 253; hshm.yale.edu

History of Science, Medicine, and Public Health is an interdisciplinary program that focuses on how different forms of knowledge and technology have been created in various times, places, and cultures, and how they have shaped the modern world. The major explores a wide range of questions. Is science universal, or does each culture have its own approach to trustworthy knowledge? What is the relationship between medical expertise, social and racial inequality, and everyday life? What is the nature of technology and its relationship to political, economic, and military power? Why do even the best public health campaigns have unintended consequences?

Course topics include the history of American and Western medicine and public health, medicine and race from the slave trade to the present, health and healing in Africa, scientific knowledge production in the global South, institutions of confinement, health activism, biotechnology, the history of the earth sciences, climate change and planetary catastrophe, the scientific revolution, scientific collections and material culture.

A major in History of Science, Medicine, and Public Health offers excellent preparation for a wide range of careers. Premedical students and others interested in health-related fields can combine preprofessional training with a broad humanistic education. The major also provides a solid foundation for any career at the intersection of the sciences, technology, and public life, including law, business, journalism, museum work, public policy, and government.

REQUIREMENTS OF THE MAJOR

The major in History of Science, Medicine, and Public Health requires twelve term courses (and twelve credits), including the two-term senior requirement. Students select a concentration of seven courses that guide them through an area of specialization. The seven concentration courses must include two courses in History of Science, Medicine, and Public Health; one seminar in History of Science, Medicine, and Public Health or in History; one full-credit science course; and three electives chosen from relevant courses in any department. At least one HSHM (or HIST) seminar must be taken before the senior year.

Concentrations The seven standard concentrations in the major are: Colonialism, Knowledge, and Power; Environment and Society; Gender, Reproduction, and the Body; Media, Information, and the Public; Medicine and Public Health; Minds and Brains; Science, Technology, and Society. Students may also design customized concentrations in consultation with the director of undergraduate studies (DUS). No later than the beginning of the junior year, students in the major must select a standard concentration or indicate that they wish to design their own.

See the Concentrations section for more information.

Electives Beyond the seven concentration courses, students must complete three additional electives in History of Science, Medicine, and Public Health. One of the electives must be a seminar, and one must be chosen from a concentration other than

the one selected for the major. All courses for the major are chosen in collaboration with the student's adviser.

Credit/D/Fail A maximum of one History of Science, Medicine, and Public Health course taken Credit/D/Fail before the fifth term of enrollment may be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following senior requirements, updated for the academic year 2024-2025, may be fulfilled by students who declared the major in a prior term.

Students must complete a two-term senior project in HSHM 490 and 491. The Senior Project Workshop, HSHM 420, may be taken as an elective (for half-credit) in addition to HSHM 490 and 491. Note, that enrolling in HSHM 420 will be in addition to the twelve, one-credit courses.

Students select a project adviser, propose a tentative topic and title, and submit a proposal to the senior project director. The final product of the senior requirement may be a written essay or an alternative project such as a film, exhibition, catalog, atlas, or historical data reconstruction. In the case of an alternative project, the student must identify a second reader in addition to the adviser before the senior project director approves the project. The adviser or the second reader must be a faculty member in History of Science, Medicine, and Public Health. A written component of the senior project must illustrate sources and the intellectual significance of the project. For more details about requirements and deadlines, majors should consult the HSHM Senior Project Handbook; copies are available from the senior project director and on the program website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 courses for 12 credits (incl senior req)

Distribution of courses 7 courses in concentration (incl 2 HSHM courses, 1 sem in HSHM or HIST taken before senior year, 1 full-credit science course, and 3 related electives); 3 addtl HSHM electives, to incl 1 sem and 1 course outside major concentration

Senior requirement Two-term project HSHM 490 and 491

CONCENTRATIONS

The seven standard concentrations in the major are: Colonialism, Knowledge, and Power; Environment and Society; Gender, Reproduction, and the Body; Media, Information, and the Public; Medicine and Public Health; Minds and Brains; Science, Technology, and Society. Students may also design customized concentrations in consultation with the director of undergraduate studies (DUS). No later than the beginning of the junior year, students in the major must select a standard concentration or indicate that they wish to design their own.

Students may find courses that fulfill the requirements of the concentrations in Yale Course Search by searching the "Any Course Information Attribute" dropdown search feature.

Colonialism, Knowledge, and Power (YC HSHM: Colonial Know & Power)

Environment and Society (YC HSHM: Environ & Society)

Gender, Reproduction, and the Body (YC HSHM: Gender, Reprod and Body)

Media, Information, and the Public (YC HSHM: Media Info & Public)

Medicine and Public Health (YC HSHM: Med & Public Health)

Minds and Brains (YC HSHM: Minds and Brains)

Science, Technology, and Society (YC HSHM: Sci, Tech & Society)

FACULTY ASSOCIATED WITH THE PROGRAM OF HISTORY OF SCIENCE, MEDICINE, AND PUBLIC HEALTH

Professors Deborah Coen, Naomi Rogers, John Warner

Associate Professors Paola Bertucci, Joanna Radin, William Rankin

Assistant Professors Nana Quarshie, Marco Ramos, Carolyn Roberts

Lecturers Sakena Abedin, Ivano Dal Prete, Ziv Eisenberg, Chitra Ramalingam

Affiliated Faculty Rene Almeling (*Sociology*), Toby Appel (*Yale University Library*), Melissa Grafe (*Yale University Library*), Dimitri Gutas (*Near Eastern Languages & Civilizations*), Jessica Helfand (*School of Art*), Marcia Inhorn (*Anthropology*), Kathryn James (*Yale University Library*), Amy Kapczynski (*Law School*), Gundula Kreuzer (*Music*), Amy Meyers (*Yale Center for British Art*), Alan Mikhail (*History*), Ayesha Ramachandran (*Comparative Literature*), Paul Sabin (*History*), Jason Schwartz (*School of Medicine*), Gordon Shepherd (*School of Medicine*), Frank Snowden (*History*), Rebecca Tannenbaum (*History*), R. John Williams (*English*)

Human Rights Studies Certificate

Program director: TBD; humanrights.yale.edu

HUMAN RIGHTS STUDIES CERTIFICATE

The Human Rights Studies program presents human rights as a rich and interdisciplinary field of study. The program aims to provide students with the analytical, conceptual, and practical skills necessary for human rights study; connect students to affiliate faculty and peers; support student research projects and internships; and offer guidance for post-graduate careers and studies related to human rights.

Students apply to the program during the fall term of their sophomore year. To fulfill the requirements of the program, students complete a gateway lecture course (HMRT 100), four electives, and a capstone seminar (HMRT 400), which entails completion of a final capstone project. The gateway course equips students with the theoretical tools necessary for studying human rights, their evolution, and their justification. It introduces several contemporary issues such as gender disparities, racial discrimination, climate change, global health, human trafficking, refugees, world poverty, and humanitarian intervention. Students then select four electives, courses that students identify from current university offerings, that meet the program's criteria, and that are approved by the program director. In the capstone seminar, students explore selected advanced issues in international human rights law, theory and practice and complete a supervised capstone project that is informed by extracurricular experience and developed in consultation with the program director and other program advisers. Consistent with the program's commitment to the interdisciplinary study of human rights, students' capstone projects include artistic work, advocacy projects and other practical projects, as well as academic papers. Students are also expected to submit three reflections on Schell Center human rights events during the spring term of their sophomore year and one reflection each term thereafter. Additional information is available at the Human Rights program website.

Elective courses The number of courses in Yale College that touch on human rights is large, and we encourage a diversity of perspectives and methodologies across departments and disciplines. More than 200 courses have satisfied the elective requirement in the past. The formal criterion for a program elective is that a course must “engage with the language, ideas, and methods of human rights.” We ask that students distinguish this from courses that address issues that affect people's human rights, would be susceptible to a human rights analysis, or would simply be useful for understanding a human rights issue in which you are interested. Rather, the goal in assembling a group of electives is to enable a coherent study of human rights and to encourage students to focus on courses that will engage directly with and enhance their knowledge of and facility with the concepts, institutions, and development of human rights discourse.

No more than two course credits fulfilling the requirements of the Human Rights Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of

more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

SUMMARY OF REQUIREMENTS

Prerequisite None

Number of courses 6 courses (incl senior req)

Specific courses required HMRT 100

Other requirements 4 electives and event reflections as described

Senior requirement HMRT 400

Humanities

Director of undergraduate studies: Paul Grimstad, (paul.grimstad@yale.edu) HQ, 320 York St.

The undergraduate program in Humanities offers both interdisciplinary breadth and intellectual depth, providing students the opportunity to integrate courses from across the humanistic disciplines into personally meaningful courses of study. Works of literature, music, history, philosophy, and the visual arts are brought into conversation with one another and with the history of ideas.

The major in Humanities asks students to begin with broad surveys of foundational works in at least two different cultural traditions, including at least one course on classical Western European texts. All majors take two specially commissioned core seminars, one on the question of what "modernity" is, another spending a whole term interpreting a single work (or small corpus of works) in great depth. Students then devise an area of focus according to their interests and with the help of appropriate faculty members.

COURSES FOR NONMAJORS

Students in all classes can find options in the varied course offerings, from special seminars for first-year students to the Franke and Shulman Seminars for seniors. Many courses are open to nonmajors.

REQUIREMENTS OF THE MAJOR

Fourteen term courses are required for the major, including three "foundational works" surveys, two core seminars, one course in each of four areas of study in the humanities (which may include the Franke Seminar), four additional electives selected to complement the student's area of focus and approved by the director of undergraduate studies (DUS), and a one- or two-term senior essay. Majors are also required to keep an intellectual journal and are strongly encouraged to enroll in at least one term course in literature in a foreign language.

Foundations Three broad surveys of foundational works in any cultural tradition are required, such as HIST 280, EALL 200, or RLST 189. One or two foundations courses must be in the classical tradition of Western Europe, such as Directed Studies, or ENGL 129 or CLCV 256.

Core seminars The major requires two core seminars, one in "Modernities" and one in "Interpretations." Core seminars typically are taught by a pair of faculty members from complementary disciplines. The two broad themes of the seminars remain consistent from year to year, but the material studied and the faculty members teaching change, allowing each class of students to explore the themes in different ways.

Areas of study in the humanities One course is required in each of four areas: literature; visual, musical, or dramatic arts; science in the humanities; and intellectual history and historical analysis. Courses may be drawn from any department or program in Yale College, with the approval of the DUS.

Intellectual journal Students are encouraged to log entries outlining particularly striking moments in their intellectual lives, whether in courses or outside of them, and

to keep track of questions they would like to pursue in their studies, including possible senior essay topics. Students submit a minimum of one journal entry each semester to the DUS.

Credit/D/Fail A maximum of two courses taken Credit/D/Fail may count toward the major.

SENIOR REQUIREMENT

A one- or two-term senior essay is required (HUMS 491).

ADVISING

Students are expected to declare their intent to major in Humanities in a meeting with the DUS before their junior year.

UNIQUE TO THE MAJOR

The Franke Seminar Sponsored by the Whitney Humanities Center and designed to speak across disciplinary lines to broad public and intellectual issues, the Franke Seminar includes a series of coordinated public lectures. The seminars are for enrolled students; the lecture series is open to the Yale and local communities. Humanities majors may enroll in a Franke Seminar with permission of the DUS and the instructor.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses (incl senior essay)

Distribution of courses 3 foundations courses, as specified; 2 core sems, as specified; 1 course in each of 4 disciplinary areas; 4 electives in area of focus

Senior requirement Senior essay (HUMS 491)

Intellectual journal A minimum of one journal entry every term

FACULTY ASSOCIATED WITH THE PROGRAM OF HUMANITIES

Professors Jeffrey Alexander (*Sociology*), R. Howard Bloch (*French*), Edyta Bojanowska (*Slavic Languages and Literatures*), Leslie Brisman (*English*), David Bromwich (*English*), Ardis Butterfield (*English*), Rüdiger Campe (*German*), Francesco Casetti (*Humanities*), Deborah Coen (*History of Science, Medicine, and Public Health, History*), Stephen Davis (*Religious Studies, History*), Carolyn Dean (*History, French*), Carlos Eire (*History, Religious Studies*), Paul Freedman (*History*), Kirk Freudenburg (*Classics*), Bryan Garsten (*Political Science*), Marie-Hélène Girard (*French*), Emily Greenwood (*Classics*), Frank Griffel (*Religious Studies*), Martin Hägglund (*Comparative Literature, Humanities*), Christine Hayes (*Religious Studies, Judaic Studies*), Alice Kaplan (*French*), Jonathan Kramnick (*English*), Anthony Kronman (*School of Law*), Tina Lu (*East Asian Languages and Literatures*), Ivan Marcus (*History, Religious Studies*), Stefanie Markovits (*English*), Giuseppe Mazzotta (*Italian*), Samuel Moyn (*History, School of Law*), Robert Nelson (*History of Art*), Paul North (*German*), John Durham Peters (*English, Film & Media Studies*), Brigitte Peucker (*German*), Pierre Saint-Amand (*French*), Maurice Samuels (*French*), Steven Smith (*Political Science, Philosophy*), Nicola Suthor (*History of Art*), Gary Tomlinson (*Music, Humanities*), Shawkat Toorawa (*Near Eastern Languages and Civilizations*), Katie Trumpener (*Comparative Literature*), Jing Tsu (*East Asian Languages*)

and Literatures), Miroslav Volf (*Divinity School*), Kirk Wetters (*German*), Christian Wiman (*Institute of Sacred Music*), Ruth Yeazell (*English*)

Associate Professors Marisa Bass (*History of Art*), Paola Bertucci (*History, History of Science, Medicine, and Public Health*), Molly Brunson (*Slavic Languages and Literatures*), Robyn Creswell (*Comparative Literature*), Toni Dorfman (*Adjunct*) (*Theater Studies*), Emily Erikson (*Sociology*), Marta Figlerowicz (*Comparative Literature, English*), Moira Fradinger (*Comparative Literature*), Milette Gaifman (*History of Art, Classics*), Mick Hunter (*East Asian Languages and Literatures*), Jacqueline Jung (*History of Art*), Brian Kane (*Music*), Noreen Khawaja (*Religious Studies*), Pauline LeVen (*Classics*), Isaac Nakhimovsky (*History*), Joanna Radin (*History of Science, Medicine, and Public Health, History*), Ayesha Ramachandran (*Comparative Literature*), Marci Shore (*History*)

Assistant Professors Lucas Bender (*East Asian Languages and Literatures, Humanities*), Marijeta Bozovic (*Slavic Languages and Literatures*), Thomas C. Connolly (*French*), Jessica Lamont (*Classics*), Joseph North (*English*), Giulia Oskian (*Political Science*), Jessica Peritz (*Music*), Christiana Purdy Moudarres (*Italian*), Maryam Sanjabi (*French*), Katrin Truedstedt (*German*)

Senior Lecturers Peter Cole (*Judaic Studies*), William Klein (*Humanities*), Pauline Lin (*East Asian Languages and Literatures*), Stuart Semmel (*History, Humanities*), Kathryn Slanski (*Humanities, Near Eastern Languages and Civilizations*), Norma Thompson (*Humanities*)

Lecturers Benjamin Barasch (*Humanities*), Brianne Bilsky (*Humanities*), Dane Collins, Matthew Croasmun (*Divinity School*), Joseph Gordon (*English*), Paul Grimstad (*Humanities*), Alfred Guy (*English*), Katja Lindskog (*English*), Ryan McAnnally-Linz (*Divinity School*), Terence Renaud (*Humanities*), Karin Roffman (*Humanities, English*), Daniel Schillinger (*Humanities*), George Syrimis (*Hellenic Studies*), Adam Van Doren (*School of Art*)

Senior Lector Constantine Muravnik (*Slavic Languages and Literatures*)

Lector Simona Lorenzini (*Italian*)

Islamic Studies Certificate

Certificate director: Supriya Gandhi (supriya.gandhi@yale.edu)

This Certificate encompasses the study of Muslim and Islamic artistic, cultural, historical, intellectual, linguistic, literary, philosophical, political, religious, sociological and scientific presence, and impact on human society over the past one and a half millennia. It helps Yale College students curate their courses relating to Muslims and to Islam. It will be of interest to non-humanities majors with a strong interest in Islamic Studies; social science and humanities majors wishing to complement their existing interests with coursework in Islamic Studies; and self-identifying Muslim students for whom such a certificate offers an ideal way academically to explore their heritage.

REQUIREMENTS

Students must successfully complete five course credits, of which no more than two may represent the same area of study. Currently, the four areas of study are Islamic Art, Architecture, Literature; Islamic History; Islamic Religion; and Islamic Society. Students must take one course in each of the four areas of study and the fifth course may be selected from any of the four content areas. Courses are drawn from a list of approved courses. The list is posted each semester on the Islamic Studies Certificate website. Students may also search for approved courses on Yale Course Search, using the attributes listed below. Other courses may be approved by permission of the certificate director. In addition to the course requirements, each student must attend three lectures on topics relating to Islamic Studies and submit a brief write-up. Notice of these events can be found on the Islamic Studies Certificate website.

Graduate and professional school courses may count toward the Certificate; language courses and non-Yale courses may not count toward the Certificate.

No more than two course credits fulfilling the requirements of the Islamic Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. All courses must be taken for a letter grade and students must achieve a grade of C or above.

Credit/D/Fail Courses taken Credit/D/Fail are not counted toward the Certificate.

Yale Course Search **Searchable Attributes:**

- YC ISLM: Islamic Art, Arch, Lit
- YC ISLM: Islamic History
- YC ISLM: Islamic Religion
- YC ISLM: Islamic Society

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's

Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits

Distribution of courses 1 course in each of the four content areas; 1 elective from any of the four content areas

Additional requirements attendance of 3 Islamic Studies lectures, and submission of a 1–2 page write-up for each

Italian Studies

Director of undergraduate studies: Simona Lorenzini (simona.lorenzini@yale.edu), 320 York St., 432-0508; language program director: Anna Iacovella (anna.iacovella@yale.edu), 320 York St., 432-8299; italian.yale.edu

The major in Italian Studies explores Italy's vital role in the formation of Western thought and culture. The core language courses provide students with the opportunity to acquire an in-depth linguistic proficiency, together with a solid literary and historical background in the language. In its interdisciplinary focus, the major offers a variety of advanced courses in literature, cinema, history, translation practice, art, and gender studies. Central to the major is the conviction that delving into another language and culture, in addition to the intellectual enrichment it affords, raises students' awareness of what is distinctive about their own cultural identity.

Italian makes an excellent second major as a complement to several extradepartmental disciplines, among them History of Art, Comparative Literature, Economics, Film and Media Studies, History, Political Science, and Architecture.

Studying and appreciating a foreign language, literature, and culture offers students a useful and challenging option in their university education. In particular, the Italian Studies major prepares students for careers in international business, translation, journalism, economics, art, media, film, fashion, design, education, and tourism.

PREREQUISITE

Candidates for the major should have completed a course in Italian at the level of ITAL 130 (L3) or should have received credit for equivalent work by the end of their sophomore year. Exceptions may be made in the case of outstanding students who have not satisfied this requirement.

PLACEMENT PROCEDURES

All students who have not taken Italian at Yale are expected to take the departmental placement test, except for students who have no previous knowledge of Italian. The placement examination is completed online during the summer; see the *Calendar for the Opening Days of College* and the department website for details.

REQUIREMENTS OF THE MAJOR

The major consists of eleven term courses beyond the prerequisite. Eight term courses in the Italian Studies department numbered 140 or above (including graduate courses) are required, at least five of which must be conducted in Italian. The courses in the department must include ITAL 140 or equivalent, either ITAL 150 or 151, a survey course on Italian literature (ITAL 162 or 172), and a course on Dante's *Divine Comedy* (ITAL 310 or equivalent). The aim of these foundational courses is to provide students with both a broad acquaintance with the major works of Italian Studies and a more detailed knowledge of specific periods in Italian literature and media. No more than three Italian department courses taught in English may count toward the major. Students intending to major in Italian Studies should consult the director of undergraduate studies (DUS).

In completing their programs, students are required to elect two courses in other languages and literatures, history of art, history, linguistics, philosophy, or media that

are related to their field of study and approved by the DUS. Any graduate course in another national literature or in linguistics may be substituted for one of these two courses.

SENIOR REQUIREMENT

During their senior year, all students majoring in Italian Studies are required to meet with the DUS at least twice per month. In the fall or spring of the senior year, all majors must present a departmental essay written in Italian and completed under the direction of a faculty adviser in ITAL 491. The essay should demonstrate careful reading and research on a topic approved by the adviser in consultation with the DUS. A recommended length for the essay is thirty pages, plus bibliography. The student and the advisor will select and invite a second faculty reader, who will receive the final version of the thesis by the established deadline. While prospectus and draft deadlines are determined by the adviser, the student must submit the final version no later than 10 days before the last day of classes, in the Fall or Spring. The senior requirement culminates in a meeting with department faculty to discuss the thesis and the student's overall experience of study in the major.

ADVISING

The department's course offerings vary greatly from year to year. Students interested in planning coursework in Italian that extends beyond the current academic year should consult the DUS.

Related majors In addition to the major in Italian Studies, the department supports the applications of qualified students who wish to pursue a course in Italian studies under the provisions of a Special Divisional Major. Majors can devise a broad program in social, political, economic, or intellectual history as related to and reflected in Italian literature, or pursue special interests in architecture, film, art, philosophy, music, history, linguistics, theater, political theory, or other fields especially well-suited for examination from the perspective of Italian cultural history. Majors in Italian Studies must design their programs in close consultation with the DUS and seek the guidance of an additional member of the department whose interests closely coincide with the proposed program of study. For further information, see Special Divisional Majors.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Italian.

STUDY ABROAD

For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite ITAL 130 or equivalent

Number of courses 11 term courses beyond prereq (incl senior req)

Specific courses required ITAL 140 or equivalent; ITAL 150 or 151; ITAL 162 or 172; ITAL 310 or equivalent

Distribution of courses 8 term courses in Italian Studies dept numbered 140 or above, at least 5 of these conducted in Italian; 2 elective courses in other langs and lits, hist of art, hist, ling, phil, or media approved by DUS

Substitution permitted One grad course in another national literature or in linguistics, with DUS permission

Senior requirement Senior essay in Italian (ITAL 491) and a meeting with departmental faculty members at the end of the final semester.

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Italian Department offers a Certificate of Advanced Language Study in Italian. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The student's official transcript lists the Certificate of Advanced Language Study.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in Italian, at least three of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in Italian, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in Italian. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in Italian to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF ITALIAN

Professors Millicent Marcus, Jane Tylus (*Chair*)

Assistant Professors Serena Bassi, Alessandro Giammei, Christiana Purdy Moudarres

Lecturer Alejandro Cuadrado

Senior Lectors Michael Farina, Anna Iacovella, Simona Lorenzini

Lector Deborah Pellegrino

Professor in the Practice Amara Lakhous

Affiliated Faculty Paola Bertucci (*History of Science, Medicine, and Public Health*), Howard Bloch (*French*), Jessica Brantley (*English*), Francesco Casetti (*Film and Media Studies*), Joanna Fiduccia (*History of Art*), Jacqueline Jung (*History of Art*), Laurence Kanter (*Yale University Art Gallery*), Gundula Kreuzer (*Music*), Morgan Ng (*History of Art*), Jessica Peritz (*Music*), David Quint (*English and Comparative Literature*), Ayesha Ramachandran (*Comparative Literature*), Kevin Repp (*Beinecke Library Curator, Modern European Books and Manuscripts*), Lucia Rubinelli (*Political Science*), Pierre Saint-Amand (*French*), Gary Tomlinson (*Music*)

Jewish Studies

Director of undergraduate studies: Hannan Hever; HQ 341; hannan.hever@yale.edu

Jewish Studies enables students to develop a broad knowledge of the history, religion, literature, philosophy, languages, and politics of the Jews. Jewish society, texts, ideologies, material cultures, and institutions are studied from a comparative perspective in the context of histories, cultures, and intellectual traditions among which Jews have lived throughout the ages. As an interdisciplinary program, Jewish Studies employs historical, literary, political, social, and philosophical methods of analysis.

The Jewish Studies major—especially as a second major with Economics, Political Science, Comparative Literature, English, Philosophy, or History—offers a broad liberal arts background combined with intensive preparation in the historical and religious experience of Jewish culture from antiquity to contemporary times. The major epochs of Jewish history are the Persian and Hellenistic, classical, medieval, early modern, and modern periods.

Students considering a major in Jewish Studies should contact the director of undergraduate studies (DUS) as early as possible.

REQUIREMENTS OF THE MAJOR

The major in Jewish Studies requires thirteen term courses, including three courses selected from a set of core requirements, a language or literature requirement, three courses selected from each of two areas of focus, and the senior requirement.

Core requirements Each student must elect at least three from the following: (1) a course in Hebrew Bible, such as JDST 110; (2) a course in rabbinic literature or ancient Judaism, such as JDST 235; (3) JDST 200; (4) JDST 201; (5) a course in Jewish thought, such as JDST 281 or JDST 293; (6) a survey course in Hebrew and Jewish literature.

Language or literature requirements Students must complete either HEBR 110 and 120 or two courses in Hebrew literature in translation. Up to three Hebrew language courses may be counted toward the requirements of the major.

Areas of focus Students must select two of the following focus areas: ancient Israel/Hebrew Bible; Judaism and Jewish history of Second Temple and Talmudic times; Jewish history and civilization of medieval and Renaissance times; modern Jewish history and civilization; Jewish/Hebrew literature (which requires the study of literature in Hebrew); and Jewish thought. With the approval of the DUS, students may design their own areas of focus.

In each of the two areas of focus, students choose three courses in consultation with the DUS. These are expected to comprise one introductory course; one seminar taken in the junior year, and one course requiring a final research paper. One relevant course should be in an area outside Jewish Studies, such as a course relating to the larger historical, literary, or philosophical context if the focus area is in a historical period, or a course in the theory or practice of literature if the focus area is in Jewish/Hebrew literature.

SENIOR REQUIREMENT

Students are required either to complete a two-term senior essay in JDST 491 and 492 related to both areas of focus or to complete a one-term senior essay in JDST 491 or 492 related to one area of focus and an additional seminar related to the other. The senior essay may build on research conducted for one or both of the student's junior seminar papers.

STUDY ABROAD

Students majoring in Jewish Studies should be aware of the numerous opportunities for study abroad. Those interested in research and language-study opportunities in the Middle East, Europe, and South America should consult the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 term courses (incl senior req)

Distribution of courses 3 core courses as indicated; HEBR 110 and 120, or 2 courses in Hebrew lit in translation; 2 areas of focus, with 3 courses in each for a total of 6 focus area courses

Senior requirement Two-term senior essay (JDST 491, 492) or one-term senior essay (JDST 491 or 492) and additional seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF JUDAIC STUDIES

Professors Joel Baden (*Divinity School*), Leslie Brisman (*English*), Paul Franks (*Philosophy*), Hannan Hever (*Comparative Literature*), Sarit Kattan (*Religious Studies*), Nancy Levene (*Religious Studies*), Ivan Marcus (*History, Religious Studies*), Samuel Moyn (*Law*), Edieal Pinker (*School of Management*), Maurice Samuels (*French*), Steven Smith (*Political Science, Philosophy*), David Sorkin (*History*), Elli Stern (*Chair*)(*Religious Studies*), Katie Trumpener (*Comparative Literature, English*), Jacqueline Vayntrub (*Religious Studies*), Laura Wexler (*Women's, Gender, & Sexuality Studies, American Studies*), Molly Zahn (*Religious Studies*)

Associate Professor Marci Shore (*History*)

Senior Lecturer Peter Cole (*Comparative Literature*)

Lecturer Margaret Olin (*Emeritus/Divinity School, History of Art, Religious Studies*)

Senior Lector II Shiri Goren

Senior Lectors Dina Roginsky, Orit Yeret

Lector Joshua Price

Latin American Studies

Director of undergraduate studies: Ana De La O (ana.delao@yale.edu), Room 327, 115 Prospect St.; (203) 432-5234; <https://macmillan.yale.edu/academic-programs>

The major in Latin American Studies is designed to further understanding of the societies and cultures of Latin America as viewed from regional and global perspectives. The Latin American Studies major builds on a foundation of language and literature, history, history of art, theater studies, humanities, and the social sciences; its faculty is drawn from many departments and professional schools of the University.

The major in Latin American Studies is interdisciplinary. With two goals in mind—intellectual coherence and individual growth—the student proposes a course of study that must satisfy the requirements listed below. The proposed course of study must be approved by the director of undergraduate studies (DUS). Though all students choose courses in both the humanities and the social sciences, they are expected to concentrate on one or the other.

Students are held to the prerequisite and major requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated in the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

PREREQUISITES

Prerequisite to declaring the major is knowledge of either Spanish or Portuguese at the L3 level. Equivalent placement determined by the placement examination also fulfills the prerequisite.

REQUIREMENTS OF THE MAJOR

The major itself requires twelve term courses: one introductory course approved by the DUS; seven courses related to Latin America from departmental offerings; three additional electives; and the senior essay LAST 491 or senior project LAST 492. One of the twelve courses must be taught in Spanish or Portuguese at the L5 level.

The seven Latin American content courses should include courses from the following categories: two courses in the social sciences (anthropology, economics, or political science); two courses in history; two courses in Spanish American or Brazilian literatures beyond the language requirement; one course in art, architecture, film and media studies, music, or theater studies. Students wishing to count toward the major courses that do not appear in the program's course offerings, but have at least a third of syllabus' material related to the region, should consult with the DUS.

Students must enroll in three seminars or upper-level courses during their junior and senior years. Elective seminars must be approved by the DUS.

SENIOR REQUIREMENT

The senior requirement is a research paper written usually in one term in LAST 491 or a senior project in LAST 492.

For the senior essay, students choose their own topics, which may derive from research done in an earlier course. The essay is planned in advance in consultation with a qualified adviser and a second reader. In preparing the senior essay, Latin American

Studies majors may undertake field research in Latin America. Students are encouraged to apply for summer travel grants through the Council on Latin American and Iberian Studies to conduct field research for their senior thesis. The Albert Bildner Travel Prize is awarded to an outstanding junior who submits an application in Spanish or Portuguese in addition to the English application essay. Information about these and other grants is available on Yale's Student Grants & Fellowships website.

For the senior project, students formulate and execute a project under the supervision of a faculty adviser in the fall or spring term. Students work on projects of their own choice. Proposals for senior projects are submitted to the adviser and the director of undergraduate studies by the end of the term preceding the last resident term. An interim project review takes place by the fifth week of the term the project is developed. Permission to complete the senior project can be withdrawn if satisfactory progress has not been made. An exhibition of selected work done in the project is expected of each student.

ADVISING

A list of courses intended as a guide to students in preparing their programs is available at the office of the DUS and on the Council on Latin American and Iberian Studies website. Qualified students may also elect pertinent courses in the Graduate School and in some of the professional schools with permission of the director of graduate studies or professional school registrar and the DUS.

STUDY ABROAD

Students are strongly encouraged to take advantage of study abroad opportunities during summers or through the Year or Term Abroad program. For more information, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Spanish or Portuguese at L3 level or higher; or equivalent score on placement exam

Number of courses 12 courses beyond prereqs (incl senior requirement)

Distribution of courses 1 intro course; 7 courses with Latin American content in specified fields as indicated; 3 addtl electives; 3 of the courses must be seminars or upper-level courses taken in junior and senior years; 1 of the courses must be taught in Spanish or Portuguese at L5 level; all approved by DUS

Senior requirement Senior essay (LAST 491) or senior project (LAST 492)

FACULTY ASSOCIATED WITH THE PROGRAM OF LATIN AMERICAN STUDIES

Professors Rolena Adorno (*Spanish & Portuguese*), Ned Blackhawk (*History, American Studies*), Richard Burger (*Anthropology*), Hazel Carby (*African American Studies, American Studies*), Carlos Eire (*History, Religious Studies*), Eduardo Fernandez-Duque (*Anthropology*), Paul Freedman (*History*), Aníbal González (*Spanish & Portuguese*), Roberto González Echevarría (*Spanish & Portuguese*), K. David Jackson (*Spanish & Portuguese*), Gilbert Joseph (*History*), Stathis Kalyvas (*Political Science*), Daniel Markovits (*Law School*), Mary Miller (*History of Art*), Stephen Pitti (*History*), Susan

Rose-Ackerman (*Law School, Political Science*), Alicia Schmidt Camacho (*American Studies*), Stuart Schwartz (*History*), Susan Stokes (*Political Science*), Robert Thompson (*History of Art*), Noël Valis (*Spanish & Portuguese*), Frederick Wherry (*Sociology*), Elisabeth Wood (*Political Science*)

Associate Professors Robert Bailis (*Forestry & Environmental Studies*), Susan Byrne (*Spanish & Portuguese*), Rodrigo Canales (*School of Management*), Ana De La O (*Political Science*), Moira Fradinger (*Comparative Literature*)

Assistant Professors Vanessa Agard-Jones (*Women's, Gender, & Sexuality Studies*), Ryan Bennett (*Linguistics*), Oswaldo Chinchilla (*Anthropology*), Marcela Echeverri (*History*), Anne Eller (*History*), Leslie Harkema (*Spanish & Portuguese*), Seth Jacobowitz (*East Asian Languages & Literatures*), Erica James (*History of Art, African American Studies*), Albert Laguna (*American Studies, Ethnicity, Race, & Migration*), Dixia Ramirez (*American Studies, Ethnicity, Race, & Migration*)

Senior Lectors II Margherita Tortora, Sonia Valle

Senior Lectors Sybil Alexandrov, Marta Almeida, María Pilar Asensio-Manrique, Mercedes Carreras, Ame Cividanes, Sebastián Díaz, María de la Paz García, María Jordán, Rosamaría León, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Bárbara Saffile, Terry Seymour

Lector Selma Vital

Linguistics

Director of undergraduate studies: Claire Bowern (claire.bowern@yale.edu); ling.yale.edu

Linguistics is the systematic study of human language. Linguistics studies how language works: how it is produced and processed in the mind, how it develops in children, how it is used in society, and how it changes over time. Linguistics also looks at the structures of the thousands of spoken and signed languages used throughout the world. The undergraduate major in Linguistics introduces students to many of the key areas of linguistics and offers a program of study leading toward an understanding of phonological, grammatical, and semantic structure and various approaches to descriptive, experimental, computational, and historical linguistics. Majors take a flexible combination of courses across subfields of linguistics and go into depth in one or more areas. Students learn about the many ways that language interfaces with questions in the social sciences, humanities, and sciences, and they often take complementary coursework in other departments or programs. All students write a senior essay and many make use of their linguistics work in future careers. Interested students should consult the director of undergraduate studies (DUS).

COURSES FOR NONMAJORS AND MAJORS

Students with no previous background in linguistics are encouraged to approach the field by taking a 100-level course. All 100-level courses are accessible to students with no prior background.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses in linguistics and related areas, distributed as follows:

1. Breadth requirement (four courses). All majors must take one course in the areas of phonology (LING 232) and syntax (LING 253). In addition, at least one course must be taken in any two of the six remaining foundational areas of linguistics: phonetics, morphology, semantics/pragmatics, computational linguistics, language and mind/brain, and historical linguistics.
2. Depth requirement (two courses). In one of the eight areas of linguistics, students must take two additional courses beyond the introductory level.
3. Electives (four courses). Four additional courses relating to linguistics are required, at least one of which must be at the 200 level or above. Electives may be chosen from courses offered by the Linguistics department or, with approval of the DUS, from related courses in programs such as Anthropology, Classics, Cognitive Science, Computer Science, English, Philosophy, Psychology, or foreign languages. No more than two foreign language courses can count toward the major without specific DUS approval.
4. Senior research requirement (one course). LING 490, Research Methods in Linguistics, is required and is taken in the fall term of the senior year. This course prepares students for the senior essay.

Credit/D/Fail Courses taken Credit/D/Fail, Pass/Fail, or any scale other than the standard letter-grade scale, may not be counted toward the requirements of the major without specific DUS approval.

SENIOR REQUIREMENT

Senior requirement (one course). Students attend a research colloquium and write a senior essay in LING 491 during the spring term of the senior year.

ADVISING

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Linguistics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required LING 232 (phonology), LING 253 (syntax), LING 490

Distribution of courses 1 course each in 2 foundational areas other than phonology and syntax (breadth req), as specified; 2 addtl courses beyond intro level in 1 foundational area (depth req); 4 electives, at least 1 at the 200 level or above

Substitution permitted Electives from related programs with DUS approval

Senior requirement LING 491

FACULTY OF THE DEPARTMENT OF LINGUISTICS

Professors Claire Bowern, Veneeta Dayal, Robert Frank, Laurence Horn (*Emeritus*), †Frank Keil, †Joshua Knobe, †Jason Stanley, †Zoltán Szabó, Petronella Van Deusen-Scholl (*Adjunct*), Raffaella Zanuttini (*Chair*)

Associate Professors Maria Piñango, Kenneth Pugh (*Adjunct*), Jason Shaw

Assistant Professors Natalie Weber, Jim Wood

Lector Julia Silvestri

Lecturers Roslyn Burns, Chelsea Sanker

†A joint appointment with primary affiliation in another department.

Mathematics

See also Applied Mathematics

Directors of undergraduate studies: Richard Kenyon and Miki Havlickova; contact email: math.dus@yale.edu; Math DUS website; Math department website

Mathematics has many aspects: it is the language and tool of the sciences, a cultural phenomenon with a rich historical tradition, and a model of abstract reasoning. The course offerings and the major in Mathematics reflect these multiple facets. The Mathematics major provides a broad education in various areas of mathematics in a program flexible enough to accommodate many ranges of interest. Incoming students are encouraged to visit the Math first-year student resources website for advice about choosing their mathematics courses.

PREREQUISITE

The prerequisite for both the B.A and B.S. degree programs is single variable calculus, through the level of MATH 115 or equivalent (score of 4 or 5 on the AP Calculus BC exam).

CALCULUS PLACEMENT PROCEDURES

The department offers a three-term sequence in calculus, MATH 112, 115, and 120. Students who have not taken calculus at Yale and who wish to enroll in calculus must take the mathematics online placement examination. Detailed information is available on the Math first-year student resources website. A calculus advising session will be held prior to registration, to answer student questions about placement.

MATH 112 covers differential calculus, and assumes mastery of high school algebra, geometry, and trigonometry. Enrolling students are expected to know the basic definitions of the trigonometric functions, inverse functions, factoring quadratic polynomials, and elementary area and volume formulas of plane and solid geometry. Students who could benefit from a review of precalculus are encouraged to consider MATH 110 and 111 in place of MATH 112.

The next course in the calculus sequence is MATH 115, which covers integral calculus, including sequences and series. It assumes mastery of the content of MATH 112 or equivalent (AP Calculus AB exam).

MATH 120 covers multivariable calculus, and assumes mastery of the material in MATH 115 or equivalent (AP Calculus BC exam).

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

Introductory sequence requirement Each student is expected to complete Linear algebra with proofs (MATH 225 or 226), Real analysis (MATH 255 or MATH 256), and Vector analysis or Multivariable calculus (MATH 302 or 120).

B.A. degree program The B.A. degree program consists of ten term courses in Mathematics numbered 200 or higher, including the senior requirement, but excluding MATH 470. To acquire both depth and breadth in the field, students are required to take at least three courses that carry the "math distribution" attribute (YC MATH: Distribution), searchable in Yale Course Search (YCS). Students are also required to complete MATH 350 (algebra), and at least one of MATH 305 (real analysis) or MATH 310 (complex analysis). Taking all three is recommended. With prior and written permission from the DUS, students familiar with the material may substitute a higher level course in the same area (typically MATH 370, 320, 315 respectively.)

B.S. degree program The B.S. degree program consists of twelve term courses and follows the same requirements as for the B.A. degree, with the addition of at least two advanced term courses in the physical sciences, such as ASTR 418, 430, CHEM 333, 470, PHYS 401 or 410, 402 or 430, 420, 440, 441. Other such courses require the approval of the director of undergraduate studies (DUS); written approval is advised.

Searchable attribute YC Math: Distribution

Distinction in the major To be eligible for Distinction in the Major, a student must have completed MATH 305 (real analysis), MATH 310 (complex analysis), and MATH 350 (algebra).

The intensive major Candidates for a degree with an intensive major in Mathematics must take MATH 305, 310, and 350. Intensive majors are also expected to include at least two graduate courses in the Mathematics department, or equivalent independent study, among their required ten mathematics courses. Familiarity with the material of the following courses is prerequisite to graduate courses in each category: *algebra*: MATH 350 and MATH 370; *analysis*: MATH 305, 310; *algebraic topology*: MATH 350, 430.

Substitutions With permission of the Math DUS, up to two courses from other departments may be counted towards the required courses. For a list of courses that are typically approved, visit the FAQ page on the Math department website.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

During the senior year, students majoring in Mathematics fulfill the senior requirement by taking any Math course numbered MATH 480 through MATH 489. Alternatively, with the consent of the DUS, students may write a senior essay in MATH 475 under the guidance of a faculty member, which includes both a written and an oral report. Students wishing to write a senior essay should consult the DUS at least six weeks before enrolling in MATH 475, and are encouraged to pursue independent study opportunities prior to their senior year, for example through the Mathematics directed reading program or through summer research programs.

ADVISING

Students interested in pursuing further study in pure mathematics should include MATH 302, 305, 310, 350, 370, and 430 in their programs, and should consider taking one or more graduate-level courses. Students interested in applications of

mathematics should include MATH 302, 310, 350, and a selection of courses from MATH 241, 242, 244, 246, 247, 251, 260.

Courses related to mathematics Each Mathematics major is urged to acquire additional familiarity with the uses of mathematics by taking courses in Applied Mathematics, Computer Science, Engineering and Applied Science, Economics, Philosophy, Physics, Statistics & Data Science, or other departments. In some instances, a limited number of such courses may be counted among the ten courses required for the major in Mathematics, with the approval of the DUS.

Graduate work Each year the Mathematics department offers a large number of graduate courses, some of which are accessible to undergraduates with advanced preparation in mathematics.

Combined B.S./M.S. degree program Students who, by the end of their senior year, complete the requirements of the department for the M.S. in Mathematics are eligible to receive this degree at their Senior Commencement. Required are: (1) eight additional term courses numbered 500 or higher, most of which must be completed with grades of B or better; (2) passing a written qualifying examination of the student's choice from analysis, algebra, or topology.

The master's program is in no sense a substitute for the B.S. program; rather, it is designed to accommodate exceptional students who, by means of accelerated or independent study, can satisfy the department as to their command of the content of the normal undergraduate program by the end of the junior year. Candidates must contact the Mathematics DUS at least two weeks prior to the last day of classes of their fifth term at Yale College. Minimum eligibility criteria include at least seventy-five percent of A/A- grades within mathematics as well as seventy-five percent of A/A- grades overall. For more information on mathematics requirements, please see the B.S./M.S. section of the Math major FAQ. For more information on Yale College requirements for the program, see Academic Regulations, Section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite Single-variable calculus through MATH 115 or equivalent

Introductory sequence Linear algebra with proofs (MATH 225 or MATH 226), Real analysis (MATH 255 or MATH 256), and Vector analysis or Multivariable calculus (MATH 302 or MATH 120).

Number of courses *B.A.* — 10 term courses numbered 200 or higher (incl senior req), excludes MATH 470; *B.S.* — 12 term courses numbered 200 or higher (incl senior req), excludes MATH 470

Specific courses required *B.A. and B.S.* — MATH 350; MATH 305 or MATH 310

Distribution of courses *B.A. and B.S.* — 3 courses in the Math distribution category; *B.S.* — at least two adv term courses in the physical sciences as approved by DUS

Substitution permitted With DUS permission, up to 2 courses from other depts, as specified

Intensive major All three of MATH 305, 310, 350; 2 math grad courses or equivalent independent study counted among the required courses

Senior requirement Senior seminar numbered MATH 480 through MATH 489 or, MATH 475 with DUS permission

FACULTY OF THE DEPARTMENT OF MATHEMATICS

Professors Richard Beals (*Emeritus*), Jeffrey Brock, Andrew Casson (*Emeritus*), Ronald Coifman, Igor Frenkel, Howard Garland (*Emeritus*), Anna Gilbert, Alexander Goncharov, Roger Howe (*Emeritus*), Peter Jones, Richard Kenyon, Ivan Losev, Gregory Margulis, Yair Minsky, Vincent Moncrief, Andrew Neitzke, Hee Oh, †Nicholas Read, Vladimir Rokhlin, Wilhelm Schlag, George Seligman (*Emeritus*), †Daniel Spielman, Van Vu, Lu Wang, †John S. Wettlaufer, Gregg Zuckerman (*Emeritus*)

J. W. Gibbs Assistant Professors Yariv Aizenbud, Pablo Boixeda Alvarez, Subhadip Dey, Gurbir Dhillon, Daniel Douglas, James Farre, Abinand Gopal, Erik Orvedh Hiltunen, Yakov Kononov, Boris Landa, Or Landesberg, Kevin O'Neill, Cosmin Pohoata, Congling Qiu, Ebru Toprak, Franco Vargas Pallete

Adjunct Professors Gil Kalai, Alex Lubotzky, Jacques Peyriere, Mathias Schacht

Senior Lecturers John Hall, Miki Havlickova

Lecturers Ian Adelstein, Mihai Alboiu, James Barnes, Rachel Diethorn, Eric Geiger, Su Ji Hong, Robert McDonald, Brett Smith

†A joint appointment with primary affiliation in another department.

Mathematics and Philosophy

Directors of undergraduate studies: Richard Kenyon (Mathematics), Miki Havlickova (Mathematics), Math DUS (math.dus@yale.edu); DL 446; Daniel Greco (daniel.greco@yale.edu) (Philosophy)

The Mathematics and Philosophy major allows students to explore those areas where philosophy and mathematics meet, in particular, mathematical and philosophical logic and the philosophy of mathematics.

PREREQUISITE

The prerequisite for the major is MATH 120. Students who completed multivariable calculus during high school may consult with the directors of undergraduate studies (DUSs) about substituting a higher level mathematics course.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses including the prerequisite and the senior seminar. Of the remaining courses, at least four must be in mathematics at the 200 level or higher (other than MATH 470) and five must be in philosophy. The remaining course may be either a mathematics or philosophy course. All philosophy courses are eligible for credit toward the major, except First-Order Logic (PHIL 115). Required courses include Set Theory (MATH 270), Mathematical Logic (PHIL 267), Computability and Logic (PHIL 427), an additional advanced philosophy course with a substantive logical component, (other than PHIL 427) that fulfills the senior requirement (see below). Set Theory (MATH 270) and Mathematical Logic (PHIL 267) must be taken before the end of the junior year; it is strongly recommended that they be taken earlier.

A course must be listed with a MATH number to count toward the mathematics requirements – substitutions from other departments are not permitted.

SENIOR REQUIREMENT

Each year certain seminars offered by the Mathematics and Philosophy departments are designated as fulfilling the senior requirement of the combined major. If such a seminar is taken to fulfill the senior requirement, majors must consult with the instructor and agree upon additional work required. Typically, additional work includes a substantial class presentation and/or preparation of a series of drafts prior to submission of the final paper.

The mathematics seminars MATH 480 or MATH 481 fulfill the senior requirement. For philosophy seminars that fulfill the senior requirement, consult the director of undergraduate studies (DUS) in Philosophy.

Credit/D/Fail At most, one course taken Credit/D/Fail may be applied toward the major, with permission of the DUSs. The following courses must be taken for letter grades: MATH 270, PHIL 267, PHIL 427; the required mathematics courses level 200 or higher; the additional philosophy course with an advanced logic component; and the senior seminar.

ADVISING

A typical program satisfying the major might consist of MATH 120, MATH 225 or 226, MATH 270, MATH 255, two math electives level 200+; PHIL 126, 267, 427, two philosophy electives; a senior seminar in Mathematics or Philosophy.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite MATH 120

Number of courses 12 term courses (incl prereq and senior sem)

Specific courses required MATH 270, PHIL 267, 427

Distribution of courses 3 additional courses in MATH at 200 level or higher; 3 additional courses in PHIL, incl 1 PHIL course with adv logic component; 1 math or philosophy elective

Senior requirement Senior seminar in philosophy or MATH 480 or MATH 481

Mathematics and Physics

Adviser for the major: Vincent Moncrief (vincent.moncrief@yale.edu), 64 SPL, 432-6930

Directors of undergraduate studies: Richard Kenyon (Mathematics); Miki Havlickova (Mathematics); Math DUS (math.dus@yale.edu); Sarah Demers (sarah.demers@yale.edu) (Physics)

The major in Mathematics and Physics allows students to explore the productive interaction between the two subjects more extensively than either individual major.

PREREQUISITES

Prerequisites to the major include MATH 120 or its equivalent, an introductory physics lecture sequence numbered PHYS 180, 181 or above, and the associated laboratory sequence PHYS 205L, 206L.

Students who completed multivariable calculus during high school may consult with the Mathematics DUS about substituting a higher level mathematics course for MATH 120. The course being substituted will not count toward the total of fourteen term courses (beyond the introductory level) required for the major.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, the major requires a minimum of fourteen term courses above the introductory level, including the senior project. At least six of these must be mathematics courses numbered 222 or above (other than MATH 470, and MATH 480–489), and at least six must be advanced physics courses (including the senior requirement) chosen in consultation with the adviser for the major. The two remaining courses may be either mathematics or physics courses.

A course must be listed with a math number to count toward the mathematics requirements – substitutions from other departments are not allowed.

SENIOR REQUIREMENT

A senior project in PHYS 471 or 472 on a topic appropriate for the combined major and acceptable to both the Physics and the Mathematics departments is also required.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or equivalent; PHYS 180, 181, or above; PHYS 205L, 206L

Number of courses 14 term courses beyond prereqs, incl senior req

Distribution of courses 6 mathematics courses numbered 222 or above (not to include MATH 470 or MATH 480–489); 6 advanced Physics courses selected in consultation with major adviser; 2 math or physics electives

Senior requirement Senior project in PHYS 471 or 472 on topic acceptable to both depts

Mechanical Engineering

Director of undergraduate studies: Corey O'Hern (corey.ohern@yale.edu), M203 ML, 432-4258; seas.yale.edu/departments/mechanical-engineering-and-materials-science

Mechanical engineering is among the most diversified of the traditional engineering disciplines. The mechanical engineer builds machines to extend our physical and mental capabilities and to convert traditional and novel energy sources into useful forms.

The role of the mechanical engineer has changed dramatically over the past few decades with the extensive use of high-performance computers (in such areas as computational fluid dynamics, materials design, control, and manufacturing), the interfacing of microelectromechanical systems and actuators via microprocessors to build high-precision sensors and devices, and the advent of advanced materials (e.g., composites, shape-memory alloys, ceramics, and superconductors) for new applications (e.g., coatings, biomaterials, and computer storage). These areas offer mechanical engineering students special opportunities for creativity, demanding that they learn not only in depth but also in breadth. Demands for increased energy efficiency and reduced environmental impact—as might be realized, for example, in novel gas turbine or electric hybrid vehicles—require that students understand the fundamentals of mechanics, thermodynamics, fluid mechanics, combustion, and materials science. In all these tasks, the utmost consideration of the modern mechanical engineer is improving the quality of human life. The engineer must also be constantly aware both of the finiteness of Earth's resources and its environment and of the burden that engineering places on them.

The educational mission of the Department of Mechanical Engineering and Materials Science is to provide an excellent education that will prepare students to become members of the next generation of mechanical engineers. To implement this mission, the department adheres to the following set of educational objectives: to provide a balanced technical and nontechnical education to enable graduates to enter highly selective graduate schools and/or to pursue technical careers in industry or government laboratories; to enable graduates to improve and adapt their skills to accommodate rapid technological changes; to prepare graduates to communicate effectively and to understand the ethical responsibilities and impact on society of their profession. To achieve these objectives, the following fundamental educational goals have been established for the Department of Mechanical Engineering and Materials Science: to provide a comprehensive introduction to basic science and mathematics, which form the foundation of mechanical engineering; to provide thorough training in analytical and experimental methods and in data analysis, including problem formulation; to provide instruction in the fundamentals of the design process, including project innovation, synthesis, and management, both individually and in a team setting; to provide both a technical and a nontechnical program of study in which oral and written communication skills are developed; and to instill in students an understanding of their professional and ethical responsibilities, which affect society and their profession.

COURSES FOR NONMAJORS

Mechanics and mechanical engineering content can be found in several courses intended for those not majoring in science. See Engineering and Applied Science.

THE MECHANICAL ENGINEERING PROGRAM

At Yale, three mechanical engineering programs are offered: a B.S. degree program with a major in Mechanical Engineering, a B.S. degree program with a major in Engineering Sciences (Mechanical), and a B.A. degree program with a major in Engineering Sciences (Mechanical). Prospective majors in both B.S. programs are advised to complete introductory physics and mathematics through calculus (MATH 115) by the end of their first year.

A student's undergraduate engineering program may include one or more special project courses (MENG 471, 472, 473, or 474), in which the student pursues a particular research interest through design-oriented projects and experimental investigations. Projects may be initiated by the student, may be performed in a team, or may be derived from the ideas of faculty members who place undergraduates in their ongoing research projects. All interested students should contact the director of undergraduate studies (DUS) for more information on special project courses.

B.S. degree program in Mechanical Engineering This is the most technically intensive mechanical engineering degree program and is accredited by the Engineering Accreditation Commission of ABET, Inc. This program is appropriate for students who plan careers as practicing engineers in industry, consulting firms, or government, as well as for students who are considering a career in research and plan to pursue an advanced degree in engineering.

B.S. degree program in Engineering Sciences (Mechanical) This non-ABET degree program is suitable for students who wish to gain significant expertise within mechanical engineering while combining their engineering studies with related disciplines. For example, a number of students have taken courses in architecture while pursuing a program in mechanical engineering that emphasizes structural mechanics; similarly, a student with an interest in computer graphics might combine engineering courses in computer-aided design with programming courses from the Department of Computer Science.

B.A. degree program in Engineering Sciences (Mechanical) In a society with increasing levels of technical sophistication, a well-rounded individual must have some background in science and technology. The non-ABET B.A. program is designed for students who may be planning careers in business, law, economics, medicine, journalism, or politics but need to understand the impact that science and technology can have on society at large. An understanding of engineering methods and practices, combined with a traditional liberal arts education, provides a strong background for a variety of careers. The program is well suited for students who wish to fulfill the requirements of two majors.

The major for all three degree programs requires a group of prerequisites or equivalents; several courses beyond the prerequisites; and a senior requirement, as indicated below.

PREREQUISITES

B.S. degree program in Mechanical Engineering The prerequisites in mathematics are MATH 112, MATH 115, and ENAS 151, or the equivalent. The basic science prerequisites are PHYS 180, 181, or PHYS 200, 201; one laboratory from PHYS 165L or PHYS 205L, and one from PHYS 166L or PHYS 206L, or equivalents, and one introductory lecture course in chemistry, numbered CHEM 161 or higher. The chemistry lecture course may be waived for a Chemistry AP score of 4 or 5 or an IB Higher level or Standard level score of 6 or 7.

B.S. degree program in Engineering Sciences (Mechanical) The prerequisites in mathematics are MATH 112, MATH 115, and ENAS 151, or the equivalent. The basic science prerequisites are PHYS 180, 181, or PHYS 200, 201; one laboratory from PHYS 165L or PHYS 205L, and one from PHYS 166L, PHYS 206L, or MENG 286L.

B.A. degree program in Engineering Sciences (Mechanical) The prerequisites in mathematics are MATH 112 and MATH 115. The basic science prerequisite is physics at least to the level of PHYS 170, 171.

REQUIREMENTS OF THE MAJOR

B.S. degree program in Mechanical Engineering requires 20 courses and 19.5 credits beyond the prerequisites as follows:

1. Advanced mathematics: ENAS 194 and MATH 222 or 225
2. Mechanical engineering and related: MENG 185, 211, 280, 285, 286L, 325, 361, 363L, 383, 389, 390L, MENG 487L and 488L (the senior requirement), ENAS 130, EENG 200
3. Technical electives: three approved technical electives chosen in consultation with the DUS; only one course from MENG 471, 472, 473, or 474 may be counted as one of the three technical electives.

The curriculum in this program is arranged in prescribed patterns, but some departures from it are possible with approval of the DUS.

B.S. degree program in Engineering Sciences (Mechanical) The major requires twelve approved term courses in engineering (with only one course from MENG 471, 472, 473, or 474), beyond the prerequisites and including the senior project, which can cover a broad array of topics within the subject, provided that they contribute to a coherent program. Students should consult with the DUS at the beginning of their sophomore year.

B.A. degree program in Engineering Sciences (Mechanical) The program requires eight approved term courses in engineering (with only one course from MENG 471, 472, 473, or 474), beyond the prerequisites, including the senior project. Students should consult with the DUS at the beginning of their sophomore year.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the Mechanical Engineering major, including prerequisites.

SENIOR REQUIREMENT

B.S. degree program in Mechanical Engineering Students satisfy the senior requirement by taking MENG 487L (full-credit) and MENG 488L (half-credit) in the senior year.

B.S. degree program in Engineering Sciences (Mechanical) Students satisfy the senior project requirement by completing MENG 404; MENG 471, 472, 473, or 474; or another upper-level design course (taken during the senior year) chosen in consultation with the DUS. Only one course from MENG 471–474 may be counted toward the requirements of the major.

B.A. degree program in Engineering Sciences (Mechanical) Students satisfy the senior project requirement by completing MENG 471, 472, 473, or 474; or another upper-level design course (taken during their senior year) chosen in consultation with the DUS. Only one course from MENG 471–474 may be counted toward the requirements of the major.

SUMMARY OF MAJOR REQUIREMENTS

MECHANICAL ENGINEERING, B.S.

Prerequisites MATH 112, 115, and ENAS 151, or equivalent; PHYS 180, 181, or PHYS 200, 201, and 2 labs (1 from PHYS 165L or PHYS 205L; 1 from PHYS 166L or PHYS 206L, or equivalents), and 1 introductory chemistry lecture course or equivalent

Number of courses 20 term courses and 19.5 credits beyond prerequisites (including senior req)

Specific courses required ENAS 130 and 194; EENG 200; MATH 222 or 225; MENG 185, 211, 280, 285, 286L, 325, 361, 363L, 383, 389, 390L

Distribution of courses 3 technical electives chosen in consultation with DUS (only one of MENG 471, 472, 473, or 474)

Substitution permitted With DUS approval

Senior requirement MENG 487L and MENG 488L taken in senior year

ENGINEERING SCIENCES (MECHANICAL), B.S.

Prerequisites MATH 112, 115, and ENAS 151, or equivalent; PHYS 180, 181, or PHYS 200, 201, and 2 labs (1 from PHYS 165L or 205L; 1 from PHYS 166L, 206L, or MENG 286L)

Number of courses 12 term courses beyond prerequisites (incl senior req)

Substitution permitted With DUS approval

Senior requirement MENG 404; MENG 471, 472, 473, or 474; or another upper-level design course chosen in consultation with the DUS

ENGINEERING SCIENCES (MECHANICAL), B.A.

Prerequisites MATH 112, 115; PHYS 170, 171 or higher

Number of courses 8 term courses beyond prerequisites (incl senior req)

Substitution permitted With DUS approval

Senior requirement MENG 471, 472, 473, or 474; or another upper-level design course chosen in consultation with the DUS

FACULTY OF THE DEPARTMENT OF MECHANICAL ENGINEERING AND MATERIALS SCIENCE

Professors Charles Ahn, Ira Bernstein (*Emeritus*), Aaron Dollar, Juan Fernández de la Mora, Alessandro Gomez, [†]Sohrab Ismail-Beigi, [†]Shun-Ichiro Karato, Marshall Long (*Emeritus*), Corey O'Hern, [†]Vidvuds Ozolins, [†]Brian Scassellati, Jan Schroers, Udo Schwarz (*Chair*), Mitchell Smooke

Associate Professors Rebecca Kramer-Bottiglio, Madhusudhan Venkadesan

Assistant Professors Ian Abraham, Yimin Luo, Amir Pahlavan, Diana Qiu, Cong Su, [†]Daniel Wiznia

Senior Lecturer Beth Anne Bennett

Lecturers Joran Booth, Lawrence Wilen, Joseph Zinter

[†]A joint appointment with primary affiliation in another department or school.

Medieval Studies Certificate

Certificate director: Emily Thornbury (emily.thornbury@yale.edu); 432-0672;
Medieval Studies

This certificate is available to all interested Yale College students, and provides them an opportunity to pursue a focused curriculum, in addition to their major, that will strengthen their liberal arts education. Medieval Studies is the interdisciplinary study of the histories, languages, and cultures of the medieval period worldwide. This certificate provides a curated set of courses across a range of departments – including, but not limited to, East Asian Studies, English, History, History of Art, Near Eastern Languages and Civilizations, and Religious Studies – to expand and deepen those interests.

The certificate requirements are flexible enough to offer structure and guidance to those students with a general interest in Medieval Studies, as well as accommodate interdisciplinary breadth for students whose research is already focused on the medieval period.

REQUIREMENTS

Students must successfully complete five course credits on medieval topics, drawn from the list of approved courses posted each semester on the Medieval Studies website. Other course credits may be approved by permission of the certificate director and the course instructor.

Of the five credits: no more than three may originate in the same zone. As currently configured, the four zones are East and Southeast Asia, South and Central Asia, the Near East and North Africa, and Europe, Russia, and the North Atlantic. Students may search for courses that count toward the certificate in YCS by using the attributes indicated below.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Medieval Studies Certificate or of a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

In addition to the course requirements, each student must attend three lectures on medieval topics. After each lecture, students should submit a 1–2 page account of the lecture to the certificate director or one of the certificate advisors to be credited for attendance. There are typically six Yale lectures in Medieval Studies every academic year, as well as weekly Medieval Lunch talks. Events in other departments, or outside Yale, may also count toward the lecture requirement. Notice of relevant events can be found on the Medieval Studies website and via the email listserv.

Yale Course Search **Searchable Attributes:**

- YC MDVL: East & SE Asia
- YC MDVL: S & Central Asia
- YC MDVL: Nr East & N Africa
- YC MDVL: Eur Russ & N Atlantic

Declaration of Candidacy

Students interested in learning more about the certificate should complete the form found on the Medieval Studies website, or contact the certificate director. Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits dispersed between the four geographic zones

Distribution of courses up to 3 courses in any one of the four zones

Additional requirements attendance at 3 Medieval Studies lectures, each followed by a 1–2 page account of the event

Modern Middle East Studies

Director of undergraduate studies: Jonas Elbousty (jonas.elbousty@yale.edu);
www.yale.edu/macmillan/cmcs

The Modern Middle East Studies major focuses on the culture, history, religion, politics, and society of the modern Middle East in its full geographical breadth, while developing expertise in any of the major languages associated with the region, namely Arabic, Hebrew, Persian, and Turkish. Courses are drawn from departments in the humanities and social sciences, including Anthropology, History, History of Art, Judaic Studies, Political Science, Near Eastern Languages and Civilizations, Religious Studies, and Sociology. The Modern Middle East Studies major gives students the analytical and linguistic skills necessary to master the complex issues of the Middle East and serves as excellent preparation for graduate study or for professional careers in which an understanding of that region is essential.

REQUIREMENTS OF THE MAJOR

The major allows students to develop highly individualized courses of study, tailored to their own academic, intellectual, and linguistic interests. There are no prerequisites. Twelve term courses are required for the major, including one course at the L5 level in a Middle Eastern language and two survey courses on the modern period, taken at the introductory level. Beyond those requirements, students take eight distribution courses focusing on any aspect of the culture, thought, history, religion, politics, and society of the region. These eight distribution courses must be spread geographically and temporally and draw from distinct methodological or disciplinary approaches. They must include, at a minimum, two courses from different regions or countries within the Middle East, two courses from different departments or programs, two courses that focus substantially on the period before 1750, and two advanced seminars. Up to two language courses below L5 in a Modern Middle East language may count toward the distributional requirement with approval of the director of undergraduate studies (DUS). The proposed course of study also requires DUS approval.

SENIOR REQUIREMENT

Students in the major undertake a one- or two-term senior essay that involves use of materials in one or more modern Middle Eastern languages. Each student selects a faculty adviser with competence in the appropriate language. A prospectus and outline signed by the adviser must be submitted to the DUS by the end of the fourth week of classes in either term of the senior year. Senior essays are graded by the adviser and a second reader. See the course descriptions of the senior essay courses (MMES 491, 492, 493) for further information. Alternatively, under supervision of the instructor, majors may take an additional seminar and write an essay in that course to fulfill the senior requirement.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses

Distribution of courses 2 intro survey courses on the Middle East, focusing on the modern period; 2 courses from different Middle Eastern regions or countries;

2 courses from two different departments or programs; 2 courses with focus on pre-1750; 2 adv seminars; and 1 course at L5 level in a Middle East language

Substitution permitted With DUS approval, up to 2 language courses below L5 in Modern Middle East language may count toward distributional requirement

Senior requirement One-term senior essay (MMES 491), two-term senior essay (MMES 492, 493), or essay written in additional seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF MODERN MIDDLE EAST STUDIES

Professors Frank Griffel (*Religious Studies*), Hannan Hever (*Comparative Literature*), Marcia Inhorn (*Anthropology*), Ivan Marcus (*History*), Alan Mikhail (*History*), A. Mushfiq Mobarak (*School of Management*), Kishwar Rizvi (*History of Art*), Maurice Samuels (*French*), Shawkat Toorawa (*Near Eastern Languages & Civilizations*)

Associate Professors Thomas Connolly (*French*), Robyn Creswell (*Comparative Literature*), Zareena Grewal (*American Studies*), Kaveh Khoshnood (*Public Health*), Eliyahu Stern (*Religious Studies*), Jonathan Wrytzen (*Sociology*), Travis Zadeh (*Religious Studies*)

Assistant Professors Supriya Gandhi (*Religious Studies*), Samuel Hodgkin (*Comparative Literature*), Jill Jarvis (*French*), Elizabeth Nugent (*Political Science*), Eda Pepi (*Women's, Gender, & Sexuality Studies*), Claire Roosien (*Slavic Languages and Literatures*), Evren Savci (*Women's, Gender, & Sexuality Studies*)

Senior Lecturer Tolga Köker (*Economics*)

Lecturers Karla Britton (*Architecture*), Teresa Chahine (*School of Management*), Emma Sky (*Global Affairs*)

Senior Lectors II Sarab Al Ani, Shiri Goren

Senior Lectors Muhammad Aziz, Jonas Elbousty, Dina Roginsky, Farkhondeh Shayesteh, Orit Yeret

Lector Ezgi Yalcin

Molecular Biophysics and Biochemistry

Director of undergraduate studies: Andrew Miranker, (andrew.miranker@yale.edu)
318 BASS, 432-8954, MBBUndergrad@yale.edu; mb&b.yale.edu

Members of the Department of Molecular Biophysics and Biochemistry (MB&B) are united by a common view that processes in biology are understood when molecular, chemical, kinetic, and thermodynamic contributions to mechanisms have been elucidated. Correspondingly, our faculty and students are joined by a shared fascination with biochemistry, physical chemistry, structural biology, computation, spectroscopy, macromolecular engineering, imaging and the molecular basis of disease.

Three quarters of our graduates matriculate into Ph.D., M.D., and M.D./Ph.D. programs. Other recent graduates have joined companies specializing in finance, management consulting, biotechnology, and pharma. Others have matriculated in law or business school and doctoral programs in the humanities. Still others have performed public service, entered secondary education, or joined the United States armed forces as officers.

INTRODUCTORY COURSES

The basic introductory science courses suggested for all majors include a two-term lecture sequence in general chemistry with its associated laboratories (CHEM 161, 165, or CHEM 163, 167, and 134L and 136L); a one-term course in organic chemistry with its associated laboratory (CHEM 220 or 174 with CHEM 222L); two terms of calculus (MATH 112 and 115 or 116); two half-term units of biochemistry, biophysics and cell biology (BIOL 101, 102). Some concentrations, described below, require additional introductory biology satisfied by (BIOL 103, 104).

REQUIREMENTS OF THE MAJOR

The core elements of the major are biophysics, biochemistry, and science and society. The requirements beyond these core elements teach advanced concepts, and teach the technology and practical skills that enable scholarship in the discipline.

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

B.A. Degree Program The B.A. degree program requires a total of 9.5 course credits to include: 3 biophysics credits; 3 biochemistry credits, a half-credit for science and society; 1 credit to fulfill the practical skills requirement; 1 elective; and the senior requirement.

The *core Biophysics requirements* are two semesters of physics (PHYS 170 and 171 or higher) and one semester of biophysical chemistry (MB&B 275 or CHEM 332).

The *core Biochemistry requirements* include MB&B 300 and 301 (substitutions are not permitted), and CHEM 175 or any 200+ level Chemistry course.

The *Science and Society core requirement* is 0.5 credit (MB&B 268 is recommended) and addresses the intersection of Molecular Biophysics & Biochemistry with human identity and society. Alternatives to MB&B 268 are MB&B 107, AFAM 170, HSHM 206,

241, 406, 409, 424, 436, 475, 481, HIST 479, SOCY 126, 127, 351, MCDB 375, WGSS 270, 457, 741. Students may petition for course substitutions.

The *Practical skills* requirement is fulfilled with one full-credit or two half-credit courses spread across two or three of the categories listed below. At least one half-credit must come from MB&B.

- Physics lab options include MB&B 121L, MB&B 122L, 123L, 124L, 470 and 471*, PHYS 165L, 166L, CHEM 355L, other 200+ level lab courses with DUS approval.
- Biochemistry Lab options include MB&B 251L, 470 and 471*, CHEM 355L, other 200+ level lab courses with DUS approval.
- Critical Tools options include MB&B 435, 470 and 471*, S&DS 105, 238, CPSC 112 and others with DUS approval.

*MB&B 470 and 471 are research for credit courses. Above categorization is dependent on the research project. Up to two credits may be taken for a letter grade.

The *Elective course* should be a lecture or seminar MB&B course at the 200+ level.

B.S. Degree Program The B.S. degree program requires a total of 12.5 course credits including the senior requirement. This program follows the requirements and policies of the B.A. degree program with the following additions.

For the *core Biophysics requirement*: one additional 300+ course in physical sciences, mathematics, statistics or computer science

For the *Practical Skills requirement*: one additional credit for a total of two credits

For the *elective courses*: one additional 200+ level seminar or lecture course in STEM

Combined B.S./M.S. Degree Program The B.S./M.S. degree program requires a total of 18.5 course credits including the senior requirement. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult their academic adviser prior to the fifth term of enrollment for details and application requirements (due December 1 of the fifth semester). The B.S./M.S. program follows the requirements of the B.S. Degree program with the following additions.

For the *core Biophysics requirement*: one additional 300+ course in thermodynamics, statistical mech, quantum and/or spectroscopy (CHEM 332 is recommended). PHYS 180 and 181 in place of PHYS 170 and 171.

The *Practical Skills* requirement is replaced by one semester of MB&B 470 or 471 which must be completed by the end of the fifth semester.

For the *Elective course*, the single MB&B 200+ seminar or lecture elective is replaced by two MB&B electives at 500+ and four 500+ electives in STEM.

CONCENTRATIONS

Concentrations in MB&B are sets of electives, curated by faculty, designed to focus attention on specific subfields of Molecular Biophysics and Biochemistry. Concentrations appear on a student’s official Yale transcript and are

currently available in Biochemistry; Biophysics and Structural Biology; Chemical Biology; Computational Biology and Bioinformatics; Environment and Climate Change; and Medicine. Students must fulfill all major degree requirements, earning a concentration is optional. For specific concentration requirements see the Concentrations section.

Electives taken for the major that meet the same criteria as requirements for a concentration may be used to fulfill both requirements. Placement exams and acceleration credits do not count towards completion of concentration-specific requirements. Instead, majors enroll in higher-level courses in the same concentration-specific category. Depending on the particular concentration and the choice of electives, concentrations add between zero and three additional credits to major requirements.

Some concentrations include research-for-credit courses or course-based undergraduate research experiences (CUREs) as a mechanism to fulfill a requirement. These courses must directly relate to the chosen concentration (broadly interpreted) and require DUS approval.

Credit/D/Fail One course taken Credit/D/Fail may be counted toward the requirements of the major. This does not affect students' ability to graduate with distinction, but does count against Yale's limit of 6 total Credit/D/Fail courses. Qualifying courses must be 400+ in MB&B, and 300+ in any other STEM subject. For B.S./M.S. students, all required coursework must be taken for a letter grade.

SENIOR REQUIREMENT

The senior requirement for both the B.S. and the B.A. is fulfilled by successful completion of a one credit senior essay. Students may enroll in MB&B 490 and prepare a written report and make an oral presentation of a literature project or students may enroll in MB&B 491 and write an essay that draws on laboratory research performed at Yale College. Students meet with faculty members in charge of the courses during the first two weeks of the term in which they are writing their essay, to agree on a topic and an approach. It is appropriate for students who took research for credit earlier in their training to write on their research topic. The literature project for the senior requirement should be original work approved by the faculty member overseeing MB&B 490.

The senior requirement for B.S./M.S. is completion of MB&B 570 and 571 taken during senior year.

ADVISING

Students are encouraged to declare their major long before completion of the introductory courses. This greatly improves academic advising. Changing majors at Yale does not require approval and is non-binding.

Students are assigned a member of MB&B faculty for academic advising as soon as they declare their major. Requests to change advisers should be sent to the registrar via email (elizabeth.vellali@yale.edu). Justification is not required nor is DUS approval.

Course Substitutions Students may petition their MB&B academic adviser for course substitutions by assembling the relevant syllabi and writing a short justification (less

than 300 words). Thoughtful requests in line with MB&Bs teaching goals are always welcome.

DUS approvals DUS approvals for waivers, course substitutions, endorsement of petitions to the Committee on Honors and Academic Standing, applications to the B.S./M.S. program etc., are initiated by an email of support from students' assigned MB&B academic adviser. The academic adviser functions as the student's advocate on requests to the DUS with the MB&B registrar giving oversight and interfacing with the University registrar. One-on-one meetings by majors with their MB&B academic adviser during every registration period are logged. Failure to schedule meetings and missed meetings are factored into the DUS approval process.

Graduate work Graduate courses in molecular biophysics and biochemistry, biology, and the biomedical sciences that may be of interest to undergraduates are listed in the Graduate School online bulletin, and many are posted on the Biological and Biomedical Sciences website. Additional information is available from the DUSs and the director of graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

Combined B.S./M.S. degree program A very small number of students will be eligible to complete a four-year course of study within 8 terms of enrollment leading to the simultaneous award of the B.S. and M.S. degrees. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult their academic adviser prior to the fifth term of enrollment.

Sample schedules Diverse pathways exist for navigating the B.A. and B.S. degrees. In general, students are strongly encouraged to complete General Chemistry (e.g. CHEM 161, 165, 134L, and 136L), introductory calculus (e.g. MATH 112) and introductory Biochemistry, Biophysics and Cell Biology (BIOL 101, 102) by the end of their first year. See the MB&B website for 4-year sample degree programs covering all six concentrations and for students who do not elect to pursue a concentration.

SUMMARY OF MAJOR REQUIREMENTS

Introductory courses BIOL 101 and 102; 2 terms general chem with associated labs; 1 term organic chem with associated lab; 2 terms of calculus; BIOL 103 and 104 for some concentrations

Number of courses *B.A.* –9.5 course credits (incl senior project); *B.S.* –12.5 course credits (incl senior project)

Distribution of courses *B.A.* –3 biophysics credits to incl MB&B 275 or CHEM 332 and PHYS 170 and PHYS 171 or higher; 3 biochemistry credits to incl MB&B 300, 301, and CHEM 175 or 200+ Chem course; MB&B 268, a half-credit for science and society or other course as approved by DUS; 1 credit practical skills course(s); and 1 MB&B elective 200+ level or higher; *B.S.* –same reqs as for *B.A.* degree plus 1 addtl Practical Skills credit; 1 addtl 300+ biophysics credit; and one addtl 200+ credit in STEM

Senior requirement MB&B 490 or MB&B 491

CONCENTRATIONS

BIOCHEMISTRY CONCENTRATION

The concentration in Biochemistry is geared towards students seeking robust training in structure and function of nucleic acids and proteins in the context of life processes. Molecular length scale biochemistry is foundational to the mechanisms by which dynamic networks of molecular machines enable everything from cellular function to whole organism physiology. Failures in these networks are responsible for pathology in plants and animals, agriculture and medicine. MB&B majors interested in working in these fields directly after graduation, or who hope to pursue graduate studies including Ph.D. and M.D./Ph.D., are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Genetics and Development and Ecology and Evolution: BIOL 103 and 104

Molecular, Cellular, or Organismal Biology: MCDB 205, MCDB 202, or as approved by the DUS

Research in Biochemistry: MB&B 470 or 471 or course-based undergraduate research

Advanced Chemical Biology lecture or seminar (1 credit for B.A. degree and 2 credits for B.S. degree): 300+ courses such as MB&B 365, MB&B 330, MB&B 445, MB&B 449, or MB&B 443

BIOPHYSICS AND STRUCTURAL BIOLOGY CONCENTRATION

This concentration is designed for students with strong interests in life processes on the molecular length scale. Majors aspiring to graduate studies in biophysics, molecular medicine, and biotechnology are particularly encouraged to fulfill this concentration.

Biophysics and Structural Biology are made possible by fundamental quantitative and physical tools such as linear algebra, Fourier analysis, x-ray diffraction, imaging, and optical spectroscopy to measure biomolecular dynamics and atomic resolution structure. Seminar courses applicable to this area focus on the basic biology enabled by exquisitely specific macromolecular interactions, the molecular basis of disease and drug-design.

In addition to, and/or as part of, the degree requirements, the following courses are required:

Computer Science, Math, Statistics (for B.A. degree): one from MATH 120, MATH 225, S&DS 100+, or CPSC 112

Computer Science, Math, Statistics (for B.S. degree): one from MATH 120, MATH 225, S&DS 238, or CPSC 112

Biophysical Chemistry (for B.S. degree): one from CHEM 332 or MB&B 431 or any 300+ elective in thermodynamics, statistical mech, quantum mechanics or spectroscopy

Research in Biophysics and Structural Biology (for both degrees): one from MB&B 470, MB&B 471, CHEM 355L, or course-based undergraduate research

Tools and Quantitative Analysis (for B.S. degree): one 200+ course with emphasis on measurement and/or modeling of energy, kinetics, or structure relevant to the molecular length scale, such as MB&B 330, MB&B 420, MB&B 431, MB&B 435, CHEM 333, CHEM 406, CHEM 492, or as approved by the DUS

Advanced Biophysics and Structural Biology lecture or seminar (both degrees): one from MB&B 420, MB&B 431, MB&B 520, or as approved by the DUS

CHEMICAL BIOLOGY CONCENTRATION

Chemical Biology leverages the tools and concepts of chemistry to understand and/or manipulate biological processes. Students interested in the MB&B concentration in Chemical Biology select electives from organic and inorganic chemistry as well as advanced courses in cell biology. Majors interested in additional studies in chemical biology, drug development, and/or biotechnology after graduation are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Organic Chemistry (both degrees): second semester of Organic Chemistry and accompanying half-credit lab

Cell Biology and Chemistry (for B.S. degree only): two 200+ electives *and* one 300+ elective in Chemistry or Cell Biology (at least one credit must cover cell biology or chemistry)

Cell Biology (for B.A. degree only): one 200+ elective in cell-based biology

Research in Chemical Biology (both degrees): one from MB&B 470, MB&B 471, or MB&B 364, or course-based undergraduate research

Advanced Chemical Biology lecture or seminar (both degrees): MB&B 443 or CHEM 419 or as approved by the DUS

COMPUTATIONAL BIOLOGY & BIOINFORMATICS CONCENTRATION

This concentration is designed for students with strong interests in computer science, data science, statistics, and biology. Majors aspiring to graduate studies in computational biology, bioinformatics, medical informatics or biotechnology are particularly encouraged to fulfill this concentration.

In addition to, and/or as part of, the degree requirements, the following courses are required:

Genetics and Evolutionary Biology (B.A. degree): BIOL 103 and 104

Genetics and Evolutionary Biology (B.S. degree): one 200+ elective in genetics, MCDB 200, 202, 310, MB&B 330

Computer Science, Math, Statistics (B.A. degree): CPSC 201 *and* one S&DS 100+ course

Computer Science, Math, Statistics (B.S. degree): CPSC 223, CPSC 201, and S&DS 238 (CPSC 223 may also be used to fulfill the 300+ core biophysics elective requirement). Other courses may be substituted with permission of the DUS.

Advanced Computational Biology & Bioinformatics (both degrees):

MB&B 452 or CPSC 453 or as approved by the DUS.

ENVIRONMENT AND CLIMATE CHANGE CONCENTRATION

This concentration is geared towards students seeking robust training in life processes as they affect, and are affected by the environment, human activity, and climate change. MB&B majors interested in working in these fields directly after graduation, or who hope to pursue graduate studies are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Physical environmental science (for B.S. degree): one credit 300+ course from

EVST 362, EPS 310, EPS 323, EPS 335, CHEM 332, or CHEM 333

Environmental chemistry (both degrees): one credit 200+ course

from EVST 307, EPS 310, CHEM 252, or ENVE 438. May be used to fulfill 200+ elective requirement in chemistry.

Math, statistics and/or computer science (both degrees): one credit course from

MATH 120, MATH 121, MATH 222 or higher, S&DS 100 or higher, or CPSC 100 or higher. May be used to fulfill the practical skills requirement.

Ecology and evolution (both degrees): one credit 100+ course from BIOL 104, E&EB 225, or ANTH 267. May be used to fulfill the 200+ STEM requirement for the B.S. degree.

Environmental Sciences (both degrees): one credit 100+ course from

CENG 120, EVST 223, EVST 265, EPS 101, EPS 125, EPS 140, EPS 232, or EPS 261.

May be used to fulfill 200+ STEM requirement for B.S. degree.

Advanced Environment Lecture or Seminar (one credit for B.A.

degree/two credits for B.S. degree): one or two credit courses from

MB&B 365, ENVE 464, EVST 415, EPS 355, ENVE 441, EPS 323, ENVE 360, ENVE 438.

MB&B 365 may be used to fulfill 200+ MB&B requirement for all degrees.

MEDICINE CONCENTRATION

This concentration is designed for students with strong interests in the molecular basis of physiology and disease. Majors aspiring to graduate studies in biomedical sciences, work in biotechnology, or medical school are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Genetics and Development: BIOL 103 and 104

Organic Chemistry: second term of organic chemistry (CHEM 175 or 221)

Statistics: Any introductory S&DS 100+ course, S&DS 150, S&DS 230 recommended

Psychology: PSYC 110 or higher or PSYC 312

Physics labs (1 credit): MB&B 121L, MB&B 124L, PHYS 165L, 166L, MB&B 364, or others as approved by the DUS (see below) are encouraged.

Biomedical research (total for 1 credit): MB&B 470 or MB&B 471, or course based undergraduate research including MB&B 251L, MCDB 291L, or others

Advanced Seminar: one from MB&B 445, MB&B 452, MB&B 449, MCDB 315, MCDB 450, or others as approved by the DUS

FACULTY OF THE DEPARTMENT OF MOLECULAR BIOPHYSICS AND BIOCHEMISTRY

Professors †Karen Anderson, Susan Baserga, †Ronald Breaker, †Gary Brudvig, †Sandy Chang, Enrique De La Cruz, †Daniel DiMaio, Donald Engelman, Mark Gerstein, Wendy Gilbert, Nigel Grindley (*Emeritus*), †Sharon Hammes-Schiffer, Mark Hochstrasser, Jonathon Howard, Michael Koelle, Anthony Koleske, William Konigsberg (*Emeritus*), †Mark Lemmon, †Patrick Loria, †I. George Miller, Andrew Miranker, †Peter Moore (*Emeritus*), Karla Neugebauer, Lynne Regan (*Emeritus*), †Karen Reinisch, †David Schatz, Christian Schlieker, Robert Schulman (*Emeritus*), †Frederick Sigworth, Dieter Söll (*Emeritus*), Mark Solomon, Joan Steitz, Scott Strobel, Steven Tang, Yong Xiong

Associate Professors Julien Berro, †Titus Boggon, †Erdem Karatekin, Nikhil Malvankar, Matthew Simon, †Sarah Slavoff, †Shervin Takyar, †Yongli Zhang

Assistant Professors Franziska Bleichert, Allison Didychuk, †Luisa Escobar-Hoyos, Benjamin Goldman-Israelow, Lilian Kabeche, David Martinez, †Wei Mi, Candice Paulsen, Hualiang Pi, Kai Zhang

Adjunct Professors Kenneth Williams, Carl Zimmer

Lecturer Kate Schilling

†A joint appointment with primary affiliation in another department.

Molecular, Cellular, and Developmental Biology

Director of undergraduate studies: Douglas Kankel (douglas.kankel@yale.edu), 121 YSB, 432-3839; MCDB undergraduate registrar (mcdb.ureg@yale.edu): Andrea Chamba, (mcdb.ureg@yale.edu) 432-3839; mcdb.yale.edu

The science of biology is extremely broad, ranging across the domains of molecules, cells, tissues and organs, organisms, and ecosystems. Moreover, biology explores questions of evolutionary history and the processes of evolutionary change, as well as the mechanisms by which cells, organisms, and ecosystems function. Students majoring in Molecular, Cellular, and Developmental Biology receive a thorough yet varied liberal education and preparation for professional careers in a diverse array of fields. Practical applications of biology include the development of biologicals and pharmaceuticals, the practice of medicine, and the pursuit of the scientific bases for understanding the development and function of biological systems.

Molecular, Cellular, and Developmental Biology (MCDB) offers programs for students wishing to concentrate on molecular and cellular biology and genetics, with applications to problems in cell and developmental biology, neurobiology, and various aspects of quantitative biology. Interdisciplinary opportunities are available within the major in the Biotechnology, Neurobiology, and Quantitative Biology concentrations (previously tracks).

The MCDB major offers many opportunities for independent laboratory research. With approval, research can be conducted under the supervision of faculty members in any Yale department.

PREREQUISITES

Most but not all of the MCDB courses require prior preparation in biological science. First years should take BIOL 101, 102, 103, and 104 or contact the director of undergraduate studies (DUS) for more information. All majors must also complete a course in mathematics numbered MATH 115 or higher or a statistics course (S&DS 100, S&DS 101–109, or S&DS 238), and other statistic courses taken at Yale with approval from the DUS.

For the B.A. degree, students must take a two-term lecture sequence in chemistry, usually in their first year, and a term course in physics numbered PHYS 170 or higher usually in their junior year.

For the B.S. degree, students must take a two-term lecture sequence in chemistry, with associated laboratories usually in their first year; a term course in organic chemistry with its associated laboratory usually in their sophomore year; and two term courses in physics numbered PHYS 170 or higher usually in their junior year.

PLACEMENT PROCEDURES

Placement in MCDB courses is determined by examinations administered at Yale or by permission of the DUS. A student may place out of one or more courses in the BIOL 101–104 sequence. One or more of these foundational biology courses (or equivalent performance on the corresponding biological sciences placement examination) may be explicitly required as prerequisites for upper-level MCDB courses. Students that place

out of two BIOL modules will be required to take an additional credit in MCDB's core courses.

Placement in chemistry courses is arranged by the Department of Chemistry. Because required chemistry courses are prerequisite to several MCDB courses, students are strongly encouraged to take general and organic chemistry in the first and/or sophomore years. Students who place out of general chemistry may want to consider taking organic chemistry during the first year. Finishing the prerequisites early allows for a more flexible program in later years.

Acceleration credit awarded in chemistry, mathematics, or physics, or completion of advanced courses in those subjects, is accepted in place of the corresponding prerequisites for the MCDB major. Students who have mathematics preparation equivalent to MATH 115 or higher are encouraged to take additional mathematics courses, such as MATH 120, 121, 222, or 225, or ENAS 151 or 194. Students in the B.A. degree program who have satisfied one or more prerequisites with advanced placement must still complete three term courses in chemistry and physics at Yale, including at least one from each department.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree requires a minimum of five and one-half course credits beyond the prerequisites, including five lecture or seminar courses and one laboratory, as follows:

1. Two core courses selected from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300)
2. Two general electives selected from MCDB courses numbered 250 or above, or two additional core courses from the list above. Two laboratory courses, either MCDB 342L and 343L or MCDB 344L and 345L, can be paired for a single elective credit. If used as an elective, these laboratories cannot also fulfill the laboratory requirement
3. One special elective selected from MCDB courses numbered 350 or higher
4. One laboratory from the biological sciences. Laboratories may be selected from MCDB, Molecular Biology and Biophysics, or Biomedical Engineering, or, with permission of the DUS, from Anthropology or Ecology & Evolutionary Biology
5. The senior requirement (senior essay option does not carry course credit)

B.S. degree program The B.S. degree requires a minimum of nine course credits beyond the prerequisites, including eight lecture or seminar courses and two laboratories, as follows:

1. Three core courses selected from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300)
2. Two general electives selected from MCDB courses numbered 250 or above. Additional core courses from the list above, a second term of organic chemistry, and a course in statistics may be used as general electives. Two laboratory courses, either MCDB 342L and 343L or MCDB 344L and 345L, can be paired for a single elective credit. If used as an elective, these laboratories cannot also fulfill the laboratory requirement
3. One special elective from MCDB courses numbered 350 or higher

4. Two laboratories from MCDB
5. The senior requirement (2 course credits), described below

The B.S. degree program, intensive major Requirements for the B.S. degree program, intensive major, are the same as those for the B.S. degree except for the senior requirement (see below). This degree requires eleven course credits beyond the prerequisites, including 6 courses, 2 half-credit labs, and 2 senior research courses, each worth two credits.

Independent research courses before senior year The only independent research course available to students prior to the senior year is MCDB 474. This course is graded Pass/Fail and contributes to the thirty-six course credits required for the bachelor's degree, but it does not substitute for any MCDB major requirement, including the senior requirement. No independent research course satisfies a lab requirement for the MCDB major.

Independent research courses during senior year The research courses MCDB 475, 485, 486, and 495, 496 exist primarily to fulfill the senior requirement, and do not satisfy any other requirement for the major. Note that Yale College limits the number of independent study or independent research courses that students may take; see Academic Regulations, section C, Course Credits and Course Loads. Any independent study course, regardless of its number, is included in the total. No independent research course satisfies a lab requirement for the MCDB major.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the MCDB major, including prerequisites.

SENIOR REQUIREMENT

In addition to the course requirements described above, all students must satisfy a senior requirement undertaken during the senior year. A booklet listing the senior requirements of each concentration and degree is available in the office of the DUS (111 YSC). All students must fill out a checklist of requirements and go over it with the MCDB undergraduate registrar, (mcdb.ureg@yale.edu) by the spring term of the junior year.

B.A. degree program For the B.A. degree, the senior requirement can be met either by submitting a senior essay of 15–20 pages evaluating current research in a field of biology, or by successful completion of one term of individual research (MCDB 475). A senior choosing to fulfill the requirement with a senior essay must consult with a faculty adviser on the scope and literature of the topic and submit the adviser's written approval to the DUS no later than the course selection period of the term in which the paper is due. The senior essay may be related to the subject matter of a course, but the essay is a separate departmental requirement in addition to any work done in a course and does not count toward the grade in any course. The senior essay must be completed and submitted to the office of the DUS by the last day of classes. Students electing this option should obtain an approval form from the office of the DUS. Students who select this option should be aware it carries no credit.

B.S. degree program For the B.S. degree, the senior requirement is usually fulfilled by completing a yearlong research course, MCDB 485, 486. The senior requirement must be completed during the senior year. Yale College does not grant academic credit for

summer research unless the student is enrolled in an independent research course in Yale Summer Session. Seniors working toward the B.S. degree are expected to spend at least ten hours per week in the lab conducting individual research.

B.S. degree program, intensive major Requirements for the B.S. degree with an intensive major are the same as those for the B.S. degree except that students fulfill the senior requirement by taking MCDB 495, 496 for four course credits. Seniors in the intensive major are expected to spend at least twenty hours per week in the lab conducting individual research.

ADDITIONAL INFORMATION AND ADVISING

The prerequisites for the B.S. degree fulfill most of the usual premedical science requirements. Students who choose the B.A. degree can also prepare for medical school by taking additional premedical courses.

Selection of courses A relevant intermediate or advanced course from another department in science, engineering, mathematics, or statistics may be accepted as an elective with permission of the DUS. Many courses in other departments have prerequisites; such prerequisites can be substituted for an upper-level elective with permission of the DUS.

Residential College Seminars cannot be substituted for electives and do not count toward the requirements of the major. The MCDB major should not be taken as one of two majors with Molecular Biophysics and Biochemistry, Ecology and Evolutionary Biology, or Neuroscience.

Advising First-year students considering a major in Molecular, Cellular, and Developmental Biology are invited to consult with the DUS and/or a faculty member in MCDB who is a fellow of their residential college. MCDB majors are required to meet with the MCDB faculty adviser and the departmental undergraduate registrar (mcdm.ureg@yale.edu) once per term and prior to registration. For assistance in identifying a suitable adviser, students should contact the departmental undergraduate registrar. (mcdm.ureg@yale.edu) Students in the Biotechnology, Neurobiology, or Quantitative Biology concentrations should consult an adviser for their concentration (listed below). Students whose regular adviser is on leave can consult the office of the DUS to arrange for an alternate.

College faculty advisers available to first-year students are listed below.

BF	D. Kankel	MC	H. Keshishian
BK	V. Irish, J. Wolenski, S. Bahmanyar	MY	D. Clark, C. Crews
BR	I. Dawson, T. Emonet, S. Hatzios, J. van Wolfswinkel, D. Breslow	PC	J. Carlson, V. Horsley, N. Dimitrova, J. Yan
DC	P. Forscher, W. Zhong	SM	S. Dellaporta
ES	TBD	SY	S. Nachtergaele
GH	M. Mooseker, R. Wyman	TC	Y. Jacob, M. Moreno
JE	R. Breaker, F. Isaacs	TD	S. Holley

Simultaneous B.S./M.S. degree program Exceptionally able and well-prepared students may accelerate their professional education by completing a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of

enrollment. Students may not enroll in Yale College for more than eight terms in order to qualify for the simultaneous award of both degrees. It is possible to earn both degrees in fewer than eight terms, but not by the use of acceleration credits. The requirements are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree. Students in the program must complete the core courses for the major and choose their 4 electives from graduate-level courses. One of the electives must be a graduate seminar selected with the approval of the DUS. Grades below B- in graduate courses are not accepted.
2. In addition to the courses specified above, students must complete three terms of graduate research courses for six course credits: (1) MCDB 585, a two-credit course taken in the second term of the junior year. At the start of the course, each student forms a committee comprised of the faculty adviser and two faculty members that meets to discuss the research project. Two of the members of this committee must be members of the MCDB faculty. At the end of the course, the student completes a detailed prospectus describing the thesis project and the work completed to date. The committee evaluates an oral and written presentation of the prospectus and determines whether the student may continue in the combined program; (2) MCDB 595, 596, a four-credit, yearlong course that is similar to MCDB 495, 496 and is taken during the senior year. During the course, the student gives an oral presentation describing the work. At the end of the course, the student is expected to present his or her work to the department in the form of a poster presentation. In addition, the student is expected to give an oral thesis defense, followed by a comprehensive examination of the thesis conducted by the thesis committee. Upon successful completion of this examination, as well as all other requirements, the student is awarded the combined B.S./M.S. degree.

Students must also satisfy the requirements of Yale College for the simultaneous award of the bachelor's and master's degrees, including the following:

1. To be considered for admission to the program, by the end of their fifth term of enrollment students must have achieved at least two-thirds A or A- grades in all of their courses as well as in all of the courses directly relating to the major, including prerequisites.
2. Students must apply in writing to the DUS and obtain departmental approval no later than the last day of classes in their fifth term of enrollment in Yale College.
3. Students must have the approval of both the DUS and the director of graduate studies to receive graduate credit for the graduate courses they select.
4. Graduate work must not be entirely concentrated in the final two terms, and students in the program must take at least six term courses outside the department during their last four terms at Yale and at least two undergraduate courses during their last two terms.
5. Students must earn grades of A in at least two of their graduate-level term courses (or in one yearlong course) and have at least a B average in the remaining ones.

For more information, see Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

STUDY ABROAD

Some programs for study abroad are available to MCDB majors. Approved programs can fulfill some of the requirements for the major. Interested students should consult the DUS and the Center for International and Professional Experience.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* – BIOL 101, 102, 103, 104; a two-term lecture sequence in chem; one term of PHYS 170 or above; MATH 115 or above or a Yale statistics course approved by the DUS; *B.S.* – same as for the *B.A.* degree, in addition to labs associated with a two-term lecture sequence in chem; 1 term of organic chem with lab; two terms of physics, PHYS 170 or above

Number of courses *B.A.* – 5 courses and 1 lab, totaling at least 5½ course credits beyond the prereqs; *B.S.* – 8 courses and 2 labs, totaling at least 9 course credits beyond the prereqs; *B.S., intensive* – 8 courses and 2 labs, totaling at least 11 course credits beyond prereqs

Specific courses required *Neurobiology concentration* – MCDB 320; *Biotechnology concentration* – MCDB 370; *Quantitative Biology concentration* – MCDB 330

Distribution of courses *B.A.* – 2 core courses from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300); 2 electives numbered MCDB 250 or above (or 2 addtl core courses); 1 elective numbered MCDB 350 or above; 1 biology lab; *B.S. and B.S. intensive* – 3 core courses from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300); 2 electives numbered MCDB 250 or above (or 2 addtl core courses); 1 elective numbered MCDB 350 or above; 2 MCDB labs; *Biotechnology, Neurobiology, and Quantitative Biology concentrations* – same as *B.A.* and *B.S.* degree programs, with a specific req (MCDB 320, 330, or 370) and 1 addtl concentration-related elective in place of 2 general electives

Senior requirement *B.A.* – MCDB 475 taken in senior year, or senior essay; *B.S.* – 2 consecutive terms of independent research in senior year, MCDB 485, 486; *B.S., intensive major* – MCDB 495, 496 in senior year (each course is worth 2 credits)

CONCENTRATIONS

In addition to the requirements for the *B.A.* degree or the *B.S.* degree programs, students interested in pursuing a concentration (previously referred to as a track) within the MCDB major must complete one required course and one elective from the list of approved courses as indicated. The difference between the standard major and the concentrations is that the two required general electives are more specific for the various concentrations. The laboratory requirement, special elective (MCDB 350 and above) and the senior requirement are the same as those for the *B.A.* degree or the *B.S.* degree programs. No substitutions are provided for the concentrations.

NEUROBIOLOGY CONCENTRATION

The Neurobiology concentration requires MCDB 320 and one elective course from BENG 410, CPSC 475, MCDB 250, 310, 315, 361, 415, 425, 430, 440, PSYC 376, or S&DS 101. Students should note that PSYC 110 is a prerequisite for many psychology courses but does not substitute as an elective in the Neurobiology track. Students interested in the Neurobiology concentration should consult an adviser for the track.

Neurobiology concentration advisers

J. Carlson, 206 YSB (432-3541)
 D. Clark, C148 YSB (432-0750)
 T. Emonet, C169 YSB (432-3516)
 P. Forscher, 120 YSB (432-6344)
 H. Keshishian, 228 YSB (432-3478)
 M. O'Donnell, 110 YSB (436-1934)
 W. Zhong, 225 YSB (432-9233)

BIOTECHNOLOGY CONCENTRATION

The Biotechnology concentration requires MCDB 370 and one elective course from MB&B 420, 421, 443, BENG 351, 352, 410, 435, 457, 463, 464, CENG 210, 411, 412L, CPSC 437, 445, 470, or 475. Students interested in the Biotechnology concentration should consult an adviser for the track.

Biotechnology concentration advisers

R. Breaker, 311 YSB (432-9389)
 C. Crews, 250 YSB (432-9364)
 F. Isaacs, 141 YSB (432-3783)
 K. Nelson, 137 YSB (432-5013)
 J. Wolenski, C112 YSB (432-6912)

QUANTITATIVE BIOLOGY CONCENTRATION

The Quantitative Biology concentration requires MCDB 330 and one elective course from MCDB 320, 361, 461, BENG 463, 467, CPSC 440, 475, MB&B 302, 435, 452, 523, PHYS 402, MATH 246, 251, or CPSC 475, 440. Students interested in the Quantitative Biology concentration should consult an adviser for the track.

Quantitative Biology concentration advisers

D. Clark, C148 YSB (432-0750)
 T. Emonet, C169 YSB (432-3516)
 D. Kankel, 111 YSB (432-3532)

For a summary of the requirements, see the Overview page.

FACULTY OF THE DEPARTMENT OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY

Professors Ronald Breaker, John Carlson, †Lynn Cooley, Craig Crews, Stephen Dellaporta, Thierry Emonet, Paul Forscher, †Mark Hochstrasser, Scott Holley, Vivian Irish, †Akiko Iwasaki, Douglas Kankel, †Paula Kavathas, Haig Keshishian, Mark Mooseker, Thomas Pollard, Anna Pyle, Joel Rosenbaum, †Hugh Taylor

Associate Professors Damon Clark, Joshua Gendron, Valerie Horsley, Farren Isaacs, †Megan King, †Kathryn Miller-Jensen, Weimin Zhong

Assistant Professors Shirin Bahmanyar, David Breslow, Nadya Dimitrova, Stavroula Hatzios, Yannick Jacob, Binyam Mogessie, Sigrid Nachtergaele, Michael O'Donnell, Josien van Wolfswinkel, Jing Yan

Professor Adjunct Robert Bazell

Lecturers †Meghan Bathgate, †Alexia Belperron, Francine Carland, †Surjit Chandhoke, Iain Dawson, †Seth Guller, Amaleah Hartman, Ronit Kaufman, Rebecca LaCroix, Thomas Loreng, †Elizabeth Luoma, Maria Moreno, Kenneth Nelson, †Aruna Pawashe, Joseph Wolenski

†A secondary appointment with primary affiliation in another department or school.

Music

Director of undergraduate studies: Anna Zayaruznaya (anna.zayaruznaya@yale.edu); yalemusic.yale.edu

The Department of Music offers introductory and advanced instruction in the history of music, the theory of music, composition, music technology, and performance. The Music major provides a general music program in the humanities, as well as preparation for graduate studies or for music careers.

COURSES FOR NONMAJORS AND MAJORS

Introductory courses, numbered from 100 to 199, are open to all undergraduates and require no previous experience in music.

Qualified students, whether majoring in music or not, may offer up to four terms of instruction in performance for academic credit toward the 36-course-credit requirement for the bachelor's degree. Of these four course credits, only two may be applied to the major in Music. Auditions for lessons are held at the beginning of the fall term; students sign up at the School of Music auditions website. Students who audition for lessons are placed into one of three groups: (1) noncredit instruction for a fee; (2) lessons for academic credit at the intermediate level (MUSI 345), graded Pass/Fail; or (3) lessons for academic credit at the advanced level (MUSI 445), graded A–F. Only students with exceptional proficiency are placed into MUSI 445.

Students accepted for noncredit instruction are charged \$550 for ten hours of lessons per term or \$350 for six hours of lessons per term. The fees are added to the Student Financial Services bill and are not refundable after the first two weeks of lessons each term.

COURSE NUMBERING

Introductory courses are numbered from 100 to 199. Intermediate courses, numbered between 200 and 399, may require prerequisites or a familiarity with music notation. Advanced courses, numbered between 400 and 494, are intended for students who have completed intermediate courses in the relevant field. They are intended primarily for students majoring in music, but they may be elected by others who meet the stated prerequisites.

COREQUISITES AND LESSONS

Students taking MUSI 345 or 445 are required to enroll concurrently in a non-introductory music theory or music history course for two terms, or they must complete one term of the theory/history requirement before enrolling in MUSI 345 or 445 for the first time, and another before enrolling in MUSI 345 or 445 again. MUSI 345 is taken pass/fail; MUSI 445 and the corequisites are taken for a letter grade. Eligible corequisites include MUSI 110 or any course designated as Group I, III, or IV within the music major (i.e. courses numbered 200–219, 250–299, 300–319, 350–399, 400–419, 450–499).

PLACEMENT PROCEDURES

There is no longer a placement test for the music theory curriculum; instead we invite students to identify the right course for them by using our self-placement guide, and to consult with the course instructors.

REQUIREMENTS OF THE MAJOR

Thirteen courses are required, two intermediate courses and one advanced course in each of four groups, and the senior requirement. Group I (MUSI 200–219; 300–319; 400–419) includes music theory and technology courses focused on the materials and structures of musical works and repertoires. Group II (MUSI 220–249; 320–349; 420–449) includes composition, technology, and performance courses with a practical focus on techniques of artistic production. Group III (MUSI 250–274; 350–374; 450–474) includes lectures and seminars taking a research- and writing-based approach to the Western art-music tradition. Group IV (MUSI 275–299; 375–399; 475–494) includes lectures and seminars taking a research- and writing-based approach to popular or vernacular music or to music of non-Western traditions.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Each student majoring in Music must satisfy the senior requirement by completing a senior essay, composition, or recital in MUSI 496, 497, 498, or 499.

The standard major Students must submit a completed Senior Project Form to the director of undergraduate studies (DUS) by the end of the course selection period in the term during which the project will be completed. The Senior Project Form, available in the departmental office, includes a brief description of the project and a timeline for completion. The form must be signed by the project's primary and secondary advisers, at least one of whom is a member of the faculty of the Department of Music.

The intensive major The intensive major is for students of high standing who are qualified to do sustained independent and original work in music research or in composition. Students wishing to elect the intensive major must register for the senior project in the fall term of their senior year (MUSI 497–499). A plan for progress must be included in the project proposal at the beginning of the fall term, specifying a deliverable end-of-term product with approximately the same scope as a one-term senior project. Upon satisfactory completion of this work, a student may be admitted to the intensive major, which consists of a second term of registration for the senior project (MUSI 497–499). The additional course for the intensive major is supplementary to the thirteen term courses that constitute the standard major.

ADVISING

Simultaneous B.A./M.A. program Undergraduates with exceptionally strong preparation in music history or music theory may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. Students may not enroll in Yale College for more than eight terms to qualify for the simultaneous award of both degrees. Declared majors in Music may apply for the program until the last day of classes in their fifth term of enrollment, if they have completed at least two graduate courses in the Department of Music, at least one

numbered 700 or higher, with grades of B+ or above, and if their overall grade average is A– or above. Applicants must demonstrate progress toward proficiency in a foreign language examined by the Department of Music.

Students in the simultaneous program fulfill the requirements for the intensive major in Music. They also take eight graduate courses in the Department of Music, with average grades of B+ or higher and grades of A or A– in at least two of the courses. They satisfy the Yale College requirements for the program (see Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees”), and they pass a departmental examination in a modern foreign language.

B.A./M.M. program The Bachelor of Arts/Master of Music program is designed for students with outstanding abilities in performance who are also interested in a liberal arts education. Admission to the B.A./M.M. program is through acceptance into Yale College as well as a separate, successful audition through the School of Music, either before matriculation into Yale College or during the third year of the B.A. program. For details regarding the B.A./M.M. program, please consult the Yale School of Music online bulletin.

Students cannot accelerate the undergraduate program in the B.A./M.M. program.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 term courses numbered 200 or above (incl senior req)

Specific courses required None

Distribution of courses 2 intermediate courses and 1 advanced course from each Group I–IV

Senior requirement One-term senior essay, composition, or recital in MUSI 496–499

Intensive major Two-term senior essay or project in MUSI 497–499; additional course is supplementary to the thirteen course req

FACULTY OF THE DEPARTMENT OF MUSIC

Professors Kathryn Alexander (*Adjunct*), Richard Cohn, Daniel Harrison, Gundula Kreuzer, Richard Lalli (*Adjunct*), Ian Quinn (*Chair*), Gary Tomlinson, Michael Veal

Associate Professors Robert Holzer (*Adjunct*), Konrad Kaczmarek (*Adjunct*), Brian Kane, Markus Rathey (*Adjunct*), Braxton Shelley, Anna Zayaruznaya

Assistant Professors Ameera Nimjee, Jessica Pertiz, Lindsay Wright

Lecturers Phil Acimovic, Nathaniel Adam, Trevor Bača, Maiani da Silva, Daniel Egan, Grant Herreid, Annette Jolles, Sara Kohane, Ian MacMillen, Joshua Rosenblum, Wendy Sharp

Naval Science

Program adviser: Scott Ryan (scott.ryan@yale.edu), 55 Whitney Ave., 432-8223; nrotc.yalecollege.yale.edu

The Naval Reserve Officers Training Corps (NROTC) program educates young men and women for service as commissioned officers in the United States Navy (USN) or Marine Corps (USMC). NROTC develops future officers mentally, morally, and physically, and instills in them the highest ideals of duty and loyalty and the core values of honor, courage, and commitment. The Naval Science program prepares students to assume the highest responsibilities of command, citizenship, and government.

ACADEMIC REQUIREMENTS

The Naval Science curriculum includes courses on topics such as Navy and Marine Corps organization, at-sea navigation, leadership, naval history, amphibious warfare, engineering, and weapons systems. Courses emphasize development of professional knowledge and leadership skills, which are placed in the context of military service immediately following graduation from Yale College.

Students in the NROTC program enroll in one Naval Science course per term. Most Naval Science courses count for enrollment credit only; they do not count toward the thirty-six course credits required for the Yale bachelor's degree. NAVY 212 and NAVY 414 do count toward graduation credit. Some courses are required for both Navy and Marine option students, while others are specific to the branch of service. All NROTC students must also enroll in the Naval Science Laboratory each term.

Navy students must complete eight core curriculum courses offered by Yale College: two term courses in calculus to be completed by the sophomore year, two term courses in calculus-based physics (with laboratory) to be completed by the junior year, two term courses in English or equivalent writing courses, one term course in history or national security policy, and one term course in world culture or regional studies.

For Navy students, the usual sequence of Naval Science courses is:

First-Year	Sophomore	Junior	Senior
Introduction to Naval Science	Seapower & Maritime Affairs	Naval Engineering	Naval Operations
Navigation	Leadership & Management	Naval Systems	Leadership & Ethics

Marine students must complete three core curriculum courses offered by Yale College, including two term courses in English or equivalent writing courses, and one term course in history or national security policy.

For Marine Corps students, the usual sequence of Naval Science courses is:

First-Year	Sophomore	Junior	Senior
Introduction to Naval Science	Seapower & Maritime Affairs	Elective	Evolution of Warfare
Elective	Leadership & Management	Fundamentals of Maneuver Warfare	Leadership & Ethics

ADVISING AND APPLICATION TO THE PROGRAM

Application to the National Scholarship Program Eligible applicants must use the online application to complete and submit all the required information to apply for the NROTC scholarship. Applicants select either the Navy or Marine Corps option and scholarship recipients are appointed midshipmen in either the United States Naval Reserve (USNR) or United States Marine Corps Reserve (USMCR), as appropriate. Scholarship recipients are granted the compensation and benefits authorized by law and current policy for a total period not to exceed four years (forty months or fifty months with approved fifth year benefits). During this period, the United States government pays for college tuition, authorized academic fees, a textbook stipend, and a subsistence allowance, and provides uniforms or compensation in lieu. Upon conferral of a degree, graduates are commissioned into the Navy or Marine Corps for a minimum of five years of active duty service. Yale students who matriculate without a scholarship may apply for the National Scholarship program during the fall term of their first year.

Application to the College Program Students without a scholarship who are in their first or second year may apply for enrollment in the College Program and compete for two- or three-year scholarships. If selected for the two- or three-year Scholarship Program, students receive the same benefits as students in the National Scholarship Program for their remaining undergraduate studies. Upon conferral of a degree, graduates of the College Program are commissioned into the Navy or Marine Corps for a minimum of three years of active duty service. Yale students interested in the College Program may apply directly to the Yale University NROTC Unit.

FACULTY OF THE NAVAL SCIENCE PROGRAM

Professor Captain William Johnson, USN (*Adjunct*)

Lecturers Commander Scott Ryan, USN; Captain Ratsamy May, USMC; LT Ryan Buck, USN; LT Dale Pettenski, USN

Near Eastern Languages and Civilizations

Director of undergraduate studies: Kathryn Slanski
(kathryn.slanski@yale.edu); nelc.yale.edu

The major in Near Eastern Languages and Civilizations (NELC) explores the history and cultural traditions of the ancient, classical, and modern Middle East, including northeast Africa. Students acquire proficiency in languages and skills for interpreting literature, art, and material culture from ancient Egypt and Mesopotamia; late antiquity and Classical Islam; or the contemporary moment, explored through the modern languages of Arabic, Hebrew, Persian, and Turkish. Inherently interdisciplinary, the program emphasizes analytic and reflective learning.

While the Near East is studied for its own intrinsic literary, historic, and artistic interest, as well as its cultural and historical legacies, study of a world distant in time and space also can open new ways of understanding our own. NELC majors go on to careers in government, foreign service, international finance, law, education, and even medicine and public health. The major also provides a strong foundation for graduate study and academic research.

Languages offered include: modern Arabic, Hebrew, Persian, and Turkish (including Ottoman Turkish); Classical Arabic and Classical Persian; and ancient Assyrian & Babylonian, Egyptian, Old Persian, Syriac, and Sumerian. Students with experience in any of the modern languages must take a placement test at the beginning of the fall term. See the department website for details.

All modern languages, as well as ancient Assyrian & Babylonian, and Egyptian, are offered in multi-year sequences and can be taken to fulfill the foreign language requirement. The department also offers Advanced Language Certificates in Arabic, Hebrew, and Turkish; ancient Egyptian; and Persian and Iranian Studies. Many majors undertake intensive language study abroad during the summers, and the language faculty advises students on recommended programs.

COURSE NUMBERING

Courses numbered NELC 001–099 are first-year seminars, with enrollments capped at 18. Courses in the NELC 100–199 range are introductory lecture courses, and NELC 200–299 are seminars with enrollment capped at 18. These courses have no prerequisites and are designed for students of any background or major. Courses designated NELC 300–399 are more challenging courses and typically are seminars meeting once weekly. Numbers in the NELC 400–499 designate courses offered by visiting scholars or are courses related to the senior project.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses, including the senior requirement. Working with the director of undergraduate studies (DUS), students develop coherent programs of study in one of two concentrations.

Near Eastern Languages & Civilizations Concentration (Depth) This concentration is for students who wish to focus *in depth* on a particular language and/or civilization, such as *ancient* Egypt or Mesopotamia; the *classical* Near East or medieval Islam; or *modern* Near Eastern culture through research conducted in modern Arabic, Hebrew,

Persian, or Turkish. Contextualized through the study of literature, religion, art and archaeology, and history, this concentration enables students to study intensively a civilization of the Near East through in-depth study of one or two Near Eastern languages and written texts in their original languages.

Requirements to earn the depth concentration are 6 term courses in one or two Near Eastern languages; one NELC Foundations course; four NELC electives, chosen in consultation with the DUS (no more than two may be counted from other departments/programs); and the senior requirement (see below).

Near Eastern Languages, Civilizations, and Culture Concentration (Breadth) This concentration is suitable for students wishing to study the languages and civilizations of the Near East *more broadly*. It provides flexibility to study the Near East in its historical and cultural breadth, and to explore its long-lived civilizations over time or comparatively. Students in this concentration take a range of classes and, in consultation with the DUS, design their course of study according to their specific interests. Recent examples include ancient Near Eastern literature, philosophy in medieval Islam, memory and nostalgia in novels of a Soviet emigre to (the modern state of) Israel.

Requirements to earn the breadth concentration are four term courses in Near Eastern languages; two NELC Foundations courses; five NELC electives, including one on the ancient Near East, one on the medieval Near East, and one on the modern Middle East; and the senior essay (see below).

Near Eastern Languages and Civilization majors are encouraged to take related courses in other departments and programs to complement their interests and round out their intellectual formation. These typically include courses in Anthropology, Archaeology, Classics, Comparative Literature, Islamic Studies, Judaic Studies, History, History of Art, History of Science, Medicine and Public Health, Philosophy, and Religious Studies. Above all, complementary courses should be chosen according to the interests of the student and in consultation with the DUS or faculty adviser. If courses outside the department include substantial Near Eastern content and are relevant to the student's overall program of study, they may be approved at the discretion of the DUS toward the electives requirement for the major. No more than two courses taken from outside the department can be counted toward fulfilling the major.

Credit/D/Fail No more than one course taken Cr/D/Fail can be counted toward the major.

SENIOR REQUIREMENT

The senior requirement is an opportunity for students to design and execute an independent research project, bringing to bear their intellectual curiosity as well as philological and analytic skills honed during their time at Yale. It is also a chance to be mentored by a member of the faculty who serves as adviser to the project, which typically culminates in an essay of about 25–35 pages (one-semester project) or 45–55 pages (year-long project). Conversations about the senior project should begin with the DUS no later than fall of junior year, especially if the student plans to undertake summer research travel.

In rare occasions and *only* with advanced written agreement of the instructor and the DUS, a research paper for an upper-level seminar may be developed and expanded to satisfy the senior requirement. In such cases, the project must constitute work substantially beyond the requirements of the seminar paper.

Each year the DUS provides majors with resources, guidelines, and for juniors and seniors, a timetable of deadlines for both the one-semester and year-long senior project. In addition, the DUS leads a bimonthly seminar for seniors to present work on their senior project and to exchange feedback with their peers in a supportive environment.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (including the senior req)

Distribution of courses *Near Eastern Languages & Civilizations concentration (Depth)* – 6 term courses in 1 or 2 Near Eastern languages; 1 Foundations course; and 4 electives; *Near Eastern Languages, Civilizations, and Culture concentration (Breadth)* – 4 term courses of 1 or more Near Eastern language courses; 2 Foundations courses; 5 NELC electives to include 1 ancient, 1 medieval, and 1 modern

Senior requirement NELC 492 and/or NELC 493

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Near Eastern Languages and Civilizations offers a Certificate of Advanced Language Study in Ancient Egyptian, Arabic, Hebrew, and Turkish. A certificate adviser, typically the language program coordinator or the DUS, advises students on the certification process. The Certificate of Advanced Language Study, once completed, is listed on the student's transcript.

REQUIREMENTS FOR THE ARABIC, HEBREW, AND TURKISH CERTIFICATES

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With prior approval of the adviser, one advanced non-L5 Yale course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students are responsible for taking the necessary steps to ensure that those courses appear on their transcripts.

REQUIREMENTS FOR THE ANCIENT EGYPTIAN CERTIFICATE

Students seeking to earn the certificate are required to take four courses beyond the L3 level, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, an independent study language course, an advanced texts seminar, and/or a graduate seminar may count toward certification requirements. At the discretion of the certificate adviser, students may, with prior permission, substitute a maximum of two courses of credit-bearing academic study abroad.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of any of the certificates.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

Sarab Al Ani, Muhammad Aziz, Gojko Baramovic, John Darnell, Jonas Elbousty, Ozgen Felek, Benjamin Foster, Eckart Frahm, Shiri Goren, Agnete Lassen, Gregory Marouard, Jane Mikkelsen, Nadine Moeller, Randa Muhammed, Dina Roginsky, Farkhondeh Shayesteh, Kathryn Slanski, Shawkat Toorawa, Kevin Van Bladel, Klaus Wagensohnner, Harvey Weiss, Meryem Ezgi Yalcin, Orit Yeret

Neuroscience

Directors of undergraduate studies: Damon Clark (neuroscience.dus@yale.edu) (MCDB), YSB C148; Steve Chang (steve.chang@yale.edu) (Psychology), 100 College St.; neuroscience.yale.edu

Neuroscience aims to understand how the brain produces the mind and behavior, with the goal of advancing human understanding, improving physical and mental health, and optimizing performance. This entails a broad, interdisciplinary effort that spans from molecules to minds. At one end, biology, chemistry, and physics are improving our understanding of the molecular and cellular mechanisms of neuronal signaling and development. At the other end, psychology, psychiatry, and computer science link neural processes and systems to the mind and behavior. At all levels, the rich array of methods and data analysis depends on a strong foundation in the basic sciences, mathematics, statistics, and computer science.

PREREQUISITES

The foundational biology courses required of all Neuroscience majors are BIOL 101, 102, 103, and 104. All majors must also complete one of the following: PSYC 200, S&DS 103, 105, 230, 238.

PLACEMENT PROCEDURES

When declaring the major, students are encouraged to send a completed Neuroscience major worksheet to the department registrar (neuroscience.registrar@yale.edu) to help with advising. We encourage all majors to take the Human Brain (NSCI 160) and Neurobiology (NSCI 320) as early as possible since these courses provide foundations for the NSCI curriculum and independent research.

REQUIREMENTS OF THE MAJOR

A minimum of 18.5 credits is required, including the prerequisites (5 courses for 3 credits), 15 lecture or seminar courses (which include the senior requirement), and one laboratory, as follows:

1. Two Neuroscience foundation courses, NSCI 160 and 320.
2. One Neuroscience lab (YC NSCI: Neuroscience Lab) chosen from NSCI 228L, 229L, 240, 258, 260, 270, 321L; PSYC 238.
3. Eleven electives from the following core groupings. Students may search for approved courses using the attributes indicated in each core grouping. The complete list of approved courses can be found on the NSCI website.
 - minimum of 2 courses from *Systems/Circuits/Behavior Core* (YC NSCI: Systems/Circuit/Behav)
 - minimum of 2 courses from *Molecular/Cellular/Biological Core* (YC NSCI: Molecular/Cell/Biol)
 - minimum of 1 course from *Quantitative Core* (YC NSCI: Quantitative)
 - minimum of 1 course from *Computational Core* (YC NSCI: Computational)
 - minimum of 1 course from *Basic Allied Core* (YC NSCI: Basic Allied Core)
 - no more than 2 courses from *Other Allied Core* (YC NSCI: Other Allied)

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the major, including prerequisites.

SENIOR REQUIREMENT

In addition to the course requirements described above, all students must satisfy a senior requirement undertaken during the senior year. All students must fill out a checklist of requirements and go over it with the undergraduate registrar by the spring term of the junior year.

B.S. degree program The B.S. degree program requires two-course credits of empirical research, NSCI 490 and 491. These courses are only available to Neuroscience seniors and receive a letter grade. Students are expected to spend at least 10 hours per week in the laboratory, to complete written assignments, and to give a presentation. In addition to time in the lab, and as part of NSCI 490 and 491, students are expected to attend a semi-regular capstone seminar, hear guest speakers, and discuss senior work progress with their peers and the directors of undergraduate studies (DUSs.) Research can be conducted over original, archival, or consortium data sets. Written assignments include a short research plan due at the beginning of the fall term, a grant proposal due at the end of the fall term, and a final report due at the end of the spring term. Students should pursue the same research project for two terms, with the grant proposal guiding and serving as the background for the research and final report. Seniors are also required to present their research in the spring term at a poster session. Students should find a research laboratory during the term preceding the research. Yale College does not grant academic credit for summer research unless the student is enrolled in an independent research course in Yale Summer Session. To register for NSCI 490 and 491, students must submit a form and the research plan with a bibliography, approved by the faculty research adviser and a DUS, by the end of the first week of classes.

B.A. degree program The B.A. degree program requires two course credits in nonempirical research, NSCI 480 and 481; or one credit in nonempirical research, NSCI 480 or 481, and one credit in empirical research, NSCI 490 or 491. These courses are only open to Neuroscience seniors and receive a letter grade. Under faculty supervision, for NSCI 480 or 481, students are required to conduct original research for at least 10 hours per week that does not involve direct interaction with data, such as developing a theory or conducting a meta-analysis to synthesize existing findings. A literature review without novel intellectual contributions is not adequate. Written assignments include a short research plan due at the beginning of the fall term, a literature review or draft theoretical paper due at the end of the fall term, and a theoretical paper due at the end of the spring term. Seniors are also required to present their research in the spring term at a poster session. To register, students must submit a form and the research plan with a bibliography, approved by the faculty adviser and a DUS, by the end of the first week of classes.

More detailed guidelines, forms, and deadline information are available on the program website.

ADDITIONAL INFORMATION

Independent research courses before senior year. The only independent research courses available to students prior to senior year are NSCI 470, 471. These courses are

graded Pass/Fail and count toward the thirty-six credits required for the bachelor's degree, but they do not substitute for any NSCI major requirement, including the senior requirement. Independent research courses do not satisfy the lab requirement for the NSCI major. These courses are for non-Senior Neuroscience students only.

ADVISING

Due to overlap in the major course requirements, the Neuroscience major should not be combined with a second major in Molecular, Cellular and Developmental Biology or Psychology.

Program advisers Each term, students should update their Neuroscience major worksheet and then meet with their assigned faculty adviser to discuss their schedule and review their worksheet. These documents should then be submitted to the Neuroscience registrar for DUS review and approval. For questions concerning credits for courses taken at other institutions, or courses not listed in Yale Course Search, students should contact the Neuroscience registrar.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites BIOL 101, 102, 103, and 104; and one of PSYC 200, S&DS 103, 105, 230, 238

Number of courses 18.5 credits (including prereqs and senior req)

Specific courses required 2 neuroscience foundation courses, NSCI 160 and 320

Distribution of courses *B.S. or B.A.* — 1 lab course; 11 electives including at least: 2 Systems/Circuits/Behavior Core courses, 2 Molecular/Cellular/Biological Core courses, 1 Quantitative Core course, 1 Computational Core course, 1 Basic Allied Core course, and no more than 2 Other Allied Core courses

Senior requirement *B.S.* — 2 empirical research courses, NSCI 490 and 491; *B.A.* — 2 nonempirical research courses, NSCI 480 and 481, or 1 empirical research course (NSCI 490 or 491) and 1 nonempirical research course (NSCI 480 or 481)

FACULTY OF THE NEUROSCIENCE MAJOR

Professors †Amy Arnsten (*School of Medicine, Psychology*), Ty Cannon (*Psychology*), John Carlson (*Molecular, Cellular, and Developmental Biology*), Marvin Chun (*Psychology*), Damon Clark (*Molecular, Cellular, and Developmental Biology*), Thierry Emonet (*Molecular, Cellular, and Developmental Biology*), Paul Forscher (*Molecular, Cellular, and Developmental Biology*), Jutta Joormann (*Psychology*), Douglas Kankel (*Molecular, Cellular, and Developmental Biology*), Haig Keshishian (*Molecular, Cellular, and Developmental Biology*), †John Krystal (*School of Medicine, Psychology*), Rajit Manohar (*Electrical Engineering*), †Linda Mayes (*School of Medicine, Psychology*), Greg McCarthy (*Psychology*), Wendy Mendes (*Psychology*), Kia Nobre (*Psychology*), Laurie Santos (*Psychology*), †Dana Small (*School of Medicine, Psychology*), †Jane Taylor (*School of Medicine, Psychology*), Nick Turk-Browne (*Psychology*)

Associate Professors †Alan Anticevic (*School of Medicine, Psychology*), Arielle Baskin-Sommers (*Psychology*), Abhishek Bhattacharjee (*Computer Science*), †Sreeganga Chandra (*School of Medicine, Molecular, Cellular, and Developmental Biology*), Steve Chang (*Psychology*), †Philip Corlett (*School of Medicine, Psychology*), Dylan Gee

(*Psychology*), Smita Krishnaswamy (*Genetics*), †Ifat Levy (*School of Medicine, Psychology*), †James McPartland (*School of Medicine, Psychology*), Weimin Zhong (*Molecular, Cellular, and Developmental Biology*)

Assistant Professors Maria Gendron (*Psychology*), Julia Leonard (*Psychology*), Samuel McDougale (*Psychology*), Michael O'Donnell (*Molecular, Cellular, and Developmental Biology*), Priya Panda (*Electrical Engineering*), Robb Rutledge (*Psychology*), Ilker Yildirim (*Psychology*)

Lecturer Stephanie Lazzaro (*Psychology*)

†A joint appointment with a primary affiliation in another department or school.

Persian and Iranian Studies Certificate

Certificate director: Samuel Hodgkin (samuel.hodgkin@yale.edu)

This certificate recognizes the work of undergraduates who combine the study of Persian language and literature with a wider engagement with the art, philosophy, religion, history, politics, and culture of the Persian-speaking world. Students seeking to earn the certificate will develop a strong sense of community with peers interested in this area of study. These students will typically fall into three categories: 1) non-humanities majors (and pre-meds) with a strong interest in Persian and Iranian studies; 2) social science and humanities majors in non-NELC departments wishing to formalize their particular focus on Iran or Persian culture; and 3) Persian heritage students and students of Turkish, South Asian, Armenian, Central Asian, or other post-Persianate cultural backgrounds, for whom the certificate provides a way for them to explore their heritage.

REQUIREMENTS

Students must successfully complete 5 course credits and attend 3 events. Events include, but are not limited to Iran Colloquium lectures, sessions of Persian Circle, or screenings of Persian-language films by the language program. Students submit a 1–2 page write-up about each event to the certificate director. Events will be announced through the Certificate e-mail list and will appear on the CMES events calendar.

Courses are drawn from a list of approved courses and must be taken for a letter grade of B or above. The 5 required courses are divided between 3 content courses and 2 language courses. Courses that do not appear on the approved list may be approved by permission of the certificate director.

The content courses are concerned with the art, philosophy, religion, history, politics, and culture of the Persian-speaking world, and are identified by the attribute, YC: Persia & Iran Content, in Yale Course Search. Only two of the content courses should originate in the same department. Courses in premodern Iranian languages (e.g. Old Persian, Middle Persian, Soghdian) count as content courses. Many L5 courses are content-oriented and may count either as a content course or a language course.

To complete the language requirement, students must complete two courses in Persian language (L1–L5).

Graduate and professional school courses may count toward the certificate. No more than two course credits fulfilling the requirements of the Persian and Iranian Studies Certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Yale Course Search **Searchable Attribute:** YC: Persia & Iran Content

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The

form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits

Distribution of courses 3 content courses and 2 language courses

Additional requirements attendance of 3 events, and submission of a 1–2 page write-up for each

Philosophy

Director of undergraduate studies: Daniel Greco (daniel.greco@yale.edu); philosophy.yale.edu

The Philosophy major prepares students to reflect critically and creatively on questions concerning the nature of things, the scope and limits of human understanding, and the principles of value and right action. The aim of the major is to address these questions wherever they arise, whether in the philosophical tradition, in other disciplines and practices, or in everyday life. Our courses are designed to encourage depth in thinking, rigor in argument, clarity in writing and speaking, and the widest possible view of whatever subject matter we take up.

COURSES FOR NONMAJORS AND MAJORS

Introductory philosophy courses, numbered 001–099 are First-Year Seminars and are only open to first-year students. They have no prerequisites. Courses numbered 100–199 are open to all students and have no prerequisites.

COURSE NUMBERING

Courses numbered 001–199 are introductory and have no prerequisites. Courses numbered 200–299 are intermediate. Some have prerequisites; others do not, and may be taken as a student's first course in philosophy, though such a student should consult the instructor first. In general, it is a good idea to take a broadly based course in any area of philosophy before taking a specialized course. Courses numbered 300–499 are advanced, and are taught as limited enrollment seminars. These courses are intended primarily for juniors and seniors, though other students may be admitted with the instructor's permission. Undergraduates should be sure they have enough background to take such a course, including previous work in the same area of philosophy.

PREREQUISITES

Prerequisite to the standard major are two introductory or intermediate philosophy courses. Prerequisite to the concentration in psychology are two introductory or intermediate courses in philosophy or psychology.

REQUIREMENTS OF THE MAJOR

The Philosophy curriculum is divided into three broad groups: history of philosophy; metaphysics and epistemology; and ethics and value theory. The group in which a course belongs is indicated in Yale Course Search (YCS). This information is found in the "course information" section of each course listing. Students can search for courses satisfying a given group requirement in YCS by clicking the drop-down menu titled, "Any Course Information Attribute." See Searchable Attributes below.

The standard major requires twelve term courses (including the prerequisites and the senior requirement) that collectively expose students to a wide range of philosophy and philosophers. In history of philosophy, majors are required to take (1) either PHIL 125 and 126 or both terms of Directed Studies (DRST 003, 004), and (2) an additional, third course in history of philosophy. Majors are encouraged to take PHIL 125 and 126 as early as possible; these courses may be taken in either order. Majors must also complete two courses in metaphysics and epistemology, two courses in ethics and value theory, and a course in logic (such as PHIL 115), the last preferably by the fall of their

junior year. Majors must also take two advanced seminars at the 300+ level (either or both of which can be counted toward one of the group requirements) and satisfy the senior requirement as described below.

All courses in Philosophy count toward the twelve-course requirement. With approval from the director of undergraduate studies (DUS), courses offered by other departments may be counted toward the major requirements, though no more than two such courses will normally be allowed.

Specific regulations for the group requirements are as follows:

1. Some introductory courses do not count toward any group requirement.
2. Courses automatically count toward the group under which they are listed in Yale Course Search (YCS). In rare cases, a course will be designated as counting toward a second group, although no one course can be counted toward two group requirements. Students may petition to have a course count toward a group other than the one under which it is listed, though the presumption will be against such petitions.
3. Courses taken in other departments and applied to the major will not normally count toward a group requirement. Students may petition for credit toward a group requirement, though the presumption will be against such petitions.

The psychology concentration The psychology concentration is designed for students interested in both philosophy and psychology. Majors in the concentration must take seven courses in philosophy and five in psychology, for a total of twelve, including the prerequisites and senior requirement. The seven philosophy courses must include (1) two courses in the history of philosophy, usually PHIL 125 and 126 or DRST 003 and 004, (2) a course in logic, such as PHIL 115, preferably by the fall of the junior year, (3) two seminars, one of which may be in the Psychology department, with the approval of the DUS, and (4) at least two courses at the intermediate or advanced level that bear on the intersection of philosophy and psychology, at least one of which must be a philosophy seminar. Courses satisfying (4) must be approved by the DUS. The five psychology courses must include PSYC 110 or its equivalent. Each major must also satisfy the senior requirement as described below.

Credit/D/Fail At most one class taken Credit/D/Fail can count towards the philosophy major. Courses taken Credit/D/Fail cannot fulfill any specific distribution requirements within the major—they cannot fulfill the area requirements, or the seminar requirement, or the senior requirement, or (on the psychology track) the intersection requirement. But if all those requirements are fulfilled with classes taken for a letter grade, then one of the remaining 12 total credits may be fulfilled with a class taken Credit/D/Fail.

Searchable Attributes: YC Phil: Ethics & Value Theory, YC Phil: History of Philosophy, YC Phil: Metaphysics & Epistemol, YC Phil: Logic and YC Phil: Intersctn PSYC/PHIL

SENIOR REQUIREMENT

The senior requirement is normally satisfied by completing a third philosophy seminar. Students taking a seminar to satisfy the senior requirement are expected to produce work superior in argument and articulation to that of a standard seminar paper. To

this end, students taking a seminar for the senior requirement must satisfy additional requirements, which may include (1) additional readings, (2) submission of a complete draft of the final paper by the eighth week of the term that will then be significantly revised, and (3) one-on-one or small-group meetings with the instructor to discuss class material, the additional readings, and drafts in preparation. The specific nature of these additional requirements will vary from seminar to seminar. Students planning to satisfy the requirement with a third seminar should express that intention to the instructor at the beginning of the term, so the instructor can explain the work that will be required.

In special cases, students may meet the senior requirement through either a one-term or a two-term independent project supervised by an instructor (PHIL 490, 491). Students must petition to fulfill the senior requirement through an independent project, and approval is not guaranteed. Applicants must submit a proposal to the DUS, in consultation with an appropriate supervisor, by the end of the term prior to beginning the independent study.

ADVISING

By default, advising in the philosophy department is done by the DUS. Juniors have the option of selecting an alternative adviser – which should be done by the first of October in the junior year – but all seniors are advised by the DUS. The adviser aids students in choosing courses.

Other majors involving philosophy Majors in Mathematics and Philosophy and in Physics and Philosophy are also available. Students interested in philosophy and psychology should also consider the major in Cognitive Science.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Standard major* – 2 intro or intermediate phil courses; *Psychology concentration* – any 2 courses in phil or psych

Number of courses 12 term courses, incl prereqs and senior req

Specific courses required *Standard major* – PHIL 125 and 126, or DRST 003 and 004; *Psychology concentration* – PSYC 110 or equivalent

Distribution of courses *Standard major* – 3 courses in hist of phil (incl PHIL 125 and 126, or DRST 003 and 004), 2 in metaphysics and epistemology, 2 in ethics and value theory, and 1 in logic; 2 phil sems at 300+ level; *Psychology concentration* – 7 courses in phil, as specified; 5 courses in psych (incl PSYC 110)

Substitution permitted *Standard major* – 2 related courses in other depts, with DUS permission

Senior requirement a third sem in phil, or a one- or two-term independent project (PHIL 490, 491)

FACULTY OF THE DEPARTMENT OF PHILOSOPHY

Professors Stephen Darwall, Michael Della Rocca, Keith DeRose, Paul Franks, Tamar Gendler, Daniel Greco, Verity Harte, Brad Inwood, Shelly Kagan, Joshua Knobe, LA Paul, Thomas Pogge, Scott Shapiro, Sun-Joo Shin, Steven Smith, Jason Stanley, Zoltán Szabó, Kenneth Winkler, Gideon Yaffe

Associate Professors Robin Dembroff, John Pittard

Assistant Professors Claudia Dumitru, Lily Hu, Jacob McNulty

Physics

Director of undergraduate studies: Sarah Demers (sarah.demers@yale.edu), KT 417; physics.yale.edu/academics/undergraduate-studies

The overarching goal of the physics program is to train students—majors and nonmajors alike—to think like physicists, the hallmarks of which include: striving for fundamental explanations that have broad predictive power; appreciating that quantitative analysis is necessary for proper understanding; simplifying physical situations to their essentials to enable the development of mathematical models to explain and predict experimental data; and comparing experimental data from the natural world to theory.

To achieve this goal, we offer courses for physics majors who intend to further their study of physics or any STEM field in graduate school, as well as those physics majors who intend to go into law, consulting, financial services, technology industries, teaching, or any number of fields. Many students enroll in our introductory courses as a compulsory requirement of their STEM major; to satisfy a requirement for admission into medical school; or because they appreciate the quantitative training and intrinsic value offered by a basic understanding of modern physics. The director of undergraduate studies (DUS) can help students prepare for graduate school in physics by recommending appropriate electives to supplement the core courses. Research experience (PHYS 469, 470, 471, and 472) is an important aspect of preparing for graduate school.

The department offers two majors in Physics: the B.S. and the B.S. intensive major. Students in either program acquire advanced training in physics, mathematics, and related topics through the core courses. They use electives to design individualized programs with more depth or breadth, depending on their interests. Both degree programs require some research experience. PHYS 469 and PHYS 470, introductory research courses, are open to all students. Juniors and seniors, as part of the senior requirement, are required to enroll in PHYS 471 and 472—one term for the B.S. degree and two terms for the B.S. degree, intensive major. Combined majors are available in Mathematics and Physics, Astrophysics, Physics and Philosophy, and Physics and Geosciences.

COURSES FOR NONMAJORS AND MAJORS

A guide to selecting physics courses is available to aid in course selection. Questions about placement should be addressed to the DUS.

Introductory courses with no calculus requirement Physics courses numbered 120 or below are for students with little or no previous experience in physics who do not plan to major in the natural sciences. Many of these courses fulfill the science and/or quantitative reasoning distributional requirements. These courses have no college-level mathematics requirement and do not satisfy the medical school requirement.

Introductory calculus-based lecture sequences

1. PHYS 170, 171 is aimed at students who are interested in the biological sciences or medicine. Knowledge of differential and integral calculus at the level of MATH 112

- or equivalent is a prerequisite. MATH 115 or (preferably) MATH 116 should be taken concurrently with PHYS 171. PHYS 170 is a prerequisite for PHYS 171.
2. PHYS 180, 181 is aimed at students who plan to major in the physical sciences or engineering. Calculus at the level of MATH 112 is a prerequisite; MATH 115 and 120 should be taken concurrently. PHYS 180 or PHYS 200 is a prerequisite for PHYS 181.
 3. PHYS 200, 201 is aimed at students with a strong background in mathematics and physics who plan to major in the physical sciences. Calculus at the level of MATH 115 is presumed; MATH 120 and either MATH 222, 225, or 226, which are generally taken concurrently.
 4. PHYS 260, 261 is intended for students who have had excellent prior training in mathematics and a solid foundation in physics. One of MATH 120, ENAS 151, PHYS 301, or the equivalent should be taken concurrently with PHYS 260, 261. Students considering an alternative MATH course should check with the DUS in Physics.

Introductory laboratories Two different introductory laboratory sequences are offered: PHYS 165L, 166L, and PHYS 205L, 206L. Each of these laboratory courses earns one-half course credit. Students normally take the laboratory courses associated with the introductory physics sequence in which they are enrolled.

1. PHYS 165L, 166L is an introductory laboratory sequence aimed at students interested in engineering, the life sciences, and medicine. Related lecture courses are PHYS 170, 171, and PHYS 180, 181.
2. PHYS 205L, 206L is for students who plan to major in the physical sciences or engineering. Related lecture courses are PHYS 180, 181; PHYS 200, 201; and PHYS 260, 261. Students who take the lecture courses in their first year are advised to start this laboratory sequence with PHYS 205L in the spring of their first year or in the fall of sophomore year.

Advanced electives A series of 340-level electives explores special topics of interest to both majors and nonmajors. The electives are open to any student in Yale College who has completed a year of introductory calculus-based physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201; or PHYS 260, 261). Physics courses more advanced than PHYS 290 count as electives for the major.

PREREQUISITES

B.S. degree program The prerequisites include an introductory lecture course sequence with a mathematics sequence equivalent to, or more advanced than, the corequisite of the physics sequence. The following options are appropriate: PHYS 170, 171 with MATH 112, 115; or PHYS 180, 181 with MATH 115, 120; or PHYS 200, 201 with MATH 120 and either 222 or 225 or 226; or PHYS 260, 261 with MATH 120, ENAS 151, PHYS 301, or equivalent. In addition, the laboratory sequence PHYS 205L, 206L or PHYS 165L, 166L is required. Students who take these physics and mathematics courses starting in their first year may satisfy the prerequisites by the middle of their sophomore year. Students who begin taking physics courses in their sophomore year may also complete either the standard or the intensive major. Students are advised to take mathematics courses throughout their first year at the appropriate level.

B.S. degree program, intensive major The prerequisites for the B.S. degree with an intensive major are the same as for the standard program.

REQUIREMENTS OF THE MAJOR

B.S. degree program Eight courses are required beyond the prerequisites, including the senior project. Students must take a mathematics course at the level of, or more advanced than, PHYS 301. Three courses at the core of the major, PHYS 401, 402, and either PHYS 439 or 440, involve advanced study of fundamental topics common to all branches of physics. PHYS 401 and 402 pertain to advanced classical physics (mechanics, statistical physics and thermodynamics, and electromagnetism), while the third, PHYS 439 or 440 covers quantum mechanics. PHYS 401 must be taken before PHYS 402, 439, or 440.

Three advanced elective courses are also required. Suitable advanced courses are numbered higher than PHYS 290, such as the advanced laboratory PHYS 382L, and 400-level courses in Physics. Students may also find suitable advanced courses in other departments in the sciences, engineering, and mathematics. Courses taken to satisfy these requirements must be approved by the DUS. In order to pursue their individual interests in sufficient depth, many students choose to take more than the required number of advanced courses.

B.S. degree program, intensive major Ten courses are required beyond the prerequisites, including the senior project. Students must take a mathematics course at the level of, or more advanced than, PHYS 301. Five courses at the core of the major involve advanced study of fundamental topics common to all branches of physics. Three of the courses pertain to advanced classical physics: mechanics (PHYS 410), statistical physics and thermodynamics (PHYS 420), and electromagnetism (PHYS 430). Two other courses incorporate quantum mechanics (PHYS 440 and 441). Because the ideas build progressively: PHYS 410 must precede PHYS 440; PHYS 430 and 440 must precede PHYS 441, and PHYS 440 must also precede PHYS 420.

Because experiment is at the heart of the discipline, the intensive major requires one term of advanced laboratory (PHYS 382L or equivalent) and at least two terms of independent research (PHYS 471, 472 or equivalent). One advanced elective course is required to complete the program. Suitable advanced courses are more advanced than PHYS 290 and include 400-level courses in Physics. Students may also find suitable advanced courses in other departments in the sciences, engineering, and mathematics. Courses taken to satisfy these requirements must be approved by the DUS. In order to pursue their individual interests in sufficient depth, many students choose to take more than ten advanced courses.

Credit/D/Fail courses Courses taken Credit/D/Fail may not be counted toward the requirements of either major, including prerequisites.

SENIOR REQUIREMENT

B.S. degree program The senior requirement for the standard B.S. degree is fulfilled by receiving a passing grade on a one-term research project in PHYS 471 or 472 or equivalent. One enrollment of PHYS 471 or 472 taken at any time during junior or senior year counts as the senior requirement for the Physics major. Students should consult the DUS for further information.

B.S. degree program, intensive major The senior requirement for the intensive major is fulfilled by receiving a passing grade on a two-term research project in PHYS 471 or 472. Two enrollments of PHYS 471 or 472 taken at any time during junior or senior year counts as the senior requirement for the intensive Physics major. Students may take either PHYS 471 or 472 two times or they can take each course one time. Students should consult the DUS for further information.

ADVISING

All Physics majors in the sophomore, junior, and senior classes must have their programs approved by the DUS. First-year students and undeclared sophomores who are interested in Physics or related majors are encouraged to meet with the DUS to discuss their questions and proposed programs.

For both the standard B.S. degree and the B.S. degree with an intensive major, students are advised to begin the program in their first year to allow the greatest amount of flexibility in course selection. It is possible, however, to complete either program in a total of six terms, as illustrated below.

A program for a student completing the Physics B.S. in three years might be:

First-Year or Sophomore	Sophomore or Junior	Senior
PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261	PHYS 206L	PHYS 439 or PHYS 440
PHYS 205L	PHYS 301	PHYS 471 or 472
Mathematics corequisites	PHYS 401	Two advanced electives
	PHYS 402	
	One advanced elective	

A program for a student completing the intensive major in three years might be:

First-Year or Sophomore	Sophomore or Junior	Senior
PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261	PHYS 206L	PHYS 382L
PHYS 205L	PHYS 301	PHYS 420
Mathematics corequisites	PHYS 410	PHYS 441
	PHYS 430	PHYS 471
	PHYS 440	PHYS 472
		One advanced elective

SUMMARY OF MAJOR REQUIREMENTS

B.S. DEGREE

Prerequisites PHYS 170, 171 or PHYS 180, 181 or PHYS 200, 201 or PHYS 260, 261, with appropriate math coreqs, as indicated; PHYS 205L, 206L or PHYS 165L, 166L

Number of courses 8 term courses beyond prereqs (incl senior req)

Specific courses required PHYS 401, 402, and either PHYS 439 or 440, as indicated

Distribution of courses PHYS 301 or other advanced math course; 3 advanced electives approved by DUS

Senior requirement PHYS 471 or 472 or equivalent

B.S. DEGREE, INTENSIVE MAJOR

Prerequisites PHYS 170, 171 or PHYS 180, 181 or PHYS 200, 201 or PHYS 260, 261, with appropriate math coreqs, as indicated; PHYS 205L, 206L or PHYS 165L, 166L

Number of courses 10 term courses beyond prereqs (incl senior req)

Specific courses required PHYS 410, 440, 441, 420, 430, as indicated; PHYS 382L or equivalent

Distribution of courses PHYS 301 or other advanced math course; 1 advanced elective approved by DUS

Senior requirement Two terms of PHYS 471 or 472

FACULTY OF THE DEPARTMENT OF PHYSICS

Professors †Charles Ahn, Yoram Alhassid, Thomas Appelquist, †Charles Bailyn, O. Keith Baker, Charles Baltay (*Emeritus*), Sean Barrett, †Joerg Bewersdorf, Helen Caines, †Hui Cao, Richard Casten (*Emeritus*), †Paolo Coppi, Sarah Demers, †Michel Devoret, †Thierry Emonet, †Marla Geha, Steven Girvin, Larry Gladney, Leonid Glazman, Walter Goldberger, Jack Harris, John Harris (*Emeritus*), Karsten Heeger (*Chair*), †Victor Henrich (*Emeritus*), †Joe Howard, Francesco Iachello (*Emeritus*), †Sohrab Ismail-Beigi, Steve Lamoreaux, †Andre Levchenko, Reina Maruyama, Simon Mochrie, Vincent Moncrief, Daisuke Nagai, †Priyamvada Natarajan, †Andrew Neitzke, †Corey O'Hern, Peter Parker (*Emeritus*), †Daniel Prober, Nicholas Read, †Peter Schiffer, †Robert Schoelkopf, †John Schotland, Ramamurti Shankar, Witold Skiba, †A. Douglas Stone, †Hong Tang, Paul Tipton, C. Megan Urry, †Frank van den Bosch, †Pieter van Dokkum, †John Wettlaufer, Michael Zeller (*Emeritus*)

Associate Professors †Damon Clark, †Michael Murrell, Nikhil Padmanabhan, David Poland, †Peter Rakich, Alison Sweeney

Assistant Professors Charles Brown, Meng Cheng, †Yu He, Eduardo Higino da Silva Neto, Benjamin Machta, Owen Miller, David Moore, Ian Moulton, †John Murray, Nir Navon, Laura Newburgh, Shruti Puri, †Diana Qiu

Senior Lecturers Sidney Cahn, Adriane Steinacker

Lecturers Mehdi Ghiassi-Nejad, Adrian Gozar, Caitlin Hansen, Stephen Irons, Rona Ramos

†A joint appointment with primary affiliation in another department.

Physics and Geosciences

Directors of undergraduate studies: Sarah Demers (dus.physics@yale.edu) (Physics), 209 Thomas Mellon Evans Hall, 56 Hillhouse Ave., 432-9950; Pincelli Hull (pincelli.hull@yale.edu) (Earth and Planetary Sciences), 111 KGL, 432-3167

The major in Physics and Geosciences applies fundamental physical principles to the study of the Earth and other planetary bodies, synthesizing concepts and methods from both the Physics majors and the Earth and Planetary Sciences majors.

PREREQUISITES

The prerequisites for the major include MATH 120 or its equivalent, PHYS 170, 171 or another introductory physics sequence, the associated physics laboratory sequence PHYS 205L, 206L, and a course in ordinary differential equations chosen from ENAS 194, MATH 246, or PHYS 301.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, the major requires twelve term courses (13 term courses if the EPS introductory course has an accompanying laboratory), including the senior project. At least four of these courses must be in Physics and at least six must be in Earth and Planetary Sciences. Students complete a two- or three-term advanced physics sequence: either PHYS 401 and 402, or PHYS 410, 420, and 430. They must also take basic quantum mechanics (PHYS 439 or PHYS 440) and one elective numbered PHYS 290 or above. Relevant classes in related departments may be substituted with the permission of the DUS in Physics. Required courses in Earth and Planetary Sciences include one introductory course numbered EPS 100–140, with any accompanying laboratory; one elective numbered EPS 200 or above; and four advanced electives from one of two EPS tracks: the Atmosphere, Ocean, and Climate track or the Solid Earth Science track. Relevant classes in related departments may be substituted with the permission of the DUS in Earth and Planetary Sciences. No elective course may count toward multiple requirements for the major.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Physics and Geosciences major, including prerequisites.

SENIOR REQUIREMENT

Students complete a two-term senior project on a topic that is appropriate for the combined major and acceptable to both the Physics and the Earth and Planetary Sciences departments. The project is undertaken in either PHYS 471, 472 or EPS 490, 491. In addition, students must present an oral report on their project to each department.

ADVISING

Interested students should consult the directors of undergraduate studies (DUSs) in Physics and in Earth and Planetary Sciences.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or equivalent; PHYS 170, 171 or above; PHYS 205L, 206L; 1 of ENAS 194, MATH 246, or PHYS 301

Number of courses At least 12 courses beyond prereqs, incl senior req

Specific courses required PHYS 401 and 402, or PHYS 410, 420, and 430; PHYS 439 or PHYS 440

Distribution of courses 1 elective numbered PHYS 290 or above; 1 intro course in EPS, with lab, as specified; 1 elective course numbered EPS 200 or above; 4 advanced courses in an EPS track, as specified

Substitution permitted Courses in related departments for PHYS elective and EPS electives with DUS permission

Senior requirement Senior project in PHYS 471, 472 or EPS 490, 491, on topic acceptable to both depts; oral report on project to both depts or equivalent

Physics and Philosophy

Directors of undergraduate studies: Sarah Demers
(sarah.demers@yale.edu) (Physics), Daniel Greco
(daniel.greco@yale.edu) (Philosophy)

PREREQUISITES

Prospective majors in Physics and Philosophy are advised to begin taking the prerequisites during their first year, and to take at least two of the required philosophy courses by the end of their sophomore year. Prerequisites for this major are as follows: mathematics through calculus at the level of MATH 120; any introductory physics lecture sequence numbered 170 or higher; PHYS 165L and 166L, or PHYS 205L and 206L.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, students take fourteen term courses, including the senior requirement. Seven courses in physics approved by the director of undergraduate studies (DUS) and numbered 295 or higher are required, including PHYS 301 or equivalent and either PHYS 439 or 440. Six courses in Philosophy or in History of Science, Medicine, and Public Health are required, including PHIL 125 and 126, one course in logic above the introductory level, and a philosophy seminar selected with the approval of the DUSs.

SENIOR REQUIREMENT

B.S. degree program Seniors must complete PHYS 471 and/or 472, only one of which may count toward the seven required physics courses.

B.A. degree program Seniors must complete one of the following: (1) PHIL 490 or 491 (senior essay); (2) PHIL 480 (tutorial) on an appropriate subject; (3) an appropriate philosophy seminar with the approval of the DUS in Philosophy.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120; PHYS 170, 171, or higher; PHYS 165L, 166L, or PHYS 205L, 206L

Number of courses 14 term courses beyond prereqs, incl senior req

Specific courses required PHYS 301 or equivalent; PHYS 439 or 440; PHIL 125, 126

Distribution of courses 7 physics courses numbered 295 or higher approved by DUS; 6 courses in PHIL or HSHM, incl 1 in logic above intro level and a PHIL sem, as specified

Senior requirement *B.S.* — PHYS 471 and/or 472 (only one of which may count toward the 7 required physics courses); *B.A.* — PHIL 490 or 491, PHIL 480 on appropriate topic, or approved PHIL sem

Political Science

Directors of undergraduate studies: Andrea Aldrich (andrea.aldrich@yale.edu) [Fall 2024]; 115 Prospect St., 432-5236; politicalscience.yale.edu

Political science addresses how individuals and groups organize, allocate, and challenge the power to make collective decisions involving public issues. The goal of the major is to enable students to think critically and analytically about the agents, incentives, and institutions that shape political phenomena within human society. The subfields of political philosophy and analytical political theory (which includes the study of both qualitative and quantitative methodology) support the acquisition of the lenses through which such thought skills can be enriched. The subfields of American government, comparative politics, and international relations, in turn, allow students to reinforce and refine those skills, while also promoting their application to a wide variety of contexts, whether contemporary or historical. Students may also construct interdisciplinary curricula, which allows them to apply the approaches of the discipline to a topic for which a more complete understanding also involves approaches gleaned from other disciplines.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2022–2023, may be fulfilled by students who declared the major in a prior term.

Students following the standard B.A. degree program must take twelve term courses. These courses include: at least two introductory courses (i.e. bearing numbers between 101 and 119); at least one course designated as belonging to the methodology and formal theory subfield; at least two non-introductory lectures designated as “core”; at least two classes in each of any two of the department’s subfields (other than methodology and formal theory)—international relations, American government, political philosophy, and comparative politics; at least two seminars, including at least one during their senior year.

All students, regardless of their graduating year, may also take courses related to political science that are offered by other departments. Students who elect the standard program may petition to count up to two such courses toward the major. Students may routinely count Residential College Seminars taught by members of the Political Science faculty toward the major, and they may petition to count one Residential College Seminar taught by an instructor outside the department. Students who have completed Directed Studies may, with the approval of the DUS, count one term of DRST 005 or DRST 006 toward the major.

Students following the standard B.A. degree program, interdisciplinary concentration are allowed to identify and pursue an area of study that crosses conventional disciplinary and departmental boundaries. Examples of interdisciplinary concentrations include (but are not limited to) urban studies, health politics and policy, political economy, political psychology, or a focus on the politics of a given global region informed by the study of the history and society of that region. Students choosing an interdisciplinary concentration are required to take twelve term courses

toward the major. At least seven courses must be in the field of concentration. Of the courses counting toward the major outside of the field of concentration, at least two courses must be taken in each of any two of the department's five fields. As many as three courses taken in other departments may be counted toward the major, with the permission of the DUS. *Note:* students who choose the interdisciplinary concentration must fulfill the introductory course requirement, the core lecture requirement, the methodology and formal theory subfield requirement, and the seminar requirement as described for the standard degree program.

Students wishing to pursue the Political Science major with an interdisciplinary concentration must submit an application, which is due prior to the beginning of the November recess in the student's final year of enrollment. Students should also meet with the DUS to discuss their proposed program of study in their sophomore or junior year.

The intensive major The intensive major gives students an opportunity to undertake more extensive coursework and research for the senior essay than is possible in the standard major. Requirements for the intensive major are identical to those for the standard program or interdisciplinary concentration, with the following exceptions: (1) in the spring term of the junior year, intensive majors take PLSC 474 in preparation for writing a yearlong senior essay; (2) in the senior year, intensive majors fulfill the senior essay requirement by enrolling in the yearlong course sequence PLSC 490 and PLSC 493 (PLSC 490 also counts toward the senior seminar requirement); (3) a total of fifteen term courses is required.

Juniors wishing to pursue an intensive major must apply to the DUS. The application should contain: (1) the intensive major application form signed by a faculty adviser who has agreed to supervise the student for the final three terms of enrollment; (2) a plan of study that identifies the political science courses that will be taken in those three terms; and (3) a one-page description of the proposed senior essay.

Seminar requirement Students majoring in Political Science are required to take at least two seminars taught by members of the Political Science department, including at least one during the senior year.

Credit/D/Fail Students may count up to two lecture courses taken Credit/D/Fail toward the major, which will count as non-A grades for purposes of calculating Distinction in the Major. Seminars taken Credit/D/F will not count toward the major requirements, but will count as non-A grades for purposes of calculating Distinction in the Major.

SENIOR REQUIREMENT

Seniors in the major must complete a senior essay. The essay can be written either in one term or over both terms of the senior year. In order to graduate from Yale College, a student majoring in Political Science must achieve a passing grade on the senior essay. The senior requirement for the standard B.A. degree program with an interdisciplinary concentration is the same as for the standard program, with the provision that the essay must be written on a subject that falls within the field of concentration.

Senior essay The senior essay provides an appropriate intellectual culmination to the student's work in the major and in Yale College. The essay should ordinarily be written

on a topic in an area in which the student has previously done coursework, and an effort should be made to demonstrate how the student's work relates to broader topics, issues, and approaches within the discipline of political science. It should rest on research that is appropriate to the subject matter, and should reflect an awareness of how the student's topic is connected to previous work within the discipline of political science. Essays are expected to be in the range of 25–30 double-spaced pages. At the beginning of the term in which the essay is written, students must have their senior essay topic approved by a faculty member who has agreed to advise them. Each student is expected to consult regularly with the seminar instructor or adviser and take the initiative in developing a plan of research, scheduling regular meetings, and submitting preliminary drafts for review.

One-term essays may be written either in a seminar or, with the approval of an adviser and the DUS, in PLSC 480. More extensive information about the senior essay can be found on the department website.

Yearlong senior essay Students who wish to undertake a more extensive research project than is possible in a single term may fulfill the senior essay requirement by enrolling in the yearlong course sequence PLSC 490 and 491. Both classes are offered in both terms, but must be taken in order. PLSC 490 also counts toward the senior seminar requirement. In the first term, students writing a yearlong senior essay develop a research prospectus for the essay and begin their research under the supervision of a member of the faculty who specializes in the area being investigated. In the second term, students complete the essay. Yearlong senior essays are expected to be substantially longer than a regular term paper. While there is no fixed length, they are normally at least fifty pages long.

Majors who wish to enroll in the yearlong senior essay must apply for admission in their junior year. By the appropriate date, students should submit to the office of the DUS: (1) the yearlong senior essay prospectus form signed by a faculty adviser who has agreed to supervise the student during both terms of the senior year; and (2) a one-page statement describing the research project. Due to space constraints in PLSC 490, it is expected that no more than fifteen students will be admitted each term.

Students graduating in spring 2026 and subsequent classes have the option of choosing an honors track or a non-honors track. Senior essays of students seeking to fulfill the honors requirements may be either semester-long or year-long. Honors will be awarded to students who meet the standard for honors on their senior essay (as determined by a second reader appointed by the director of undergraduate studies) and who meet certain standards of achievement across graded coursework in the major as determined by the chair, the DUS, and the faculty. Senior essays of students not seeking to fulfill the honors requirements must be written within a seminar and will not be assigned to a second reader.

ADVISING

The DUS and other members of the department can provide advice about departmental requirements, options within the major, requirements of two majors, study abroad, and other matters related to the major. Majors must secure written approval of their course selections each term from the DUS. All subsequent changes in a student's major program must also be approved. Although advisers (beyond the DUS and the senior

essay adviser) are not formally assigned, students are encouraged to seek advice from other department faculty members who are knowledgeable about their fields of interest. Information on faculty interests can be found on the department website.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Political Science.

STUDY ABROAD

Students who study in a junior term abroad program or at another university during the summer may, with the approval of the DUS, count up to two courses toward the major. Students who study in a junior year abroad program may, with the approval of the DUS, count up to four courses toward the major. Students may also petition to have non-Yale courses that were not taught in political science departments count toward the major. Pending approval of the DUS, these courses will count toward the maximum number of substitutions.

SUMMARY OF MAJOR REQUIREMENTS

B.A. DEGREE, STANDARD PROGRAM

Prerequisites None

Number of courses *Standard major*—12 term courses; *intensive major*—15 term courses

Distribution of courses 2 intro courses; 2 core lectures; 2 seminars (1 in senior year); 1 course in methodology and formal theory subfield; 2 courses in each of any two subfields (excluding methodology and formal theory subfield)

Substitution permitted 2 courses from other depts with DUS approval

Senior requirement 1-term senior essay in sem or in PLSC 480; or 2-term senior essay in PLSC 490, 491

Intensive major 1 addtl elective; PLSC 474 in spring term of junior year; 2-term senior essay in PLSC 490, 493

B.A. DEGREE, INTERDISCIPLINARY CONCENTRATION

Prerequisites None

Number of courses *Standard major with interdisciplinary concentration*—12 term courses; *intensive major with interdisciplinary concentration*—15 term courses

Distribution of courses 7 courses in concentration: 2 intro courses; 2 core lectures; 2 seminars (1 in senior year); 1 course in methodology and formal theory subfield; outside of concentration: 2 courses in each of any two subfields

Substitution permitted 3 courses from other depts with DUS approval (2 courses from other depts with DUS approval for intensive major)

Senior requirement 1-term senior essay in sem or in PLSC 480; or 2-term senior essay in PLSC 490, 491; both options on subject within concentration

Intensive major 1 addtl elective; PLSC 474 in spring term of junior year; 2-term senior essay in PLSC 490, 493 on subject within concentration

FACULTY OF THE DEPARTMENT OF POLITICAL SCIENCE

Professors Bruce Ackerman, Akhil Amar, Seyla Benhabib (*Emeritus*), Paul Bracken, David Cameron (*Emeritus*), Benjamin Cashore, Bryan Garsten, Alan Gerber, Jacob Hacker, Oona Hathaway, Daniel HoSang, Gregory Huber, Isabela Mares, David Mayhew (*Emeritus*), Gerard Padro i Miquel, Doug Rae (*Emeritus*), John Roemer, Susan Rose-Ackerman (*Emeritus*), Frances McCall Rosenbluth, Bruce Russett (*Emeritus*), Kenneth Scheve, James Scott (*Emeritus*), Jasjeet Sekhon, Ian Shapiro, Stephen Skowronek, Steven Smith, Milan Svolik, Peter Swenson, Edward Tufte (*Emeritus*), Ebonya Washington, Steven Wilkinson, Elisabeth Wood

Associate Professors Peter Aronow, Katharine Baldwin, Sarah Bush, Ana De La O, Alexandre Debs, H       Landemore, Nuno Monteiro, Kelly Rader

Assistant Professors Alexander Coppock, Allison Harris, John Henderson, Joshua Kalla, Sarah Khan, Christina Kinane, Egor Lazarev, Daniel Mattingly, Salma Mousa, Elizabeth Nugent, Giulia Oskian, Tyler Pratt, Didac Queral, Lucia Rubinelli, Fredrik S      , Emily Sellars, Ian Turner

Senior Lecturers Boris Kapustin, Stephen Latham, David Simon

Lecturers Elizabeth Acorn, Andrea Aldrich, Paris Aslanidis, Leanna Barlow, Scott Bokemper, Federico Brandmayr, Andrew Bridy, Greg Collins, John Dearborn, John DeStefano, Amir Fairdosi, Michael Fotos, Karen Goodrow, Thomas Graham, Maria Jose Hierro, Jane Karr, Robin Landis, Mordechai Levy-Eichel, Joanne Lipman, Nicholas Lotito, Itumeleng Makgetla, Renata Mustafina, Nilakshi Parndigamage, Tiago Peterlevitz, Joan Ricart-Huguet, Alexander Rosas, Vishvini Sakthivel, Walter Shapiro, Gordon Silverstein, Daniel Tavana, Bonnie Weir, Jacob Weisberg, Graeme Wood, Lauren Young

Portuguese

Director of undergraduate studies: Kenneth David Jackson
(k.jackson@yale.edu); span-port.yale.edu

Portuguese is taught at Yale as part of the Department of Spanish and Portuguese.

The major in Portuguese is a liberal arts major intended to develop competence in the Portuguese language and to provide students with a comprehensive knowledge of the literatures and cultures of Portugal, Brazil, and African and Asian lands of Portuguese language or influence.

PREREQUISITE

Students begin the study of Portuguese with PORT 110, 125, or S112. After two years of Portuguese language study, or equivalent, students have sufficient proficiency to take advanced courses in Luso-Brazilian literature and culture.

The prerequisite for the major is PORT 130 or the equivalent.

PLACEMENT PROCEDURES

All students who have not yet taken Portuguese at Yale are expected to take the departmental placement test, with the exception of students who have no previous knowledge of Portuguese whatsoever. The departmental placement test covers reading, writing, speaking, and listening skills. See the department website for placement test times and details.

REQUIREMENTS OF THE MAJOR

The requirements of the Portuguese major consist of ten term courses beyond the prerequisite. Students must take at least five term courses in the literatures or cultures of the Portuguese world. In completing their programs, students may elect up to four courses in other languages and literatures, anthropology, history, or history of art, or from study abroad, that are related to their field of study and approved by the director of undergraduate studies (DUS).

SENIOR REQUIREMENT

All majors must present a senior essay. The essay is written in PORT 491 and/or 492. A maximum of two credits counts toward the major.

ADVISING

Juniors and seniors majoring in Portuguese may, with the permission of the instructor and the director of graduate studies, enroll in graduate courses in Portuguese.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite PORT 130 or equivalent

Number of courses 10 term courses beyond prereq (incl senior essay course)

Distribution of courses At least five term courses in literatures or cultures of the Portuguese world

Substitution permitted With DUS permission, up to 4 relevant courses from other depts or from study abroad

Senior requirement Senior essay (PORT 491 and/or 492)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

Certificate Director: Kenneth David Jackson (k.jackson@yale.edu)

The Department of Spanish and Portuguese offers a Certificate of Advanced Language Study in Portuguese. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses, all beyond the L4 level in Portuguese, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in Portuguese, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The adviser may approve the substitution of one credit earned as part of a Yale or Yale-designated study abroad program and taught in Portuguese to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF SPANISH AND PORTUGUESE

Professors Santiago Acosta, Aníbal González, K. David Jackson, Nicholas R. Jones, Noël Valis, Jesús R. Velasco, Lisa Voigt

Senior Lectors II Sybil Alexandrov, Jorge Méndez-Seijas, Margherita Tortora

Senior Lectors I María Pilar Asensio-Manrique, Carolina Baffi, María José Gutiérrez Barajas, Mercedes Carreras, Sebastián Díaz, María de la Paz García, María Jordán, Rosamaría León, Luna Nájera, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Terry Seymour, Giseli Tordin, María M. Vázquez

Lectors Sarah Glenski, Mayte López, Ian Russell, Noelia Sánchez-Walker, Torin Spangler

Psychology

Director of undergraduate studies: Dylan Gee (dylan.gee@yale.edu); psychology.yale.edu

Psychology is the scientific study of the mind, the brain, and human behavior. The Psychology department offers coursework and research opportunities in the fields of clinical, cognitive, developmental, neuroscientific, and social psychology. By studying psychology, students better understand human behavior, including who we are, how we do the things we do, and how we enhance our lives and society. The Psychology major provides a foundation for careers in education and research; law; medicine and public health; politics and public policy; and in business fields such as marketing, finance, and management.

COURSE NUMBERING

Courses in the department are organized so that they are best taken in several parallel sequences. Courses numbered 120–190 and ending in a zero are core survey courses that introduce students to major areas of psychology and provide additional background for more advanced courses. These courses represent major content areas of psychology; students should sample broadly from them before specializing. Courses numbered from 200–209 focus on statistics. Courses numbered 210–299 teach general methodology or data collection in various areas of psychology. Courses numbered from 300–399 are more advanced courses in a particular specialization. Senior seminars, whose enrollment is limited to no more than twenty students, are numbered from 400–489. These seminars are best taken once a student has the appropriate background. Courses numbered from 490–499 are special tutorial courses that require permission of the adviser and the director of undergraduate studies (DUS).

PREREQUISITE

PSYC 110, a general survey course, is a prerequisite to several 100-level and all 200-level and above courses. This prerequisite may alternatively be satisfied by a score of 5 on the Psychology Advanced Placement test or a score of 7 on the IB Psychology exam.

REQUIREMENTS OF THE MAJOR

Standard major The standard major in Psychology for both the B.A. degree program and the B.S. degree program requires twelve credits beyond PSYC 110, including the senior requirement. The difference between the B.A. and the B.S. degree programs is the senior requirement (see below).

1. Because psychology is so diverse a subject, every student is required to take two courses from the social science point of view in psychology and two from the natural science point of view in psychology. Listed below are examples of courses that fulfill these requirements. A complete list of courses, updated each term, may be found on Yale Course Search (YCS) by searching “Any Course Information Attribute.” At least one from each group must be a course designated as Core in the course listings and below. Students are expected to take their two core courses as early as possible in the major, normally within two terms after declaring their major.

Social science core (YC PSYC: Social Science Core): PSYC 140, 150, 180

Social science: Search YCS for courses with the YC PSYC: Social Science designation

Natural science core (YC PSYC: Natural Science Core): PSYC 130, 160

Natural science: Search YCS for courses with the YC PSYC: Natural Science designation.

2. Because statistical techniques and the mode of reasoning they employ are fundamental in psychology, a course in statistics (PSYC 200) is required, preferably prior to the senior year. A student may substitute S&DS 103 for PSYC 200 or may substitute an examination arranged with the instructor of PSYC 200 for the course requirement. Students may take the examination only one time, and an additional psychology course should be taken if the examination substitutes for PSYC 200. A student who has taken S&DS 103 may not take PSYC 200 for credit. If approved in advance by the DUS, a second course in statistics that focuses on advanced statistical techniques relevant for research in psychology can be counted towards the major as a PSYC elective.
3. To ensure some direct experience in collecting and analyzing data, students must elect at least one research methods course, preferably before the senior year, in which research is planned and carried out. For students pursuing the BS degree, this course **must** be taken prior to the senior year. Courses numbered between 210–299 fulfill this research methods requirement.
4. Students may, with permission of the DUS, count up to three term courses in other related departments toward the major. Appropriate courses are rare and only approved when the course has substantial empirical psychology content. Students should consult with the DUS in Psychology about selecting outside courses and should not assume that a course will count prior to that consultation. Getting this approval in advance is highly recommended.

Students interested in research are encouraged to take an independent study course (PSYC 493) as early as the sophomore year. Students may also take PSYC 495 for one-half course credit of independent research per term with prior permission of the faculty adviser and the DUS (this course is often taken twice in sequence). To obtain permission, follow the instructions on the department website to fill out the enrollment survey and then add the class normally, being sure to request instructor permission. This process must be completed at least one week before the end of the add/drop period for a given semester. These independent study courses are graded P/F. No more than a total of three credits from PSYC 490–499 combined may count toward the major.

Neuroscience concentration Students with a major interest in neuroscience may wish to elect the neuroscience concentration. Such students are considered Psychology majors for whom the requirements have been modified to accommodate their interests and to reflect the multidisciplinary nature of modern neuroscience and psychology. Given the broad nature of the field of neuroscience, students may wish to concentrate their studies in one area of the field (e.g., behavioral, cellular and molecular, cognitive, affective, social, clinical, or developmental). Interested students are encouraged to contact the concentration adviser, Steve Chang (steve.chang@yale.edu). Majors in

the neuroscience concentration must check in with the concentration adviser at the beginning of each term in their junior and senior years.

Requirements for the neuroscience concentration are the same as for the standard major, with the additional requirements listed below. A complete list of courses, updated each term, may be found on Yale Course Search (YCS) by searching "Any Course Information Attribute."

1. Two terms of introductory biology are required for the major, BIOL 101–104. Students who have scored 5 on the Advanced Placement test in Biology or scored 7 on the IB Biology exam may place out of these courses.
2. Students must take PSYC 160 and a data-collection course (YC PSYC: NSCI Track RsrchMthds) chosen from PSYC 230, 238, 250, 258 or 270. PSYC 229L, 260, or MCDB 320 may substitute for the PSYC 160 requirement, or MCDB 320 and 321L may substitute for PSYC 229L or 260, but not both. If MCDB 320 is substituted for a Psychology course, it cannot be counted as one of the two advanced science courses outside the department (see item 4 below).
3. As required for the standard major, students in the neuroscience concentration must take two social science courses, at least one of which must be designated as Core in the course listings. Students in the neuroscience concentration must also take a course from the natural science list in addition to the courses specified in item 2 above.
4. At least two advanced science courses (YC PSYC: NSCI Track Adv Scie) must be chosen from Molecular, Cellular, and Developmental Biology and Ecology and Evolutionary Biology courses numbered 200 and above that deal with human and/or animal biology; recommended courses include MCDB 200, 202, 205, 210, 250, 300, 315, 320, E&EB 220, 225, and 240. Certain courses outside of these departments may also meet the advanced science requirement, including BENG 350, 421, CPSC 475, MB&B 300, 301, 420, 435, 443, 452, MATH 222, 225, 230, 231, and 241. Other courses may qualify for this requirement with permission of the neuroscience concentration adviser. Laboratory courses do not count toward the advanced science requirement. Students should note that many advanced science courses have prerequisites that must be taken first.

Credit/D/Fail No more than two term courses taken Credit/D/Fail may be applied toward the major; no 200-level course, or course taken to satisfy a 200-level requirement (e.g. S&DS 103), can be taken Credit/D/Fail and then applied toward the major.

Searchable attributes YC PSYC: Social Science Core, YC PSYC Social Science, YC PSYC: Natural Science Core, YC PSYC: Natural Science, YC PSYC: NSCI Track RsrchMthds, YC PSYC: NSCI Track Adv Scie, YC PSYC: NSCI Track Senior Sem

SENIOR REQUIREMENT

Standard major Majors are required to earn two course credits from courses numbered PSYC 400–499. At least one of these courses (excluding PSYC 490–495, which can only be taken P/F) must be taken during the senior year, for which a student must write a substantial final paper (a minimum of 5,000 words) and receive a letter grade. The B.A. degree is typically awarded to students who conduct a nonempirical

literature review during senior year. There are no restrictions in the research format for the B.A. The B.S. degree is awarded to students who conduct empirical research through PSYC 499 during senior year. An empirical research project normally includes designing an experiment and collecting and analyzing the data. Students pursuing the B.S. degree will want to identify a faculty advisor well in advance of the semester in which they intend to complete their senior essay, and they may want to seek research experiences with that faculty member prior to the senior year.

Neuroscience concentration The senior requirement for the neuroscience concentration is the same as for the standard major, except that the two required course credits from PSYC 400–499 must have neuroscience content (YC PSYC: NSCI Track Senior Sem designation). Students pursuing the B.S. degree in the concentration must carry out a neuroscientific empirical project in PSYC 499 and must be supervised by a faculty member within the neuroscience area of the Psychology department. Students who wish to work with an affiliated faculty member studying neuroscience outside the department must obtain permission from the neuroscience concentration adviser. Students pursuing the B.S. degree will want to identify a faculty advisor well in advance of the semester in which they intend to complete their senior essay, and they may want to seek research experiences with that faculty member before the senior year.

Distinction in the Major To be considered for Distinction in the Major, students must submit a senior essay to the Psychology department at least one week before the last day of classes in the term when the course used for the senior essay is taken. Senior essays that are submitted after the deadline will be subject to grade penalties. Senior essays considered for Distinction in the Major are graded by a second reader and the essay adviser.

ADVISING

Schedules for all majors must be discussed with, and approved by, the DUS or the adviser for the neuroscience concentration in Psychology. For questions concerning credits for courses taken at other institutions or at Yale but outside the Department of Psychology, students should consult with the DUS. For questions concerning the neuroscience concentration, students should consult with the adviser for the neuroscience concentration in Psychology.

Computer Science and Psychology major The interdepartmental major in Computer Science and Psychology may be considered by students with interests lying squarely between the two disciplines. See Computer Science and Psychology for more information.

SUMMARY OF MAJOR REQUIREMENTS

STANDARD MAJOR

Prerequisite PSYC 110

Number of courses 12 courses beyond prereq (incl senior req)

Specific course required PSYC 200 or S&DS 103

Distribution of courses B.A. or B.S. — 2 social science courses and 2 natural science courses, as specified; 1 course numbered PSYC 210–299

Substitution permitted For PSYC 200, S&DS 103 or exam arranged with instructor; up to 3 relevant courses in other depts, with DUS permission

Senior requirement *B.A.* — 1 course credit from PSYC 400–489 or 499 taken during senior year; 1 additional course credit from PSYC 400–499; *B.S.* — PSYC 499 taken during senior year; 1 additional course credit from PSYC 400–499

NEUROSCIENCE CONCENTRATION

Prerequisite PSYC 110

Number of courses 12 courses beyond prereq (incl senior req); same as for the standard major with the additional requirements listed below

Specific courses required BIOL 101–104 unless students place out; PSYC 160, 200, 230, 238, 250, 258, or 270.

Distribution of courses *B.A.* or *B.S.* — 2 social science courses and 1 natural science course, as specified; at least 2 advanced science courses, as specified

Substitution permitted MCDB 320 or PSYC 229L or 260 may substitute for PSYC 160; or MCDB 320 and 321L may substitute for PSYC 229L or 260; S&DS 103 or exam arranged with instructor for PSYC 200

Senior requirement *B.A.* — 1 course credit from PSYC 400–489 or 499 with neuroscience content taken during senior year; 1 additional course credit from PSYC 400–499 with neuroscience content; *B.S.* — PSYC 499 taken during senior year, with neuroscience content in a research project; 1 additional course credit from PSYC 400–499 with neuroscience content

FACULTY OF THE DEPARTMENT OF PSYCHOLOGY

Professors Woo-kyoung Ahn, John Bargh, Tyrone Cannon, B. J. Casey, Marvin Chun, Margaret Clark, Melissa Ferguson, Jutta Joormann, Frank Keil, Joshua Knobe, Gregory McCarthy, Jennifer Richeson, Peter Salovey, Laurie Santos, Brian Scholl, Nick Turk-Browne

Associate Professors Arielle Baskin-Sommers, Steve Wohn Chang, Molly Crockett, Yarrow Dunham, Avram Holmes

Assistant Professors Dylan Gee, Maria Gendron, Julian Jara-Ettinger, Julia Leonard, Sam McDougale, Robb Rutledge, Ilker Yildirim

Lecturers Jennifer Hirsch, Stephanie Lazzaro, Kristi Lockhart, Mary O'Brien, Matthias Siemer

Religious Studies

Director of undergraduate studies: Eric Greene, (eric.greene@yale.edu) 320 York Street, 432-4857; religiousstudies.yale.edu

Religious Studies offers a curriculum of challenging coursework that explores and critically analyzes religious traditions and systems of value. The many diverse courses delve into the history and meaning of rituals, canonical and non-canonical texts, and theological and social categories and how they have been shaped by and construct institutions, habits, hierarchies, and collectives. The study of religion probes the organization of society, gender roles, global affairs, war, violence, terrorism, and conflicting orthodoxies. Multiple disciplinary lenses and methodological approaches inform and shape the field, including: anthropology, history, philosophy, philology, psychology, and sociology. Courses on religious practices and formations span the globe over the course of history, from antiquity until the present day. The curriculum also addresses competing value systems that circulate in pop culture and politics, with studies of fundamentalism, spirituality, secularism, atheism, and consumerism.

The Department of Religious Studies is particularly known for its promotion of scholarly research by undergraduates. The tight cohort of majors have the unique opportunity to work closely with leading scholars of the field. The curriculum enables majors to acquire the linguistic, philosophical, and historical acumen necessary for in-depth research projects during their senior year. While courses normally have no prerequisites, some advanced seminars may require the permission of the instructor. The multidisciplinary nature of Religious Studies makes it attractive both for students seeking two majors and for those seeking to delve deep into a field of study as it relates broadly to the humanities.

REQUIREMENTS OF THE MAJOR

The Religious Studies major requires twelve term courses, to include a core of five courses, a junior seminar (RLST 490), a two-term senior essay (see below) and four electives. Religious Studies majors develop specialized areas of expertise as they plan a coherent program in consultation with the director of undergraduate studies (DUS) and other members of the faculty.

Core requirement A core of five courses in Religious Studies is required of all majors and should be selected in consultation with the DUS. These courses should originate in the Religious Studies department and carry a RLST subject code. One of the core courses must be an introductory course, numbered 001–199; another must introduce breadth into the student's core area of study; the remaining three courses must form a cohesive cohort of courses leading students to the area of expertise upon which they write their senior essay.

Electives The four elective courses are designed to complement a student's area of expertise. Collectively they should form the basis for advanced work in the major conducted during the senior year. These electives can be taken either within or beyond the Department of Religious Studies. They can comprise language study, topics and methods from other disciplines, or further advanced coursework within the department. Through these electives, students develop expertise in methods, regions, historical periods, or bodies of literature that inform their area of study and their work

for the senior essay. Students pursuing a double major or an outside certificate may count up to two courses taken for the fulfillment of their other major or certificate toward the elective requirement in Religious Studies.

SENIOR REQUIREMENT

Students must write a senior essay under the supervision of a faculty adviser in the student's core area of study. In selecting a senior essay topic, students normally choose a subject on which they have completed coursework before commencing the senior year. The essay counts as two courses toward the major and is taken in both terms of the senior year. The student should begin choosing a senior essay topic during the second term of the junior year, and early in the first term of the senior year must submit a Statement of Intention approved by a faculty adviser and the DUS. The senior essay courses, RLST 491 and 492, include research and writing assignments as well as colloquia in which seniors present and discuss their research. Students submit at least ten pages of the essay to the DUS by the last day of classes in the first term in order to receive a grade of "satisfactory" for that term.

ADVISING

Students majoring in Religious Studies who plan to do graduate work in the subject are strongly encouraged to study the languages that they will need for their graduate programs.

Courses in the Divinity School Some Divinity School courses may count toward the major, with permission of the DUS. Divinity School faculty are eligible to advise senior essays. Information about courses and faculty may be found in the Divinity School online bulletin.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific course required RLST 490

Distribution of courses 5 core RLST courses to include: 1 intro course, 1 breadth course, 3 related core courses; 4 electives, as described and with DUS permission

Substitution permitted Divinity School courses, with DUS permission

Senior requirement Senior essay (RLST 491, 492)

FACULTY OF THE DEPARTMENT OF RELIGIOUS STUDIES

Professors Stephen Davis, Carlos Eire, Hwansoo Kim, Nancy Levene, Kathryn Lofton, Ivan Marcus, Laura Nasrallah, Eliyahu Stern, Travis Zadeh

Associate Professors Maria Doerfler, Eric Greene, Sarit Kattan Gribetz, Noreen Khawaja, Todne Thomas

Assistant Professors Supriya Gandhi, Sonam Kachru

Lecturers Jimmy Daccache, Adam Ployd, Matthew Steele

Russian

Director of undergraduate studies: Jinyi Chu (jinyi.chu@yale.edu); language coordinator: Constantine Muravnik (constantin.muravnik@yale.edu), HQ 535, 320 York Street, 432-0995; slavic.yale.edu

The major in Russian offered by the Department of Slavic Languages and Literatures acquaints students with Russian literature and culture, develops students' appreciation of literary values and skill in literary analysis, and gives them a basic competence in Russian. For an area major in Russian studies, see Russian, East European, and Eurasian Studies, an interdisciplinary program administered by the Department of Slavic Languages and Literatures.

PLACEMENT PROCEDURES

Students who have previously studied Russian formally or informally are required to take the Russian placement exam. This brief oral exam helps determine which Russian course best fits each student's background. Contact the Russian language coordinator, Constantine Muravnik (constantin.muravnik@yale.edu) to schedule the oral placement exam or for registration information.

PREREQUISITES

Prerequisite to the major is second-year Russian, RUSS 140, 142, 145, or S140. The department offers three sequences of language courses to fulfill the prerequisite: either (1) RUSS 110, 120, 130, 140, or (2) RUSS 125, 145 or (3) courses for heritage speakers, RUSS 122, 142. Prospective majors should complete the prerequisites by the end of their sophomore year or accelerate their course of study by taking summer courses or studying abroad. While completing the prerequisite, students are encouraged to begin fulfilling the requirements of the major that do not presuppose advanced knowledge of Russian by taking courses in Russian history and Russian literature in translation.

REQUIREMENTS OF THE MAJOR

In addition to the prerequisite, the major in Russian requires eleven term courses, which must include the following (some courses may fulfill more than one requirement):

1. Third-year Russian: RUSS 150 and 151.
2. Fourth-year Russian: RUSS 160 and 161.
3. Two terms of Russian literature in translation, one in 19th-century or earlier Russian literature and one in 20th-century or later Russian literature. Russian First-Year Seminars and courses numbered 200 or higher may fulfill this requirement.
4. One content course in which Russian is the language of instruction (RUSS 170–190).
5. One course in Russian, East European, or Eurasian history or social sciences.
6. RUSS 490 or 491. The senior essay is the intellectual culmination of the student's work in the major. All primary sources used in the essay must be read in Russian.

If the language proficiency is met without coursework, these course requirements must be fulfilled through additional term courses to bring the overall total to 11 term courses.

A Yale summer program in Russian culture may be used to fulfill the requirements, with DUS approval.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

All majors write a senior essay (RUSS 490 or 491), an independent project carried out under the guidance of a faculty member. The senior essay takes the form of a substantial article, no longer than 13,000 words, excluding footnotes and bibliography. By the end of the junior year, students should declare their general topic and arrange for a faculty adviser, in consultation with the DUS. Students planning to conduct summer research for the senior essay, especially if abroad, should contact the DUS early in the spring semester of the junior year and apply for fellowships.

Students may opt to enroll in both RUSS 490 and RUSS 491, but only one of these courses counts toward the major requirements.

Optionally, students may opt to prepare for the senior essay in the term before they enroll in either RUSS 490 or 491. In this instance, students submit a proposal to their adviser (up to two pages double spaced) by the first day of the term before they enroll in RUSS 490 or RUSS 491. They also submit a draft of at least ten pages, or a detailed outline of the entire essay by the end of the midterm break. Students finalize their essay during the term in which they are enrolled in RUSS 490 or 491. The final essay is due April 15 (or ten days before the last day of classes, e.g., November 25, for students graduating in December). A member of the faculty other than the adviser grades the essay. Senior essays will be considered for prizes.

Students pursuing two majors need to fulfill the senior requirement of both majors. If the second major allows, students may enroll in both RUSS 490 and 491 and write an essay longer than a single-term essay. In this case, students count the second term of the Russian senior essay as their twelfth course in the Russian major.

ADVISING

Courses in the Graduate School are open to qualified undergraduates with permission of the instructor and of the director of graduate studies. Course descriptions are available at the office of the DUS.

STUDY ABROAD

Students majoring in Russian are strongly encouraged to spend a summer or a term studying abroad under the auspices of programs approved by the DUS. Language courses, as well as RUSS S241, S242, and S243, taken during the summer or during a term in approved programs may substitute for certain advanced Russian courses at Yale. Students interested in studying abroad should consult the DUS well before their junior year. Students can apply for FLAS and Fox fellowships to support their travel.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite RUSS 140, 142, 145, S140, or placement exam

Number of courses 11 term courses beyond prereq (incl senior essay)

Specific courses required RUSS 150, 151, 160, 161

Distribution of courses 1 course in 19th-century or earlier Russian literature in translation, as specified; 1 course in 20th-century or later Russian literature in translation, as specified; 1 content course taught in original language, as specified; 1 course in Russian, East European, or Eurasian history or social sciences, as specified

Substitution permitted Yale summer program in Russian culture (RUSS S241, S242, or S243) for electives

Senior requirement Senior essay (RUSS 490 or 491)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

Certificate Director: Jinyi Chu (jinyi.chu@yale.edu)

The Department of Slavic Languages and Literatures offers a Certificate of Advanced Language Study in Russian. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The Certificate of Advanced Language Study is listed on student transcripts.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. Students should take L5 content courses only after they have completed RUSS 151, Third-Year Russian II. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student’s last semester at Yale. The form can be found on the University Registrar’s website. Once declared, Degree Audit tracks students’ progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF SLAVIC LANGUAGES AND
LITERATURES

Professors Edyta Bojanowska (*Slavic Languages and Literatures*), John MacKay (*Film & Media Studies, Slavic Languages and Literatures*)

Associate Professors Marijeta Bozovic (*Slavic Languages and Literatures*), Molly Brunson (*Slavic Languages and Literatures*)

Assistant Professors Jinyi Chu (*Slavic Languages and Literatures*), Claire Roosien (*Slavic Languages and Literatures*), Nari Shelekpavev (*Slavic Languages and Literatures*)

Senior Lectors II Irina Dolgova (*Slavic Languages and Literatures*), Constantine Muravnik (*Slavic Languages and Literatures*), Julia Titus (*Slavic Languages and Literatures*)

Senior Lectors I Krystyna Illakowicz (*Slavic Languages and Literatures*), Anastasia Selemeneva (*Slavic Languages and Literatures*), Olha Tytarenko (*Slavic Languages and Literatures*)

Russian, East European, and Eurasian Studies

Director of undergraduate studies: Jinyi Chu (jinyi.chu@yale.edu); language coordinator: Constantine Muravnik (constantine.muravnik@yale.edu), HQ 538, 320 York St.; slavica.yale.edu

The major in Russian, East European, and Eurasian Studies, administered by the Department of Slavic Languages and Literatures, offers an interdisciplinary approach to the study of a broad region: Russia, Ukraine, Belarus, the Caucasus, and central Asia; Poland, Hungary, the Czech and Slovak Republics, and other areas in east central Europe; and the Balkans. Students majoring in RSEE may concentrate exclusively on Russian Studies, or on East European or Eurasian Studies. The major is appropriate for students considering careers in international public policy, diplomacy, or business, and is also suited to students wishing to continue academic work.

PLACEMENT PROCEDURES

Students who have previously studied Russian formally or informally are required to take the Russian placement exam. This brief oral exam helps determine which Russian course best fits each student's background. Contact the Russian language coordinator, Irina Dolgova (irina.dolgova@yale.edu), to schedule the oral placement exam or for information about preregistration. She may be reached via email or at 432-1307. Entering first-year students who have some knowledge of Czech or Polish should contact Krystyna Illakowicz (krystyna.illakowicz@yale.edu) (Polish) or Karen von Kunes (karen.vonkunes@yale.edu) (Czech) to arrange to take a brief placement examination.

PREREQUISITES

Russian Studies concentration Completion of Second-Year Russian (RUSS 140, 142, 145 or S140) or placement exam.

East European Studies or Eurasian Studies concentration Two semesters of the first-year sequence in an East European or an Eurasian language or a placement exam.

REQUIREMENTS OF THE MAJOR

Students select one of three concentrations to complete the requirements for the major in Russian, East European, and Eurasian Studies. A full understanding of these areas demands knowledge of its languages and so students are encouraged to learn more than one language.

Russian Studies concentration Twelve term courses, including the senior requirement, are required for the Russian Studies concentration. Students must take two courses in Russian, East European, or Eurasian history; one RSEE-area focused course in the social sciences, such as those found in anthropology, economics, sociology, political science, global affairs, and other disciplines of social science; one course in Russian, East European, or Eurasian literature or culture, selected in consultation with the director of undergraduate studies (DUS); and the Senior Essay (RSEE 490 or 491). To fulfill the language requirement students must demonstrate a proficiency in Russian by completing RUSS 150 and 151 or by passing an equivalency exam. A maximum of five language courses may be counted toward the major. If language proficiency is met without coursework, the course requirements must be fulfilled through additional term

courses to bring the overall total to twelve courses. Electives are selected in consultation with the DUS and may include RUSS 160 and 161, a content course taught in Russian at the 170–190 level, or courses in other East European or Eurasian languages at the second-year level or above.

East European Studies or Eurasian concentration Eleven term courses, including the senior requirement, are required for the East European and the Eurasian concentrations. The requirements are the same as for the Russian Studies concentration, excluding the language requirements. To fulfill the language requirement students must demonstrate a proficiency in either an East European or Eurasian language (such as Czech, Polish, Romanian, Bosnian-Serbian-Croatian, Hungarian, Ukrainian, or those languages taught through the Shared Course Initiative) by completing the third-year level (4 term courses) of the chosen language or by passing an equivalency exam. The remaining two courses are chosen in consultation with the DUS. If language proficiency is met without coursework, the course requirements must be fulfilled through additional term courses to bring the overall total to eleven courses.

Credit/D/Fail Courses taken Credit/D/Fail may not count toward the requirements of the major.

SENIOR REQUIREMENT

All majors write a senior essay, an independent project carried out under the guidance of a faculty member. The senior essay takes the form of a substantial article, no longer than 13,000 words, excluding footnotes and bibliography. By the end of the junior year, students should declare their general topic and arrange for a faculty adviser, in consultation with the DUS. Students planning to conduct summer research for the senior essay, especially if abroad, should contact the DUS early in the spring semester of the junior year and apply for fellowships.

Students may opt to enroll in both RSEE 490 and RSEE 491, but only one of these courses counts toward the major requirements.

Optionally, students may opt to prepare for the senior essay in the term before they enroll in either RSEE 490 or 491. In this instance, students submit a proposal to their adviser (up to two pages double spaced) by the first day of the term before they enroll in RSEE 490 or 491. They also submit a draft of at least ten pages, or a detailed outline of the entire essay by the end of the midterm break. Students finalize their essay during the term in which they are enrolled in RSEE 490 or 491. The final essay is due April 15 (or ten days before the last day of classes, e.g., November 25, for students graduating in December). A member of the faculty other than the adviser grades the essay. Senior essays will be considered for prizes.

Students pursuing two majors need to fulfill the senior requirement of both majors. If the second major allows, students may enroll in both RSEE 490 and 491 and write a longer essay than for the single-term essay. In this case, students count the second term of the RSEE senior essay as their 13th (Russian Studies concentration) or 12th (East European or Eurasian concentration) course in Russian, East European, and Eurasian Studies.

ADVISING

Qualified students may elect pertinent courses in the Graduate School with the permission of the instructor, the director of graduate studies, and the DUS.

Graduate work The European and Russian Studies program does not offer the simultaneous award of the B.A. and M.A. However, students in Yale College are eligible to complete the M.A. in European and Russian Studies (with concentration in Russia and eastern Europe) in one year of graduate work. Students interested in this option must complete eight graduate courses in the area by the time they complete the bachelor's degree. Only two courses may be counted toward both the graduate degree and the undergraduate major. Successful completion of graduate courses while still an undergraduate does not guarantee admission into the M.A. program. Students must submit the standard application for admission to the M.A. program.

STUDY ABROAD

There are several opportunities for study and travel in eastern Europe and Eurasia. The DUS can provide information on these programs and facilitate enrollment. Students who spend all or part of the academic year in these regions participating in established academic programs usually receive Yale College and major requirement credit. Students are strongly encouraged to take advantage of study abroad opportunities during summers or through the Year or Term Abroad program and should consult the DUS as early as possible.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Russian Studies concentration*—RUSS 140, 142, 145 or S140; *East European and Eurasian concentrations*—two courses of first-year sequence in East European or Eurasian language

Number of courses *Russian Studies concentration*—12 term courses beyond prereqs (incl senior req); *East European and Eurasian concentrations*—11 term courses beyond prereqs (incl senior req)

Specific courses required *Russian Studies concentration*—RUSS 150 and 151 or equivalency exam

Distribution of courses *All concentrations*—2 courses in RSEE history; 1 RSEE-area focused course in the social sciences, as specified; 1 course in Russian, East European, or Eurasian literature or culture, in consultation with DUS; *Russian Studies concentration*—up to 5 language courses and/or electives in consultation with DUS to fulfill total course requirement; *East European Studies and Eurasian Studies concentrations*—third-year level in East European or Eurasian language or equivalency exam; remaining electives in consultation with DUS to fulfill total course requirement

Senior requirement Senior essay (RSEE 490 or 491)

FACULTY ASSOCIATED WITH THE MAJOR

Professors Sergei Antonov (*History*), Edyta Bojanowska (*Slavic Languages and Literatures*), Paul Bushkovitch (*History*), Katerina Clark (*Comparative Literature, Slavic Languages and Literatures*), John Gaddis (*History*), John MacKay (*Slavic Languages and Literatures, Film & Media Studies*), Timothy Snyder (*History*)

Associate Professors Marijeta Bozovic (*Slavic Languages and Literatures, Film and Media Studies, Women's, Gender, & Sexuality Studies*), Molly Brunson (*Slavic Languages and Literatures*), Jason Lyall (*Political Science*), Douglas Rogers (*Anthropology*), Marci Shore (*History*)

Assistant Professors Jinyi Chu (*Slavic Languages and Literatures*), Marta Figlerowicz (*Comparative Literature, English*), Claire Roosien (*Slavic Languages and Literatures*), Nari Shelekpayev (*Slavic Languages and Literatures*)

Senior Lectors II Irina Dolgova (*Slavic Languages and Literatures*), Constantine Muravnik (*Slavic Languages and Literatures*), Julia Titus (*Slavic Languages and Literatures*)

Senior Lectors I Krystyna Illakowicz (*Slavic Languages and Literatures*), Olha Tytarenko (*Slavic Languages and Literatures*)

Lector I Anastasia Selemenewa (*Slavic Languages and Literatures*)

Science

Yale College offers several interdepartmental course sequences for first-year students through the First-Year Seminar Program. In these courses, students encounter current research at Yale and in the broader scientific community across a wide range of scientific fields. The courses intend to develop skills necessary to understand, write, and present research in these areas. Students also identify a Yale research mentor and prepare an independent grant proposal to prepare for summer research. Application information is available on the First-Year Seminar website.

School of the Environment

For information about Yale College course offerings related to the environment, see Environmental Studies.

The five-year B.A. or B.S./M.E.M. or M.E.Sc. degree program The B.A.–B.S./M.E.M. or M.E.Sc. degree program offers Yale College students the opportunity to earn a bachelor's degree from Yale College and an M.E.M. or M.E.Sc. degree from the Yale School of Environment (YSE) in five years.

Undergraduate requirements During four years of Yale College enrollment, students may complete any standard major. The required academic preparation for the five-year joint degree program is outlined on the YSE website. Generally, students are expected to complete eight courses that are substantially equivalent to YSE courses. Such courses must be relevant to the YSE degree being sought and might include upper-level YC courses, courses that are cross-listed between YSE and YC, or graduate or professional school courses. It is highly recommended that applicants complete undergraduate coursework in the following areas: ecology or ecosystems, physical sciences, social sciences, and microeconomics before applying.

Master's program requirements By satisfying the eight course undergraduate requirement prior to YSE enrollment, students in the five-year M.E.M. program will, upon graduation, have completed coursework equivalent to the regular M.E.M. requirements. These include attendance at the Summer Training Modules (MODS); enrollment in the fall "Perspectives" course for all first-year M.E.M. students; satisfying the requirements of all Foundational Knowledge courses, and an approved capstone course. Students admitted to the five-year program during their senior year are encouraged to take a gap year before attending YSE. Gap year plans must be communicated to the YSE Admissions Office.

The M.E.Sc. degree is intended to provide students with a deeper disciplinary focus than the M.E.M. All students pursuing a M.E.Sc. degree must have an adviser in place before applying to YSE. The intended YSE faculty adviser must provide a letter as part of the student's application stating their agreement to become the prospective student's YSE adviser. The specific plan to meet the requirements of the M.E.Sc. are to be worked out with a student's adviser, however most continue with deeper research of the subjects undertaken as part of their senior thesis requirement in Yale College.

Admission requirements Students apply to the B.A.–B.S./M.E.M. and M.E.Sc. program in the fall term of the senior year or in the two years immediately following graduation. Applications are submitted through the Yale School of the Environment's application system. Questions about admissions should be directed to the YSE Office of Admissions at admissions.yse@yale.edu. Further information about the program may be viewed on the YSE website.

School of Global Affairs

For information about Yale College course offerings related to global affairs, see Global Affairs.

The five-year B.A.–B.S./M.P.P. degree program The B.A.–B.S./M.P.P. degree program in Global Affairs offers Yale College students interested in the field of global affairs the opportunity to earn a bachelor's degree from Yale College and a M.P.P. degree from the Jackson School of Global Affairs in a five-year joint program.

Undergraduate requirements In their four years of Yale College enrollment, students complete a standard Yale College major. So long as students are on track to complete their major and degree requirements, as stipulated by Yale College, students may count up to 4 Jackson School approved course credits toward their M.P.P. degree.

Master's program requirements Students accepted into the program must complete a total of 12 course credits, including Jackson's core courses. At least 2 of those core courses must be taken during the senior year at Yale College. It is also required that students demonstrate proficiency in a modern language (L4) and complete an approved summer internship or project. Students must maintain a grade average of High Pass with at least two Honors grades. All students must complete Jackson's non-credit leadership and ethics training workshop, which takes place in August the week prior to the beginning of their fifth year. During the fifth year, students are in full-time residence at the Jackson School of Global Affairs and must complete at least 8 course credits.

Admission requirements Students apply to the B.A.–B.S./M.P.P. program in the spring term of the junior year. Applicants must complete an application form and submit all undergraduate transcripts, two letters of recommendation (at least one from an instructor in a Yale course), one personal statement, and approval by the dean of the student's residential college. Applications are submitted online through the Jackson School of Global Affairs. Questions about admissions should be directed to Assistant Dean, Asha Rangappa (asha.rangappa@yale.edu).

Further information about the program may be viewed on the Jackson School of Global Affairs website.

School of Public Health

For information about Yale College course offerings related to health, see Global Health Studies.

The five-year B.A.–B.S./M.P.H. degree program The B.A.–B.S./M.P.H. degree program in Public Health offers Yale College students interested in the field of public health the opportunity to earn a bachelor's degree from Yale College and an M.P.H. degree from the Yale School of Public Health (YSPH) in a five-year joint program.

Undergraduate requirements During four years of Yale College enrollment, students complete any standard major. Four of the thirty-six course credits required for the bachelor's degree are typically taken at YSPH in partial fulfillment of the M.P.H. degree requirements. Students may take additional YSPH courses while enrolled in Yale College, but no more than four course credits earned in the professional schools may be applied toward the bachelor's degree. Two Yale College courses selected from an approved list may be counted as electives toward the M.P.H. degree requirements.

Students accepted into the B.A.–B.S./M.P.H. program typically take the following courses at the School of Public Health while enrolled in Yale College: EPH 505, Biostatistics in Public Health; EPH 507, Social Justice and Health Equity; EPH 508, Foundations of Epidemiology and Public Health; EPH 510, Health Policy and Health Care Systems; and EPH 513, Major Health Threats: Ethics and Practice.

During the summer between the fourth and fifth years, students complete a public health internship.

Master's program requirements Students accepted into the program affiliate with one of seven departments or programs at the School of Public Health; this affiliation determines the primary adviser and the specific requirements for the five-year program. During the fifth year, students are in full-time residence at the School of Public Health to complete their remaining coursework and master's thesis.

Admission requirements Students apply to the B.A.–B.S./M.P.H. program in the fall term of the junior year. Successful candidates present a verified commitment to improving the health of the public and evidence of quantitative skills. Two terms each of college-level mathematics, science, and social science courses are recommended, although some of these courses can be completed after applying to the program. Additional qualifications may be required by particular departments or programs. Applications are submitted through the School of Public Health's application service, SOPHAS Express, and include transcripts, SAT scores, two letters of recommendation (at least one from an instructor of a Yale course), and a personal statement. Questions about admissions should be directed to Mary Keefe (mary.keefe@yale.edu).

Further information about the program may be viewed on the YSPH website.

Sociology

Director of undergraduate studies: Rourke O'Brien (rourke.obrien@yale.edu); sociology.yale.edu

Sociology provides the theoretical and empirical foundation for understanding how societies function and how they change over time. Sociologists are interested in the causes and consequences of processes such as the social construction of groups and identity, the evolution of culture, intersubjective meanings, intergroup relations, and hierarchies and social norms. They conduct research on individual behavior and outcomes such as educational attainment, jobs and careers, religious commitment, and political involvement; interpersonal processes such as intimate relationships, sexuality, social interaction in groups, and social networks; the behaviors of organizations and institutions; the causes and consequences of group differences and social inequality; and social change at the societal and global level.

The Sociology major provides both a solid foundation for students interested in careers in the social sciences and a strong background for a variety of professions in which knowledge about social processes and how societies work is relevant. Many recent graduates have gone on to law school, medical school, or graduate programs in public health, business, education, urban planning, criminology, and sociology. Others work in finance, consulting, publishing, marketing, city planning, teaching, research, and advocacy.

The Sociology department offers six undergraduate pathways leading to the B.A. degree: (1) the standard major focuses on sociological concepts, theories, and methods; (2) the concentration in economy and society focuses on the cultural frameworks, relationships, and social institutions that give rise to markets and shape economic behavior; (3) the concentration in health and society emphasizes social processes as they affect health and medicine; (4) the concentration in data and society studies methods of analysis; (5) the concentration in inequality, race, and society considers the dimensions of how discrimination shapes society; and (6) the student-designed program combines sociology with a concentration in a different subject area. Students interested in the major are encouraged to contact the director of undergraduate studies (DUS) early in their academic careers to discuss potential options.

COURSE NUMBERING

Courses in Sociology are divided by level, with introductory courses numbered from 001–149, courses in sociological theory from 150–159, courses in sociological methods from 160–169, intermediate courses from 150–299, advanced courses in the 300s, and individual study and research courses in the 400s.

PREREQUISITE

There are no prerequisites for the Sociology major. Completing either a first-year seminar or one introductory course by the end of the sophomore year is recommended.

REQUIREMENTS OF THE MAJOR

Students in the standard major get broad exposure to the sociological imagination, methods, and substantive areas of inquiry. Students are provided with theory and methods used to diagnose and resolve social problems, understand and analyze social

processes, and describe and investigate collective behavior and its determinants. Requirements for the standard major include the following:

1. Thirteen term courses in sociology (including the senior requirement). At least one must be an introductory Sociology course, but no more than two introductory courses may count toward the total.
2. Two courses in sociological theory (SOCY 151 and 152)
3. One course in research design (SOCY 160), usually completed in spring of junior year.
4. One course in a social science methodology (e.g., S&DS 105).
5. The senior requirement

Students are held to the concentration-specific requirements that were in place when they declared their major. However, with approval from the DUS, the following requirements, updated for the academic year 2024-2025, may be fulfilled by students who declared the major in a prior term.

Concentration: Economy and Society Students in the Economy and Society concentration gain a broad understanding of the social dimensions of economic behavior, including the relational dimensions of market interactions, the relationship between the state and markets, religious and cultural effects, valuation processes, social networks, and the causes and consequences of inequality and discrimination in markets. Requirements for the concentration include the following:

1. Thirteen term courses in sociology (including the senior requirement). Up to four courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS.
2. One course in sociological theory (SOCY 151 or SOCY 152)
3. One course in research design (SOCY 160), usually completed in spring of junior year.
4. One intermediate or advanced course in microeconomics (e.g. ECON 121 or 125)
5. One course in a social science methodology (e.g., S&DS 105).
6. Two intermediate or advanced courses on inequality or economic sociology (e.g. SOCY 234, 314, 321, or other)
7. The senior requirement, integrating research on markets, businesses, economic behavior, or inequality

Concentration: Health and Society Students in the Health and Society concentration gain a broad understanding of how factors such as socioeconomic inequality, demographic processes, neighborhood environments, cultural norms, and social networks affect health and medical care. Students explore the fields of medical sociology, stratification, demography, and network science. The core courses in the concentration satisfy the social science requirements of premedical programs while also providing a solid foundation for students interested in public health, health policy, and global health. Requirements for the concentration include the following:

1. Thirteen term courses in sociology (including the senior requirement). Up to five courses relevant to the concentration may be drawn from outside the Sociology department with approval from the DUS.
2. SOCY 126 or SOCY 127, the gateway courses for the concentration (or other similar course, with approval of DUS)
3. One course in sociological theory (SOCY 151 or SOCY 152)
4. One course in a social science methodology (e.g., S&DS 105).
5. One course in research design (SOCY 160), usually completed in spring of junior year.
6. In order to build a broad base of interdisciplinary knowledge on health, students may take up to five course credits from outside the Sociology department, with approval from the DUS. It is recommended that students select at least one course credit from the following: BIOL 101, 102, 103, 104; MATH 112 or higher-level MATH course; ECON 170.
7. Two intermediate or advanced Sociology courses relevant to the concentration
8. The senior requirement, integrating sociology with health and medicine

Concentration: Data and Society Students in the Data and Society concentration gain a broad understanding of the methods used to analyze systematic features of social behavior and the wide range of possible sources that can be used to research social patterns. This concentration focuses on methods of analysis, such as social networks, computational sociology, statistics, computational modeling, natural language processing, and others, but students are expected to also expose themselves to substantive areas of research to gain insight in the application of these methods to social problems. Requirements for the concentration are the following:

1. Thirteen term courses (including the senior requirement). Up to four courses relevant to the concentration may be drawn from outside the Sociology department with approval from the DUS.
2. One course in sociological theory (SOCY 151 or 152)
3. One course in research design (SOCY 160), usually completed in spring of junior year
4. One introductory course in statistics (e.g. S&DS 105, GLBL 121)
5. One intermediate or advanced course in statistics (e.g. SOCY 580, 581)
6. Two additional methods courses
7. One semester of independent study as a research assistant on a sociological topic, ideally with Sociology faculty
8. The senior requirement, integrating data-intensive approaches to social science

Concentration: Inequality, Race, and Society Students in the Inequality, Race, and Society concentration gain a broad understanding of the ways in which inequality, race, and various forms of discrimination shape society. Inequality will be considered on numerous dimensions including race, ethnicity, gender, sexual orientation, and religion. Requirements for the concentration are the following:

1. Thirteen term courses (including the senior requirement). Two courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS.
2. SOCY 144, the gateway course for the concentration (or other similar course with approval of DUS)
3. One course in sociological theory (SOCY 151 or 152)
4. One course in research design (SOCY 160), usually completed in spring of junior year
5. One course in a social science methodology (e.g., S&DS 105).
6. Five courses related to race or inequality, up to two from outside the department
7. The senior requirements, integrating research on race and/or inequality

Concentration: Student-Designed This program allows students to combine the study of sociology with the study of another discipline or substantive area and to create a program that satisfies their own interests and career plans. By the beginning of the junior year, participants in the self-designed program are expected to consult with the DUS to obtain approval for their course of study.

1. Thirteen term courses (including the senior requirement).
2. Up to four courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS. The courses outside Sociology must constitute a coherent unit alone and form a logical whole when combined with the Sociology courses.
3. Two courses in sociological theory (SOCY 151 and 152)
4. One course in research design (SOCY 160), usually completed in spring of junior year
5. One course in a social science methodology (e.g., S&DS 105).
6. One intermediate or advanced seminar in Sociology
7. The senior requirement must integrate sociology and the other subject chosen

Credit/D/Fail courses A maximum of two courses taken Credit/D/Fail may be counted toward the requirements of the major.

Searchable attributes YC SOCY: Sociological Methods, YC SOCY: Economy & Sociology, YC SOCY: Health & Society, YC SOCY: InequalityRaceSociety

SENIOR REQUIREMENTS

For the non-intensive major Students electing the non-intensive major take one additional seminar in Sociology (SOCY 300–399) and write a one-credit senior essay during the senior year (SOCY 491 or SOCY 492). The senior essay for non-intensive majors is intended to be an in-depth scholarly review and critical analysis based on secondary sources. Students select an important topic in any sociological field and write a literature review that evaluates what is known about the topic. All non-intensive majors are required to enroll in SOCY 491 or SOCY 492 to receive credit for the senior essay. To register for this course, students must submit a written plan of study approved by a faculty adviser to the DUS no later than the end of registration period in the term in which the senior essay is to be written. Non-intensive majors are not eligible to graduate with Distinction in the Major.

For the intensive major The intensive major gives students an opportunity to undertake a yearlong program of original research resulting in a contribution to sociological knowledge. The yearlong project requires substantial independent research and knowledge of a sociological sub-field. Students use research methods such as data gathering through participant observation, in-depth interviewing, administration of small-scale surveys, or secondary analysis of existing data. They may present findings in a variety of forms, from ethnographic narratives to analytical statistics. Students select primary and secondary advisers from the faculty. Students in the intensive major enroll in SOCY 493, 494 during their senior year. The colloquium provides a forum for discussing the research process and for presenting students' research at various stages. Intensive majors are eligible to graduate with Distinction in the Major if they meet the grade standards for Distinction and submit a senior essay written in SOCY 493, 494. See The Undergraduate Curriculum, Honors.

ADVISING

All students interested in the Sociology major should meet with the DUS no later than the beginning of the junior year to elect a program of study. Qualified students may petition to enroll in graduate courses, with permission of the instructor and the director of graduate studies. A list of graduate courses and descriptions is available from the DUS.

Admission to the intensive major Candidates for the intensive major should indicate interest to the DUS by registration period in the spring for the fall term of their senior year. The intensive major is especially recommended for students considering graduate school or social research. The DUS and the senior essay adviser serve as advisers to seniors in the intensive major.

STUDY ABROAD

Students planning to study abroad in their junior year are strongly encouraged to begin meeting specific requirements in their sophomore year. They should also discuss the options for their course of study with the DUS before finalizing their plans.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite None

Number of courses 13 term courses (incl senior req) for standard major and all concentrations

Distribution of courses *Standard major*—at least 1, but no more than 2 intro courses, SOCY 151, 152, 160, and a course in social science methods; *Economy & Society concentration*—SOCY 151 or 152, SOCY 160, 1 intermed or adv course in microeconomics, 1 social science methods course, 2 intermed or adv courses on inequality or economic sociology; *Health & Society concentration*—SOCY 126 or 127, SOCY 151 or 152, SOCY 160, 1 social science methods course, 2 intermed or adv seminars, relevant to concentration; *Data and Society concentration*—SOCY 151 or 152, SOCY 160, 1 intro stat course, 1 intermed or adv stat course, 2 quantitative methods courses, 1 indep study; *Inequality, Race, and Society concentration*—SOCY 144, SOCY 151 or 152, SOCY 160, 1 social science methods course, 5 courses related to race or inequality; *Student-designed concentration*—SOCY 151, 152, 160, and a course in social science methods, 1 intermed or adv sociology course

Substitution permitted *Economy & Society, Data & Society, and Student-Designed concentrations* – up to 4 courses from other depts, with DUS approval; *Health & Society concentration* – up to 5 courses from other depts with DUS approval; *Inequality, Race, and Society concentration* – up to 2 courses from other depts with DUS approval

Senior requirement *Standard major and all concentrations* – 1 addtl intermed or adv Sociology sem and senior essay (SOCY 491 or SOCY 492); *Intensive major* – two-term senior essay (SOCY 493, 494)

FACULTY OF THE DEPARTMENT OF SOCIOLOGY

Professors Julia Adams, Jeffrey Alexander, Elijah Anderson, †James Baron, Scott Boorman, Nicholas Christakis, †Paul Cleary, Philip Gorski, Grace Kao, †Marissa King, †Peter Salovey, †Vicki Schultz, Philip Smith

Associate Professors Rene Almeling, †Monica Bell, Emily Erikson, †Justin Farrell, †Issa Kohler-Hausmann, Jonathan Wyrzten

Assistant Professors †Julie DiBenigno, Daniel Karell, †Balázs Kovács, Alka Menon, Rourke O'Brien, Emma Zang

†A joint appointment with primary affiliation in another department or school.

South Asian Studies

Director of undergraduate studies: Priyasha Mukhopadhyay
(priyasha.mukhopadhyay@yale.edu), south.asia@yale.edu

The program in South Asian Studies combines the requirements of a discipline-based first major with significant coursework in South Asian Studies. South Asian Studies can be taken only as a second major. The major is intended to provide students with a broad understanding of the history, culture, and languages of South Asia, as well as the region's current social, political, and economic conditions. Work in a discipline-based major coupled with a focus on South Asia prepares students for graduate study, employment in nongovernmental organizations, or business and professional careers in which an understanding of the region is essential.

REQUIREMENTS OF THE MAJOR

In addition to fulfilling the requirements of the primary major, a student choosing South Asian Studies as a second major must complete seven term courses in South Asian Studies numbered 200 or above. At least two of the seven courses must address premodern South Asia, and at least two should be seminars. Students may petition the director of undergraduate studies (DUS) to include one relevant course from another department or program; approval may require additional course work on South Asian topics. Students must also complete the senior requirement and meet the major's language requirement.

Language requirement One South Asian language must be studied at the advanced level (L5). Yale offers L5 instruction in Hindi and Sanskrit. Students may request the substitution of another appropriate language (e.g., Persian or Arabic) for the core language requirement, and they are encouraged to pursue intensive language study through courses or work abroad. For South Asian languages beyond Hindi and Sanskrit, proficiency can be demonstrated through testing. Please contact the DUS if this is the route you would like to take. Students who fulfill the major requirement through the successful completion of an L5 language exam must take an additional term course for a total of eight term courses. While the exploration of a second language is encouraged, an elective approved by the DUS will fulfill the requirement.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may count toward the major.

SENIOR REQUIREMENT

Students are held to the senior requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

The senior requirement may be fulfilled by the completion of a seminar that culminates in a senior essay. Alternatively, the requirement may be fulfilled by completion of a one-credit, one-term senior essay undertaken in consultation with a faculty advisor in SAST 491. The senior essay can be written in either the fall or spring of the student's senior year. The senior essay should be a substantial paper with a maximum length of

8,000–10,000 words. The use of primary materials in the languages of the region is encouraged in senior essay projects.

The DUS must approve senior requirement plans early in the student's senior year.

ADVISING

The South Asian Studies major permits students to choose courses from a wide range of disciplines. Individual programs should have a balance between courses in the humanities and those in the social sciences. The proposed course of study must be approved each term by the DUS. Students should also identify an adviser from the South Asian Studies faculty in their area of specialization as early as possible.

Two majors Permission to complete two majors must be secured from the Committee on Honors and Academic Standing. Application forms are available from the residential college deans and must be submitted prior to the student's final term.

Courses in the Graduate School Graduate courses in South Asian Studies are open to qualified undergraduates. Course descriptions appear in the Graduate School online bulletin and are also available in the South Asian Studies program office. Permission of the instructor and of the director of graduate studies is required.

STUDY ABROAD

Up to three course credits from approved study abroad programs may be applied toward the requirements of the major, with permission of the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 7 term courses (not incl senior req or lang req)

Distribution of courses 7 courses in South Asian Studies numbered 200 or above, 2 in premodern, 2 seminars

Substitution permitted One relevant course in another dept, and/or up to 3 study abroad credits with DUS permission

Language requirement South Asian lang through L5 level

Senior requirement Senior essay in seminar, or research project in SAST 491

CERTIFICATES OF ADVANCED LANGUAGE STUDY

The Department of South Asian Studies offers a Certificate of Advanced Language Study in Hindi and Sanskrit. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The Certificate of Advanced Language Study, once certified through Degree Audit, is listed on the student's transcript.

REQUIREMENTS FOR THE HINDI CERTIFICATE

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 Yale course, conducted

in the target language, such as an independent study course (graded Pass/Fail), a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

REQUIREMENTS FOR THE SANSKRIT CERTIFICATE

Students seeking to earn the certificate are required to take four courses beyond the L3 level in their chosen language, at least two of which must be Yale courses designated as L5. For the remaining two courses, one must be designated as L5 or L4 and one may be SKRT 557, a directed reading course, or a course closely related in Old or Middle Indic language, such as Vedic or Pali, or a seminar in Sanskrit literature with the readings in English. All courses must be taken for a letter grade, and students must achieve a grade of B or above.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student’s last semester at Yale. The form can be found on the University Registrar’s Office website. Once declared, Degree Audit tracks students’ progress toward completion of the certificate.

FACULTY ASSOCIATED WITH THE PROGRAM OF SOUTH ASIAN STUDIES

Professors Akhil Amar (*Law School*), Sunil Amrith (*History*), Tim Barringer (*History of Art*), Veneeta Dayal (*Linguistics*), Nihal de Lanerolle (*School of Medicine*), Michael Dove (*Anthropology, Forestry & Environmental Studies*), Robert Jensen (*Economics*), Mushfiq Mobarak (*Economics, School of Management*), Kaivan Munshi (*Economics*), Rohini Pande (*Economics*), Kishwar Rizvi (*History of Art*), Kalyanakrishnan Sivaramakrishnan (*Anthropology, Forestry & Environmental Studies*), Shyam Sunder (*School of Management*), Kalindi Vora (*Women’s, Gender, & Sexuality Studies, Ethnicity, Race, & Migration*), Steven Wilkinson (*Political Science*)

Associate Professors Rohit De (*History*), Mayur Desai (*Public Health*), Zareena Grewal (*Ethnicity, Race, & Migration*)

Assistant Professors Anthony Acciavatti (*Architecture*), Supriya Gandhi (*Religious Studies*), Sonam Kachru (*Religious Studies*), Sarah Khan (*Political Science*), Priyasha Mukhopadhyay (*English*), Ameera Nimjee (*Music*), Madiha Tahir (*American Studies*)

Senior Lecturer Carol Carpenter (*Anthropology, Forestry & Environmental Studies*)

Lecturers Jane Lynch (*Anthropology*), Jane Mikkelsen (*Comparative Literature, Near Eastern Languages & Civilizations*)

Senior Lector Swapna Sharma (*Hindi*)

Lectors Mansi Bajaj (*Hindi*), Aleksandar Uskokov (*Sanskrit*)

Southeast Asia Studies

Chair: Erik Harms (erik.harms@yale.edu), 10 Sachem St., 436-4276; program manager: Ei Khin (ei.khin@yale.edu); language program director: Dinny Aletheiani (dinny.aletheiani@yale.edu); cseas.yale.edu

The Council on Southeast Asia Studies offers an interdisciplinary program that brings together faculty and students sharing an interest in Southeast Asia and contributes to the curriculum with language courses, a weekly seminar series, periodic conferences, cultural events, and special lectures. Yale maintains extensive library and research collections on Southeast Asia, including online archives of periodicals and newspapers from all parts of the region.

Yale does not offer a degree in Southeast Asia studies, but majors in any department may consult with Council faculty regarding a senior essay on a Southeast Asian topic, and in certain circumstances students who have a special interest in the region may consider a Special Divisional Major. Students interested in pursuing field research or language study in Southeast Asia may apply to the Council for summer fellowship support.

Courses featuring Southeast Asian content are offered each year within a variety of departments and programs, including Anthropology, Ethnicity, Race, and Migration (ER&M), Environmental Studies, History, History of Art, Music, Philosophy, Political Science, and Sociology. A list of courses for the current year can be obtained through the Council office or the Southeast Asia Studies website.

Language instruction at all levels is offered in two Southeast Asian languages, Indonesian and Vietnamese. Other Southeast Asian languages may be available in any given year via video conference through the Yale Shared Course Initiative. Check the Southeast Asia Studies language studies web page for updated information. The Council on Southeast Asia Studies supports language tables and independent study in other Southeast Asian languages through the Directed Independent Language Study program.

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Southeast Asian Studies offers a Certificate of Advanced Language Study in Vietnamese, which once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level (VIET 142), at least two of which must be Yale courses designated as L5 (VIET 150, 160, 460). All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, up to two advanced non-L5 Yale course, conducted in the target language, such as an independent study course (VIET 470 or 471) (graded Pass/Fail) or an advanced seminar may count toward certification requirements. Only one independent study course with Pass/Fail will be counted toward the certificate requirement.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate

requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

For more information, you may email the Southeast Asia Language Director at dinny.aletheiani@yale.edu

FACULTY ASSOCIATED WITH THE COUNCIL ON SOUTHEAST ASIA STUDIES

Professors Sunil Amrith (*History*), Michael R. Dove (*School of the Environment*), Erik Harms (*Anthropology*), Mimi Yiengpruksawan (*History of Art*)

Assistant Professors Alka Menon (*Sociology*), Nurfadzilah Yahaya (*History*)

Senior Lecturers Carol Carpenter (*School of the Environment, Anthropology*), Amity Doolittle (*School of the Environment*)

Lecturer Quan T. Tran (*American Studies*)

Curator Ruth Barnes (*Art Gallery*)

Senior Lector II Quang Phu Van (*Vietnamese*)

Senior Lectors Dinny Risri Aletheiani (*Indonesian*), Indriyo Sukmono (*Indonesian*)

Spanish

Director of undergraduate studies: Lisa Voigt (lisa.voigt@yale.edu); language program director: Jorge Méndez-Seijas; span-port.yale.edu

The Department of Spanish and Portuguese provides instruction in the languages, literatures, and cultures of the Hispanic and Luso-Brazilian worlds. Courses in Portuguese and the requirements of the major are described under Portuguese; the names of faculty teaching Portuguese courses are included in the faculty roster.

The major in Spanish is a liberal arts major that offers a wide range of courses in the language, literatures, and cultures of the twenty Spanish-speaking countries in Europe, Latin America, and the Caribbean. Today, Spanish is the second language of the United States, one of the three most widely spoken languages in the world, and one of the five diplomatic languages of the United Nations. The program in Spanish offers students the opportunity to acquire thorough linguistic proficiency as well as in-depth knowledge of both cultural and literary topics. The major explores literature, history, philosophy, art, and cultural studies, and provides excellent preparation for careers in law, diplomacy, medicine, business, the arts, academics, journalism, and education.

COURSE NUMBERING

Courses numbered SPAN 110–199 include beginning and intermediate language courses designed to help students develop fluency in understanding, speaking, reading, and writing Spanish. Courses numbered SPAN 200–299 seek to provide students with a broad but solid introduction to the fields of Hispanic literatures and cultures while strengthening their linguistic competence. Courses numbered 300–499 allow students to perfect their linguistic and critical skills through study of a specific problem or issue, e.g., a literary genre, a type of literary or cultural representation, or a specific writer or text. Students desiring more information about either language or literature offerings should consult the director of undergraduate studies (DUS).

PREREQUISITE

Prerequisite to the major is SPAN 140, 142, or 145, or the equivalent through advanced placement or study abroad. Equivalent preparation to SPAN 140, 142, or 145 may be demonstrated by the test scores indicated below under “Language Courses and Placement Procedures.”

LANGUAGE COURSES AND PLACEMENT PROCEDURES

Students with no previous formal or informal Spanish study ordinarily enroll in SPAN 110. Students who take SPAN 110 are strongly encouraged to continue with 120 in the following term. Students wishing to take intensive beginning Spanish may, with the instructor’s permission, enroll in SPAN 125, which covers the same material as SPAN 110 and 120, but in one term. SPAN 132 and 142 are designed for heritage speakers and are available only to them. Admission to SPAN 132 and 142 is based on the results of the departmental placement examination; interested students should contact the instructor.

All students, including native speakers, who have previously studied Spanish formally or informally must take the departmental placement examination to enroll in a Spanish course. The only exception to this rule is made for students who have demonstrated

advanced ability in the language by (1) receiving a score of 5 on either of the Spanish Advanced Placement tests; (2) receiving a score of 6 or 7 on the Advanced-Level International Baccalaureate examination; or (3) attaining a proficiency level of C1 in the Common European Framework of Reference for Languages. These students may enroll directly in any L5 course.

Information about the departmental placement examination and about preregistration procedures for Spanish L1–L4 language courses is available on the department website.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements that were in place when they declared their major. However, with approval from the DUS, the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

Beyond the prerequisite, ten term courses are required. SPAN 250 is a required introductory course. Additionally, two courses numbered SPAN 260–270 are required, as are three courses numbered SPAN 300 or higher. SPAN 491, The Senior Project, is one of the ten required courses. The remaining three elective courses must be numbered SPAN 200 or higher, or be a first-year seminar taught in Spanish. A maximum of one course taught in a language other than Spanish may also count toward the major requirements, with the approval of the DUS.

Intensive major Students in the intensive major fulfill the requirements for the standard major, and take two additional courses numbered SPAN 300 or higher.

SENIOR REQUIREMENT

Seniors complete the senior requirement, an essay or its equivalent in another medium, in SPAN 491 in the spring of their senior year under the individual direction of a faculty adviser. Students expecting to complete their degree requirements in December complete the senior requirement in SPAN 491 in the fall of their senior year. Deadlines and guidelines for the senior requirement can be found on the Spanish and Portuguese department website.

ADVISING

Two majors Students electing Spanish as one of two majors should consult the DUS about a specialized course of study.

Courses in the Graduate School Juniors and seniors majoring in Spanish may, with permission of the instructor and the director of graduate studies, enroll in graduate courses in Spanish.

STUDY ABROAD

Students at the intermediate level of language study are encouraged to apply to the eight-week summer language courses offered by Yale Summer Session in New Haven and Bilbao, Spain, or in Quito, Ecuador. Advanced students may apply for the five-week Yale Summer Session courses offered in Valencia, Spain, and in Quito, Ecuador. More information about these programs is available on the Yale Summer Session website. For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs. Students who wish to count

courses taken abroad toward the major should consult with the DUS before going abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite 1 course from SPAN 140, 142, 145, or equivalent

Number of courses 10 term courses (including senior requirement)

Specific course required SPAN 250

Distribution of courses 2 courses numbered SPAN 260–270, 3 courses numbered SPAN 300 or higher; 3 electives numbered SPAN 200 or higher or a first-year seminar taught in Spanish, with a max of one course taught in a language other than Spanish, with DUS approval

Senior requirement SPAN 491

Intensive major 2 addtl courses numbered SPAN 300 or higher, totaling 12 term courses

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Spanish and Portuguese offers a Certificate of Advanced Language Study in Spanish. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses, all beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5, and at least one of which must be a Yale 300-level advanced undergraduate lecture or seminar. All courses must be taken for a letter grade, and students must achieve a grade of B or above.

Yale study abroad courses designated as L5 may count toward the certificate. The certificate adviser may also approve the substitution of one credit earned as part of a non-Yale study abroad program and taught in the target language to count toward the certificate requirements. If the adviser approves a non-Yale course for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

FACULTY OF THE DEPARTMENT OF SPANISH AND PORTUGUESE

Professors Santiago Acosta, Aníbal González-Pérez, K. David Jackson, Nicholas R. Jones, Noël Valis, Jesús R. Velasco (*Chair*), Lisa Voigt

Senior Lectors II Sybil Alexandrov, Jorge Méndez-Seijas, Margherita Tortora

Senior Lectors I María Pilar Asensio-Manrique, Carolina Baffi, Mercedes Carreras, Sebastián Díaz, María de la Paz García, María José Gutiérrez Barajas, María Jordán, Rosamaría León, Luna Nájera, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Terry Seymour, Giseli Tordin, María M. Vázquez

Lectors Igor de Souza, Sarah Glenski, Mayte López, Ian Russell, Noelia Sánchez-Walker, Torin Spangler

Senior Lecturer II Alex Gil

Special Divisional Majors

Director of undergraduate studies: Sarah Mahurin (sarah.mahurin@yale.edu), Dean's Office TD, 432-0754

A Special Divisional Major affords an alternative for students whose academic interests cannot be met by an existing departmental or special major. Students may, with the approval of the Committee on Honors and Academic Standing, design majors of their own in consultation with members of the faculty and in accordance with the procedures outlined below.

Special Divisional Majors differ so widely in content that there is no uniform format, but many of these majors draw from several departments to focus on a particular culture, period, or problem (e.g., French studies, medieval studies, urban studies). Students interested in pursuing a Special Divisional Major in Renaissance studies should visit the Renaissance Studies program website. A Special Divisional Major may not be offered as one of two majors.

Students considering a Special Divisional Major should be aware of its particular demands and risks. They face the challenges of interdisciplinary work and must grapple with the conceptual processes of disparate disciplines. They must establish criteria for selecting courses and organize their courses in order to obtain an adequate base in the fields necessary for advanced work on a specific topic.

Students in a Special Divisional Major may get little help in designing their programs. Because they are in separate, independent programs, they forfeit some of the services normally provided as part of a departmental or special major. They must, for example, find their own advisers. They need to ask the help of faculty members already committed to other departments and programs who may not share their interdisciplinary interests. They must acquire the necessary background and sustain their interest without the help of any special seminar. They may lose other advantages of departmental affiliation, such as priority for acceptance in restricted-enrollment courses, opportunities to meet students and faculty members with similar interests, and participation in a program easily understood by graduate schools and others. Their transcripts will carry only the notation "Special Divisional Major," without specifying the student's field of concentration.

Before applying for a Special Divisional Major, students are urged to consult the directors of undergraduate studies (DUSs) in their fields of major interest, who can advise them whether a Special Divisional Major is necessary. Special interests can usually be accommodated within an existing major.

PREREQUISITES

Because of the variety of programs, there are no uniform prerequisites. All students must satisfy their prospective advisers and the Committee that they have obtained adequate preparation for the advanced courses and senior projects they propose.

REQUIREMENTS OF THE MAJOR

The major ordinarily comprises at least twelve advanced term courses and a senior project. Advanced courses include all but prerequisites for majors, beginning language courses, and comparable courses. When appropriate, approval is granted for graduate

courses, tutorials, and Residential College Seminars. No distinction is made in the Special Divisional Major between standard and intensive majors.

The DUS in the Special Divisional Major presents proposals for the major to the Committee on Honors and Academic Standing. General problems connected with a student's program may be discussed with the DUS. Students who revise their original proposal or change faculty advisers must obtain the Committee's approval. The Committee advises the Yale College Faculty whether or not the student has completed a major and may not be able to recommend students for the degree who have changed their programs without proper consultation.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

No later than midterm of their seventh term of enrollment, and after consultation with their faculty advisers, students provide the Committee with an outline of their plans for the senior project. There are several options: a written or oral examination, a senior essay or project, or, in some circumstances, a graduate course or a tutorial. A senior essay usually offers the most effective means of integrating material from more than one discipline, and students in a Special Divisional Major typically request one course credit in each term of the senior year in SPEC 491, 492, The Senior Project.

Students who offer a yearlong senior project must, in order to continue the course into the second term, provide their advisers with substantial written evidence of their progress (i.e., a draft or detailed outline) by the end of their seventh term. The project must be completed no later than two weeks before the last day of classes in the student's eighth term of enrollment. At least two faculty members evaluate it.

ADVISING AND APPLICATION TO THE MAJOR

Advisers Candidates must arrange for faculty advisers before applying. DUSes or department chairs can usually suggest advisers. The Committee expects each student to obtain a primary adviser from the department that forms the principal component of the major, as well as one or more adjunct advisers from other fields. The primary adviser must be a regular member of the Yale College faculty. Members of the faculties of other schools of the University and visiting faculty members may serve as adjunct advisers.

Both advisers and students assume special responsibilities when designing and completing a major that falls outside existing programs. The special nature of the program and the student's loss of departmental affiliation make it particularly important for the faculty adviser to meet regularly with the student to help plan the program and to supervise its completion, including the senior project.

The primary adviser assumes chief responsibility for reporting the student's progress to the Committee and for assigning a grade to the senior project. The primary adviser also consults the student's other advisers and works with them in directing, evaluating, and grading the senior project.

Application Students considering a Special Divisional Major are invited to talk with DUSs and with their residential college deans at any stage in their planning. Candidates may apply for admission as early as their fourth term of enrollment, but must have done so no later than one month after their seventh term of enrollment begins. The

Committee's experience suggests that the last term of the sophomore or the first term of the junior year is the best time to apply.

Lucidity, coherence, and completeness in an application are of primary importance to a student's candidacy, since they are indications of a thoughtfully prepared program of study and of the qualities of eagerness and initiative essential to a successful Special Divisional Major. The Committee expects that applicants will have worked in close collaboration with the director of undergraduate studies (DUS) of the Special Divisional Major in developing their proposals, and it will normally view failure to do so as grounds for rejection of the application.

Application forms are available at the Timothy Dwight College Dean's Office. They are submitted, along with letters of support from faculty advisers, to the Committee on Honors and Academic Standing, in care of the Timothy Dwight College Dean's Office. The Committee meets to consider proposals several times a year. All students in good standing are eligible, although the Committee must be satisfied that candidates have particular aptitude and preparation for the work they propose.

In approving or rejecting proposals for a Special Divisional Major, the Committee looks principally at the quality of the student's planning. What are the objectives of the program? What are the principles for selecting courses and organizing material? Is the program comparable in breadth and depth to other majors in Yale College? What provisions have been made to guide and evaluate the student's progress? What sort of senior project would focus and integrate the program? Finally, are the objectives of the program best served by a Special Divisional Major? The Committee will not approve a major if the student can accomplish the desired aims in an existing major; the Committee may consult DUSs and other faculty members to judge whether or not this is the case.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite Approval of 2 or more faculty advisers and Committee on Honors and Academic Standing

Number of courses 13 term courses (incl one-term senior essay) or 14 term courses (incl two-term senior essay)

Distribution of courses Advanced courses in 2 or more appropriate depts; grad courses, college sems, or tutorials with DUS permission

Senior requirement Senior essay or project (SPEC 491 and/or 492), or, with DUS permission, written or oral exam, grad course, or tutorial

Statistics and Data Science

Directors of undergraduate studies: Sekhar Tatikonda (sekhar.tatikonda@yale.edu) and Brian MacDonald; (brian.macdonald@yale.edu) statistics.yale.edu; Major FAQ and guide; undergraduate major checklist

Statistics is the science and art of prediction and explanation. The mathematical foundation of statistics lies in the theory of probability, which is applied to problems of making inferences and decisions under uncertainty. Practical statistical analysis also uses a variety of computational techniques, methods of visualizing and exploring data, methods of seeking and establishing structure and trends in data, and a mode of questioning and reasoning that quantifies uncertainty. Data science expands on statistics to encompass the entire life cycle of data, from its specification, gathering, and cleaning, through its management and analysis, to its use in making decisions and setting policy. This field is a natural outgrowth of statistics that incorporates advances in machine learning, data mining, and high-performance computing, along with domain expertise in the social sciences, natural sciences, engineering, management, medicine, and digital humanities.

Students majoring in Statistics and Data Science take courses in both mathematical and practical foundations. They are also encouraged to take courses in the discipline areas listed below.

The B.A. in Statistics and Data Science is designed to acquaint students with fundamental techniques in the field. The B.S. prepares students to participate in research efforts or to pursue graduate school in the study of data science.

COURSES FOR NONMAJORS AND MAJORS

S&DS 100 and S&DS 101–109 and S&DS 123 (YData) assume knowledge of high-school mathematics only. Students who complete one of these courses should consider taking S&DS 230. This sequence provides a solid foundation for the major. Other courses for nonmajors include S&DS 110 and 160.

PREREQUISITES

Multivariable calculus is required and should be taken before or during the sophomore year. This requirement may be satisfied by one of MATH 120, ENAS 151, MATH 230, MATH 302, or the equivalent.

REQUIREMENTS OF THE MAJOR

Students who wish to major in Statistics and Data Science are encouraged to take S&DS 220 or a 100-level course followed by S&DS 230. Students should complete the calculus prerequisite and linear algebra requirement (MATH 222 or 225 or 226) as early as possible, as they provide mathematical background that is required in many courses.

B.A. degree program The B.A. degree program requires eleven courses, ten of which are from the seven discipline areas described below: MATH 222 or 225 or 226 from Mathematical Foundations and Theory; two courses from Core Probability and Statistics; two courses that provide Computational Skills; two courses on Methods of Data Science; and three courses from any of the discipline areas subject to DUS approval. The remaining course is fulfilled through the senior requirement.

B.S. degree program The B.S. degree program requires fourteen courses, including all the requirements for the B.A. degree. Specifically, B.S. degree candidates must take S&DS 242 and S&DS 365 to fulfill the B.A. requirements. The three remaining courses include one course chosen from the Mathematical Foundations and Theory discipline and two courses chosen from Core Probability and Statistics (not including S&DS 242), Computational Skills, Methods of Data Science (not including S&DS 365), Mathematical Foundations and Theory, or Efficient Computation and Big Data discipline areas subject to DUS approval.

Discipline Areas The seven discipline areas are listed below.

Core Probability and Statistics These are essential courses in probability and statistics. Every major should take at least two of these courses, and should probably take more. Students completing the B.S. degree must take S&DS 242.

Examples of such courses include: S&DS 238, 241, 242, 312, 351

Computational Skills Every major should be able to compute with data. While the main purpose of some of these courses is not computing, students who have taken at least two of these courses will be capable of digesting and processing data. While there are other courses that require more programming, at least two courses from the following list are essential.

Examples of such courses include: S&DS 220 or 230, 262, 265, 425, CPSC 100 or 112, or 201 or ENAS 130

Methods of Data Science These courses teach fundamental methods for dealing with data. They range from practical to theoretical. Every major must take at least two of these courses. Students completing the B.S. degree must take S&DS 365.

Examples of such courses include: S&DS 312, 317, 361, 363, 365, 430, 431, 468, EENG 400, CPSC 446, 452, 477

Mathematical Foundations and Theory All students in the major must know linear algebra as taught in MATH 222 or 225 or 226. Students who have learned linear algebra through other courses (such as MATH 230, 231) may substitute another course from this category. Students pursuing the B.S. degree must take at least two courses from this list and those students contemplating graduate school should take additional courses from this list as electives.

Examples of such courses include: S&DS 364, 400, 410, 411, CPSC 365, 366, 469, MATH 222, 225, 226, 244, 250, 255, 256, 260, 300, 301, or 302

Efficient Computation and Big Data These courses are for students focusing on programming or implementation of large-scale analyses and are not required for the major. Students who wish to work in the software industry should take at least one of these.

Examples of such courses include: CPSC 223, 323, 424, 437

Data Science in Context Students are encouraged to take courses that involve the study of data in application areas. Students learn how data are obtained, how reliable they

are, how they are used, and the types of inferences that can be made from them. These course selections should be approved by the director of undergraduate studies (DUS).

Examples of such courses include: ANTH 376, EVST 362, GLBL 191, 195, LING 229, 234, 380, PLSC 454, PSYC 258

Methods in Application Areas These are methods courses in areas of applications. They help expose students to the cultures of fields that explore data. These course selections should be approved by the DUS.

Examples of such courses include: CPSC 453, 470, 475, ECON 136, 420, EENG 445, S&DS 352, LING 227

Substitution Some substitution, particularly of advanced courses, may be permitted with DUS approval.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major (this includes prerequisite courses).

SENIOR REQUIREMENT

Students in both the B.A. degree program and B.S. degree program complete the senior requirement by completing an individual research project. Courses for research opportunities include S&DS 491 or 492 (but not both), and must be advised by a member of the department of Statistics and Data Science or by a faculty member in a related discipline area.

ADVISING

Students intending to major in Statistics and Data Science should consult the department guide and FAQ. Statistics and Data Science can be taken either as a primary major or as one of two majors, in consultation with the DUS. Appropriate majors to combine with Statistics and Data Science include programs in the social sciences, natural sciences, engineering, computer science, or mathematics. A statistics concentration is also available within the Applied Mathematics major.

Combined B.S./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. in S&DS and M.A. in Statistics after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS at the beginning of their fifth term of enrollment for specific requirements in Statistics and Data Science.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Both degrees* — one of MATH 120, ENAS 151, MATH 230, MATH 302, or equivalent

Number of courses *B.A.* — 11 term courses beyond prereqs (incl senior req); *B.S.* — 14 term courses beyond prereqs (incl senior req)

Specific courses required *B.A.* — MATH 222 or MATH 225 or MATH 226; *B.S.* — same as B.A. degree, although 1 Core Probability and Statistics course must be S&DS 242 and 1 Methods of Data Science course must be S&DS 365

Distribution of courses *B.A.* – 2 courses from Core Probability and Statistics, 2 courses from Computational Skills, 2 courses from Methods of Data Science, and 3 electives chosen from any discipline area with DUS approval; *B.S.* – same, plus 1 Mathematical Foundations and Theory course and 2 additional electives from any discipline area (except Data Science in Context and Methods in Application Areas) with DUS approval

Substitution permitted With DUS approval

Senior requirement *Both degrees* – Senior Project (S&DS 491 or S&DS 492)

CERTIFICATE IN DATA SCIENCE

The Certificate in Data Science is designed for students majoring in disciplines other than Statistics and Data Science to acquire the knowledge to promote mature use of data analysis throughout society. Students gain the necessary knowledge base and useful skills to tackle real-world data analysis challenges. Students who complete the requirements for the certificate are prepared to engage in data analysis in the humanities, social sciences, and sciences and engineering and are able to manage and investigate quantitative data research and report on that data.

Refer to the S&DS website for more information.

PREREQUISITE

The suggested prerequisite for the certificate is an introductory course, selected from one of the following courses: S&DS 100, 101–109, or 123, or an introductory data analysis course from another department.

REQUIREMENTS OF THE CERTIFICATE

To fulfill the requirements of the certificate, students must take five courses from four different areas of statistical data analysis. No course may be applied to satisfy the requirements of both a major and the certificate. No single course may count for two areas of study. Students are required to earn at least a B– for each course.

Probability and Statistical Theory One from S&DS 238, 240, 241, 242. Advanced students may substitute S&DS 351 or S&DS 364 or EENG 431.

Students are held to the Statistical Methodology and Data Analysis requirements that were in place when they declared their intent to earn the S&DS Certificate. However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared their intent to earn the certificate in a prior term.

Statistical Methodology and Data Analysis Two from S&DS 220 or 230 (but not both), 242, 312, 361, 363, PLSC 349. ECON 136 may be substituted for S&DS 242.

Computation & Machine Learning One from S&DS 262, 265, 317, 365, CPSC 223, 477, PHYS 378, PLSC 468. CPSC 323 may be substituted for CPSC 223.

Data Analysis in a Discipline Area Two half-credit courses or one full-credit course from those approved for this requirement and listed on the S&DS website.

Searchable attributes YC S&DS: Data Analy Disc Area, YC S&DS: Methods Data Science

ADVISING

More information about the certificate, including how to register, is available on the S&DS website.

SUMMARY OF REQUIREMENTS

Prerequisite 1 term course from S&DS 100, 101–109, or 123 (or an introductory data analysis course in another department)

Number of courses 5 term courses

Distribution of courses 1 probability and statistical theory course; 2 statistical methodology and data analysis courses; 1 computational and machine learning course; and 2 half-credit courses or 1 course in discipline area, as specified

FACULTY OF THE DEPARTMENT OF STATISTICS AND DATA SCIENCE

Professors †Donald Andrews, Andrew Barron, †Jeffrey Brock, Joseph Chang, †Katarzyna Chawarska, †Xiaohong Chen, †Nicholas Christakis, †Ronald Coifman, †James Duncan, John Emerson (*Adjunct*), †Alan Gerber, †Mark Gerstein, Anna Gilbert, John Hartigan (*Emeritus*), †Edward Kaplan, †Harlan Krumholz, John Lafferty, Zongming Ma, David Pollard (*Emeritus*), †Nils Rudi, Jasjeet Sekhon, †Donna Spiegelman, Daniel Spielman, †Hemant Tagare, †Van Vu, Yihong Wu, †Heping Zhang, †Hongyu Zhao, Harrison Zhou, †Steven Zucker

Associate Professors †P. M. Aronow, †Forrest Crawford, †Joshua Kalla, †Amin Karbasi, †Vahideh Manshadi, Ethan Meyers (*Visiting*), Sekhar Tatikonda

Assistant Professors Elisa Celis, Sinho Chewi, Zhou Fan, †Melody Huang, Roy Lederman, Lu Lu, Theodor Misiakiewicz, Omar Montasser, †Fredrik Savje, †Dustin Scheinost, †Ramina Sotoudeh, †Andre Wibisono, Zhuoran Yang, †Ilker Yildirim, Ilias Zadik

Senior Lecturers †William Casey King, Brian Macdonald, Jonathan Reuning-Scherer

Lecturer Robert Wooster

†A joint appointment with primary affiliation in another department or school.

Theater, Dance, and Performance Studies

Director of undergraduate studies: Hal Brooks (hal.brooks@yale.edu), Rm. 102C, 220 York St., 432-1310; theaterstudies.yale.edu; dance studies; musical theater

The mission of the program in Theater, Dance, and Performance Studies (TDPS) is to cultivate adventurous artists and scholars with a serious commitment to craft and extensive understanding of the contexts in which cultural productions emerge. Introductory, term, and capstone courses reiterate the core learning objectives of the program: collaboration, craft, the integration of practice and theory, interdisciplinarity, and new work development.

Students are encouraged to gain experience in an array of disciplines including theater, dance, performance studies, musical theater, intermedia arts, and design. As research in theater, dance, and performance studies is interdisciplinary in scope and global in perspective, students are expected to take courses in cognate disciplines such as history, philosophy, anthropology, political science, film, art, and literature. The major provides a solid education in the humanities, as well as preparation for graduate studies or for careers in theater, dance, and the performing arts.

Faculty members are affiliated with a range of departments; their diverse expertise lends breadth and depth to course offerings and enables students to devise a course of study that reflects their developing interests. Faculty affiliated with the David Geffen School of Drama at Yale (DGSD) regularly teach Theater, Dance, and Performance Studies (THST) courses, and students have ample opportunities to interact with graduate students in the various departments of DGSD. Courses and events across the TDPS curriculum provide opportunities for students to attend performances by professional companies and artists and learn from discussions, workshops, and lectures offered by prominent guest artists and scholars.

Special features of the program are its production seminars, independent studies, research- and writing-based senior theses, and production-based senior projects. Production seminars, taken with the permission of the instructor, offer immersive, semester-long performance research and development, culminating in public productions. Independent studies, taken under the supervision of a faculty adviser, give students the freedom to pursue individual and group-generated projects and to investigate areas of scholarship not offered elsewhere in the curriculum. Independent study courses are typically open only to juniors and seniors in the major. Production-based senior projects as well as research- and writing-based senior theses are described in the Senior Requirements section.

In addition to the theater, dance, and performance studies curricula, three programs are integrated into the mission of the major.

The **Dance Studies curriculum** features studio and seminar courses that cover the practice, history, and theory of diverse dance forms and movement phenomena. Students are guided in physical techniques and movement research across a wide range of temporal, geographic, and cultural sites, linking dance to the other arts, the humanities, sciences, and social sciences, and they explore the fluid and

fraught relationship between movement and language. Contact: Emily Coates (emily.coates@yale.edu), Director of Dance.

The **Shen Curriculum for Musical Theater** examines American Musical Theater as a unique art form, one informed and influenced by changing cultural and socio-economic conditions as well as musical tastes and styles. Shen courses combine a grounding in skill-based study with history, analysis, and theory. The faculty consists of scholars and working professionals, including composers, directors, lyricists, librettists, directors, and performers. Additionally, the Shen Curriculum supports a co-curricular program that includes the Fridays at Five series of master classes and voice lessons in musical theater technique. Contact: Daniel Egan (dan.egan@yale.edu), Coordinator of the Shen Curriculum.

Computing and the Arts is an interdepartmental major designed for students who wish to work at and across intersections between computing and theater, dance and/or performance studies. Through a mix of practical and theoretical exploration, students consider how the live body on stage is reconfigured, reimaged, and reified through technological intervention. Contact: Elise Morrison (elise.morrison@yale.edu), affiliated faculty in Computing and the Arts.

The Theater, Dance, and Performing Studies department also supports three substantial co-curricular initiatives: the Performance Studies working group, the Yale Playwrights Festival, and the Yale Dance Lab.

PREREQUISITES

The prerequisites for the major are THST 110 and THST 111.

REQUIREMENTS OF THE MAJOR

The major consists of ten term courses beyond the introductory prerequisites. Of the ten required term courses, students must take two courses in each of four domains: Artistic Practice, Interarts, Histories, and Performance Theory, one related elective and one senior requirement course. Most courses are listed in more than one domain, though they may count for only one domain requirement for a given student. Students may take term courses concurrently with prerequisite courses.

Artistic Practice Domain (YC THST: Artistic Practice) This domain encompasses techniques and compositional strategies in theater, dance, musical theater, design, and intermedia performance. Practice-based courses emphasize the knowledge of doing, moving, creating, devising, composing, designing, and craft. Courses move through existing aesthetic practices and histories as a means of cultivating individual and collective expression and new creation. Skills: heightened attention to energy, time, and space; the artist's self-knowledge and body; fluency synthesizing movement and language in compositions; and innovative approaches to researching history and culture through performance.

Interarts Domain (YC THST: Interarts) This domain invites students to experience art-making between disciplines and within interdisciplinary forms. Courses in this area may draw connections and inspiration between established artistic disciplines, such as theater and dance, or reach beyond the program, putting the performing arts in conversation with ideas and approaches in diverse fields including film, visual art, new media, psychology, and science. Ideally, students use the Interarts

requirement to explore disciplinary practices outside of their main track and comfort zone, expanding the boundaries of methods, resources, and questioning that feed into their creative practice. Skills: collaboration; interdisciplinary research and creation; and the integration of methods and systems of knowledge drawn from diverse fields.

Histories Domain (YC THST: Histories) This domain includes courses in which the scope of study is defined by period, genre, and/or geographic region, in which students research past practices, texts, performances, and cultures. Courses in Histories may also ask students to employ performance-based research methods to analyze, discover, reconstruct, or intervene in diverse global, local, and personal historical narratives. Skills: engaging with material from disparate time periods, geographies, and cultural forms; methods of archival research and oral histories; and reenacting historical performance and adaptation in new forms.

Performance Theory Domain (YC THST: Performance Theory) Courses in this domain introduce students to foundational theories of performativity and theatricality as applied to a range of cultural contexts and global histories. Theory courses bring together intersecting literatures of feminist and queer theory, linguistic theory, critical race studies, dance studies, and anthropology that together form the theories and methods of Performance Studies and Dance Studies as fields of study and practice. These courses may also invite students to respond to and use theoretical concepts in the creation of live art. Skills: facility with performance studies analysis; application of theory to dramatic texts and embodied practices; and investigating dynamic relationship between archives and repertoires.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major in Theater, Dance, and Performance Studies.

Courses graded P/F Courses taken Pass/Fail may not be counted toward the requirements of the major in Theater, Dance, and Performance Studies.

Searchable attributes: YC THST: Artistic Practice, YC THST: Interarts, YC THST: Histories, YC THST: Performance Theory

SENIOR REQUIREMENTS

Majors are held to the senior requirements that were in place when they declared their major. However, with approval from the director of undergraduate studies (DUS), the following senior requirement options, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

Majors satisfy the senior requirement in one of three main ways: a substantial senior essay written in an upper-level seminar, THST 491, or THST 492.

With the approval of the DUS, a student may take a one-term, upper-level seminar as a senior seminar. In such cases, the expectations for the final thesis will be substantially higher than for other students not taking the class as a senior seminar. Participation and enrollment in a production seminar may similarly fulfill the senior requirement.

Under the supervision of a faculty adviser, a student may undertake a one-term senior project in either the fall or spring semester by enrolling in THST 491 which culminates in a production as part of the curricular production season. Depending upon an individual student's preparation, coursework, and research objectives, a senior

enrolled in THST 491 may direct, design, or devise a theatrical production, create a documentary film or digital media production, perform a role, choreograph a dance piece, or design an original work of performance art. Seniors engaging in production-based senior projects (THST 491) must complete an essay (15–25 pages in length). For a production-based project to be considered for inclusion in the TDPS curricular season, a proposer must have previously served as a producer of a TDPS curricular production (or partner with someone who has).

Under the supervision of a faculty adviser, a student may undertake a one-term senior research project in either the fall or spring semester by enrolling in THST 492 which culminates in a full-length essay (35–50 pages in length), a writing portfolio or other work of performance-based writing (plays, screenplays, etc.). In THST 492 students' research falls into one of these three areas: 1) Literature, History, Theory, and Criticism 2) Writing Performance-based Art and Media, and 3) Performance Research, Analysis and Design. Seniors pursuing this thesis path are permitted to use their curricular thesis research to support their extracurricular work in a production that is organized and funded through the Creative and Performing Arts process or other approved entities.

To ensure that their coursework aligns with their goals, students should begin discussing senior project ideas and plans with the DUS at the start of their junior year. Senior Project orientation meetings for all juniors are held once in the fall and twice during the spring semester, with research and production proposals due the Friday before spring break.

ADVISING

TDPS majors in their junior and senior years are required to meet with the DUS at the beginning of each of their final four terms. Students in their first and second years of study who may be interested in the TDPS major are encouraged to meet with the DUS once a semester to discuss goals, learn about opportunities, and ask questions.

COURSES REQUIRING INSTRUCTOR PERMISSION

With the exception of THST 110 and THST 111, many courses in Theater, Dance, and Performance Studies are limited enrollment courses that may require a short statement of interest, writing sample, or audition in order to obtain instructor permission to register. When there are more applicants for a course than can be admitted, priority is given to juniors and seniors who have declared a major in Theater, Dance, and Performance Studies or first-year students and sophomores who have completed one or both prerequisite courses (THST 110 and THST 111). Undergraduate students in all years of study and in all majors are encouraged to apply to courses in Theater, Dance, and Performance Studies.

COURSES IN THE DAVID GEFFEN SCHOOL OF DRAMA AT YALE

Majors in Theater, Dance, and Performance Studies are eligible to take DGSD courses in design, theory, dramaturgy, and theater management, with permission of the instructor, the DUS, the DGSD Registrar, and “blue form” approval submitted by their academic dean to the Registrar’s Office. Undergraduates may not, however, enroll in acting or directing courses offered by the David Geffen School of Drama at Yale. Students enrolling in DGSD courses should note that a maximum of four term courses from the professional schools (of which DGSD is one) may be offered toward the bachelor’s degree. Students also should note that the academic calendars of DGSD

and of Yale College differ. The DGSD calendar should be consulted for scheduling. A student interested in taking a course at the David Geffen School of Drama at Yale should begin by seeking the permission of the instructor and contacting their academic dean.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites THST 110, 111

Number of courses 10 term courses beyond prereqs (incl senior req)

Distribution of courses 2 courses in each of four domains: Artistic Practice, Interarts, Histories, Performance Theory; plus 1 related elective.

Senior requirement Senior seminar with substantial final essay, THST 491, or THST 492

FACULTY ASSOCIATED WITH THE PROGRAM OF THEATER AND PERFORMANCE STUDIES

Professors James Bundy (*School of Drama, Theater, Dance, and Performance Studies*), David Chambers (*Adjunct*) (*Theater, Dance, and Performance Studies*), *Toni Dorfman (*Adjunct*) (*Theater, Dance, and Performance Studies*), Branden Jacobs-Jenkins (*Practice*) (*Theater, Dance, and Performance Studies*), Joan MacIntosh (*Practice*) (*Theater, Dance, and Performance Studies, School of Drama*), *Lawrence Manley (*English*), *Deb Margolin (*Practice*) (*Theater, Dance, and Performance Studies*), Donald Margulies (*Adjunct*) (*English, Theater, Dance, and Performance Studies*), *Charles Musser (*Film & Media Studies, American Studies, Theater, Dance, and Performance Studies*), Tavia Nyong'o (*Theater, Dance, and Performance Studies, American Studies*), *Marc Robinson (*School of Drama, Theater, Dance, and Performance Studies, English*), Shane Vogel (*African American Studies, English, Theater, Dance, and Performance Studies*), Gregory Wallace (*Practice*) (*School of Drama, Theater, Dance, and Performance Studies*)

Associate Professor Emily Coates (*Adjunct*) (*Theater, Dance, and Performance Studies, School of Drama*)

Assistant Professors Elise Morrison (*Theater, Dance, and Performance Studies*), Amanda Reid (*Theater, Dance, and Performance Studies*)

Lecturers Hal Brooks, Lacina Coulibaly, Daniel Egan, Grant Herreid, Irène Hultman, Annette Jolles, Michael Korie, Bronwen MacArthur, Elijah Martinez, Lynda Paul, Emmanuele Phuon, Kelsey Rainwater, Nathan Roberts, Renee Robinson, Michael Rossmly, Brian Seibert, Dexter Singleton, Sohina Sodhu, Shilarna Stokes, Daniel Ulbricht, Daniela Varon.

*Member of the Executive Committee for the program.

Translation Studies Certificate

Certificate director: Marijeta Bozovic (marijeta.bozovic@yale.edu), Slavic Languages and Literatures; Film and Media Studies; Women's, Gender, and Sexuality Studies

As human migration and globalization alter the manner and speed of language change, translation has become increasingly central to the workings of the contemporary world. This certificate in Translation Studies promotes the interdisciplinary study of translation, and at the same time facilitates existing and burgeoning translation practices, encompassing literary, social, political, economic, legal, technological, and medical dimensions.

This certificate offers students a coursework-focused track to develop expertise in translation research and practice.

REQUIREMENTS

Students must successfully complete five course credits on translation-themed topics, drawn from the list of approved courses posted each semester on the Translation Studies Initiative website. Other course credits may be approved by permission of the certificate director and the course instructor. In addition, each student must attend three lectures or events listed through the Translation Initiative to be awarded the certificate. After each lecture, students are asked to submit a brief written response to the lecture to the certificate director to be credited for attendance. Other translation activities or other events may be counted toward this requirement at the discretion of the director.

Of the five credits, no more than three may originate in the same department. Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Translation Studies certificate or of a major, a simultaneous degree, or another certificate; and no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Approved graduate and professional school courses may count toward the certificate.

Declaration of Candidacy

Students must submit a Declaration of Candidacy for a Certificate form, as early as possible, but at the very latest, before the start of the student's last semester at Yale. The form can be found on the University Registrar's Office website. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits

Distribution of courses Up to 3 courses in any originating department

Additional requirements Attendance at 3 lectures sponsored by the Translation Initiative, each followed by a 1-page written response to the event

Urban Studies

Directors of undergraduate studies: Elihu Rubin (eliuhu.rubin@yale.edu), RDH, 180 York St., 436-4641; urbanstudies.yale.edu

Urban Studies is an interdisciplinary field grounded in the physical and social spaces of the city and the larger built environment. The Urban Studies major is situated within Yale's liberal arts framework and draws on the broader academic context and expertise of the Yale School of Architecture, including the areas of urban design and development, urban and architectural history, urban theory and representation, globalization and infrastructure, transportation and mobility, heritage and preservation, and community-based planning. The major introduces students to the following bodies of knowledge: history, theory, and contemporary analysis of urban morphologies, spaces, societies, and political economies; conceptual tools and analytical methods to understand urban environments and issues through spatial terms; and practices of and speculative approaches to urban planning and design.

The major prepares undergraduates for a variety of future careers and fields of graduate study related to urban planning, design, and development. These include professional and practice-oriented fields such as urban planning, landscape architecture, law, nonprofit management, public policy, real estate, and architecture; as well as research-oriented fields such as geography, sociology, anthropology, history and theory of urban planning, and urban and architectural history.

REQUIREMENTS OF THE MAJOR

Thirteen course credits are required for the major, including the senior requirement. Each student, in consultation with the director of undergraduate studies (DUS) or a departmental faculty adviser, bears the responsibility for designing a coherent program, which must include the following elements: 3 surveys; 3 methods courses; 4, 5, or 6 electives (depending on the credit value of the courses); and a one- or two-term senior requirement.

Surveys Students choose three survey courses from the following list, of which one URBN course is required. Surveys should be completed by the end of the second year.

Surveys: URBN 160, 280, 341, 345, AMST 163, 196, EVST 226, ARCH 150

Methods courses Students must choose an Urban Lab as one of the three required methods courses. The courses in the following lists introduce various methods of understanding and analyzing urbanism and the city. Students should consider completing at least two of these courses by the end of their junior year.

Urban Lab Courses: URBN 352, 353, 360, 362, 363

Methods Courses: URBN 200, 352, 353, 360, 362, 363, ANTH 303, EVST 290, SOCY 160, 169

Electives Students choose five electives if enrolling in the two-term senior requirement; six electives if opting for the one-term senior requirement. Each student is responsible for selecting their elective courses from the approved list or by petition of the DUS. Students who take two Urban Labs (1.5 credits each) may take 4–5 electives depending on the selected senior requirement.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Urban Studies major.

SENIOR REQUIREMENT

All majors must satisfy a senior requirement undertaken during the senior year. Students have the option of pursuing a yearlong senior project, which includes URBN 490, Senior Research Colloquium, in the fall and URBN 491, Senior Project, in the spring. The senior project may be a written paper (minimum 7,500 words in the body of the document) or a project that could encompass a variety of media with permission from DUS and the adviser. The primary adviser must be a member of the architecture faculty. Students not choosing a yearlong project may enroll in an advanced seminar (URBN 400–490), and produce a final paper of 6,000 words, minimum, in addition to existing coursework. The seminar should be selected in consultation with the DUS. Note that students pursuing this option must also take an additional elective.

ADVISING AND INTENT TO MAJOR

Students are encouraged to declare their intent to major by the end of their second year, but applications to the major are accepted on a rolling basis. The intent to major process includes submission of an Intent to Major form with requested materials followed by a meeting with the DUS to discuss the intended course of study. Schedules for majors must be discussed with, and approved by, the DUS in Urban Studies.

Courses in the School of Architecture Unless otherwise indicated in the course descriptions, all courses in the School of Architecture are open to majors and nonmajors with permission of the instructor and the graduate registrar. They are not available for the Credit/D/Fail option. Students are admitted on the basis of their previous coursework and previous performance.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 course credits (incl senior req)

Distribution of courses 3 surveys, incl 1 URBN course (to be completed by second year); 3 methods courses, one of which must be an Urban Lab; 4–6 electives, as specified and depending on the credit values of the courses selected

Senior requirement URBN 490 and 491; or adv seminar and an addtl elective

FACULTY ASSOCIATED WITH URBAN STUDIES

Professors Elijah Anderson (*Sociology*), Keller Easterling (*School of Architecture*), Jennifer Klein (*History*), Marcella Nunez-Smith (*School of Medicine*), Alan Plattus (*School of Architecture*), Karen Seto (*School of Environment*), Helen Siu (*Anthropology*), Jing Tsu (*Comparative Literature, East Asian Languages and Literature*)

Associate Professors Laura Barraclough (*American Studies*), Erik Harms (*Anthropology*), Bill Rankin (*History of Science, Medicine, and Public Health*), Elihu Rubin (*School of Architecture, American Studies*)

Assistant Professors Anthony Acciavatti (*Visiting*) (*School of Architecture*), Joyce Hsiang (*School of Architecture*), Bimal Mendis (*Adjunct*) (*School of Architecture*)

Lecturer Jay Gitlin (*History*)

Critics Marta Caldeira (*School of Architecture*), Andrei Harwell (*School of Architecture*), Surry Schlabs (*School of Architecture*), Beka Sturges (*School of Architecture*)

Women's, Gender, and Sexuality Studies

Director of undergraduate studies: Igor De Souza
(igor.h.desouza@yale.edu); wgss.yale.edu

Genders and sexualities are powerful organizing forces: they shape identities and institutions, nations and economies, cultures, and political systems. Careful study of gender and sexuality thus explains crucial aspects of our everyday lives on both intimate and global scales. Scholarship in Women's, Gender, and Sexuality Studies is interdisciplinary and wide ranging, drawing on history, literature, cultural studies, social sciences, and natural science to study genders and sexualities as they intersect with race, ethnicity, class, nationality, transnational processes, disability, and religion.

Students majoring in Women's, Gender, and Sexuality Studies take a series of core courses, develop an individual area of focus, and write a yearlong or single-term senior essay. The program encourages work that is interdisciplinary, intersectional, international, and transnational. Individual focus areas evolve along with students' intellectual growth and academic expertise. Recent examples of areas of focus include literature and queer aesthetics; transnational feminist practices; the intellectual history of civil rights activism; AIDS health policies; gender, religion, and international NGOs; women's health; food, sexuality, and lesbian community; and gender and sexuality in early education.

REQUIREMENTS OF THE MAJOR

Students are held to the requirements in place when they declared their major.

However, with approval from the director of undergraduate studies (DUS), the following requirements, updated for the academic year 2024–2025, may be fulfilled by students who declared the major in a prior term.

Twelve term courses are required and this major may be taken either as a primary major or as one of two majors. Requirements include two intermediate courses selected from WGSS 205, 206, 207, or 340. Majors are strongly encouraged to take these intermediate courses during their first two years. The major also requires one methodology course, seven courses in an area of focus (one of which must be an upper-level seminar in WGSS numbered 350 or above) and a two-course senior requirement. The area of focus consists of at least seven courses, the majority of which should be drawn from program offerings. Substitutions to the major requirements may be made only with the written permission of the DUS.

Methodology courses Given its interdisciplinary nature, the Women's, Gender, and Sexuality Studies major necessarily relies on a wide range of methodologies: literary criticism, ethnography, visual analysis, historiography, and quantitative data analysis, among others. Each student is expected to acquire competence in at least one methodology relevant to their area of focus and planned senior essay. Students are advised to take a methodology course by their junior year in preparation for the senior essay. Methodology courses may be drawn from any department, but are subject to DUS approval for WGSS credit.

SENIOR REQUIREMENT

The two-term senior essay The two-term senior sequence consists of WGSS 490, The Senior Colloquium, in which students begin researching and writing a senior essay, followed by WGSS 491, The Senior Essay, in which students complete the essay. The senior essay is developed and written under the guidance and supervision of a WGSS-affiliated faculty member with expertise in the area of focus. Students are expected to meet with their essay advisers on a regular basis.

The single-term senior essay Majors may opt to complete the senior essay requirement in an approved upper-level WGSS seminar in the fall or spring term, with the approval of the instructor, by writing a senior essay of twenty-five to forty-five pages in lieu of the course's normal writing requirements. Students who choose the single-term senior essay take one additional WGSS course of their choosing to fulfill the twelve-term-course requirement.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Distribution of courses 2 intermediate courses as indicated; 1 methodology course; 7 electives in area of focus

Senior requirement Senior colloquium and senior essay (WGSS 490, 491); or single-term senior essay in an upper-level seminar and one additional elective

FACULTY ASSOCIATED WITH THE PROGRAM OF WOMEN'S, GENDER, AND SEXUALITY STUDIES

Professors Fatima El-Tayeb (*Ethnicity, Race, and Migration*), Roderick Ferguson (*Chair*), Scott Herring (*American Studies*), Margaret Homans (*English*), Regina Kunzel (*History*), Gail Lewis (*Visiting Professor of WGSS*), Dara Strolovitch, Kalindi Vora (*Ethnicity, Race, and Migration*), Laura Wexler (*American Studies*)

Associate Professors Joseph Fischel, Deb Vargas (*Ethnicity, Race, and Migration*)

Assistant Professors Eda Pepi, Evren Savci

Senior Lecturer Maria Trumpler

Lecturers Craig Canfield, Igor De Souza, Graeme Reid

Affiliated Faculty Julia Adams (*Sociology*), Rene Almeling (*Sociology*), Carol Armstrong (*History of Art*), Daniel Botsman (*History*), Claire Bowern (*Linguistics*), Melanie Boyd (*Yale College, Dean of Student Affairs*), Marijeta Bozovic (*Slavic Languages and Literatures*), Jill Campbell (*English*), Hazel Carby (*Emerita*) (*African American Studies, American Studies*), Kang-i Sun Chang (*East Asian Languages and Literatures*), Becky Conekin (*History*), Deborah Davis (*Sociology, East Asian Studies*), Rohit De (*History*), Carolyn Dean (*History, French*), Robin Dembroff (*Philosophy*), Ron Eyerman (*Sociology*), Crystal Feimster (*African American Studies*), Marta Figlerowicz (*Comparative Literature, English*), Moira Fradinger (*Comparative Literature*), Glenda Gilmore (*History*), Jacqueline Goldsby (*African American Studies, American Studies, English*), Gregg Gonsalves (*Law School, Public Health*), Inderpal Grewal (*Emerita*) (*American Studies*), Zareena Grewal (*American Studies, Religious Studies*), Dolores

Hayden (*Emerita*) (*School of Architecture, American Studies*), Janet Henrich (*School of Medicine*), Marcia Inhorn (*Anthropology, Global Affairs*), Alice Kaplan (*French*), Jennifer Klein (*History*), Greta LaFleur (*American Studies*), Marianne LaFrance (*Emerita*) (*Psychology*), Hélène Landemore-Jelaca (*Political Science*), Kathryn Lofton (*American Studies, History, Religious Studies*), Lisa Lowe (*American Studies, Ethnicity, Race and Migration*), Mary Lui (*American Studies, History*), Deb Margolin (*Theater Studies*), Alka Menon (*Sociology*), Kobena Mercer (*History of Art, African American Studies*), Joanne Meyerowitz (*American Studies, History*), Alice Miller (*Law School, Public Health*), Elise Morrison (*Theater Studies*), Laura Nasrallah (*Religious Studies*), Priyamvada Natarajan (*Astronomy, Physics*), Tavia Nyong'o (*Theater Studies, American Studies*), John Pachankis (*Public Health*), Sally Promey (*American Studies, Institute of Sacred Music*), Ana Ramos-Zayas (*American Studies, Ethnicity, Race & Migration*), Judith Resnik (*Law School*), Juno Jill Richards (*English*), Naomi Rogers (*History, History of Science, Medicine & Public Health*), Frances Rosenbluth (*Political Science*), Alicia Schmidt Camacho (*American Studies, Ethnicity, Race & Migration*), William Summers (*Emeritus*) (*Molecular, Cellular, & Developmental Biology, History of Science, Medicine, & Public Health*), George Syrimis (*Hellenic Studies*), Rebecca Tannenbaum (*History*), Linn Tonstad (*Divinity School*), Jing Tsu (*East Asian Languages and Literatures, Comparative Literature*), Claudia Vaggia (*Anthropology*), Noel Valis (*Spanish & Portuguese*), Michael Warner (*English, American Studies*), Elisabeth Wood (*Political Science*)

THE WORK OF YALE UNIVERSITY

The work of Yale University is carried on in the following schools:

Yale College Est. 1701. Courses in humanities, social sciences, natural sciences, mathematical and computer sciences, and engineering. Bachelor of Arts (B.A.), Bachelor of Science (B.S.). 203 432-9300 <https://admissions.yale.edu>

Graduate School of Arts and Sciences Est. 1847. Courses for college graduates. Master of Arts (M.A.), Master of Science (M.S.), Master of Philosophy (M.Phil.), Doctor of Philosophy (Ph.D.). 203 432-2771 <https://gsas.yale.edu>

School of Medicine Est. 1810. Courses for college graduates and students who have completed requisite training in approved institutions. Doctor of Medicine (M.D.). Postgraduate study in the basic sciences and clinical subjects. Five-year combined program leading to Doctor of Medicine and Master of Health Science (M.D./M.H.S.). Combined program with the Graduate School of Arts and Sciences leading to Doctor of Medicine and Doctor of Philosophy (M.D./Ph.D.). Master of Medical Science (M.M.Sc.) from the Physician Associate Program and the Physician Assistant Online Program. 203 785-2643 <https://medicine.yale.edu/edu/>

Divinity School Est. 1822. Courses for college graduates. Master of Divinity (M.Div.), Master of Arts in Religion (M.A.R.). Individuals with an M.Div. degree may apply for the program leading to the degree of Master of Sacred Theology (S.T.M.). 203 432-5360 <https://divinity.yale.edu>

Law School Est. 1824. Courses for college graduates. Juris Doctor (J.D.). Graduate Programs: Master of Laws (LL.M.), Doctor of the Science of Law (J.S.D.), Master of Studies in Law (M.S.L.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-4995 <https://law.yale.edu>

School of Engineering & Applied Science Est. 1852. Courses for college graduates. Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-4252 <https://seas.yale.edu>

School of Art Est. 1869. Professional courses for college and art school graduates. Master of Fine Arts (M.F.A.). 203 432-2600 <http://art.yale.edu>

School of Music Est. 1894. Graduate professional studies in performance and composition. Certificate in Performance (CERT), Master of Music (M.M.), Master of Musical Arts (M.M.A.), Artist Diploma (A.D.), Doctor of Musical Arts (D.M.A.). 203 432-4155 <https://music.yale.edu>

School of the Environment Est. 1900. Courses for college graduates. Master of Forestry (M.F.), Master of Forest Science (M.F.S.), Master of Environmental Science (M.E.Sc.), Master of Environmental Management (M.E.M.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 800 825-0330 <https://environment.yale.edu>

School of Public Health Est. 1915. Courses for college graduates. Master of Public Health (M.P.H.), Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 785-2844 <https://publichealth.yale.edu>

School of Architecture Est. 1916. Courses for college graduates. Professional and post-professional degree: Master of Architecture (M.Arch.); nonprofessional degree: Master of Environmental Design (M.E.D.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-2296 <https://www.architecture.yale.edu>

School of Nursing Est. 1923. Courses for college graduates. Master of Science in Nursing (M.S.N.), Post Master's Certificate (P.M.C.), Doctor of Nursing Practice (D.N.P.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 785-2389 <https://nursing.yale.edu>

David Geffen School of Drama Est. 1925. Courses for college graduates and certificate students. Master of Fine Arts (M.F.A.), Certificate in Drama, Doctor of Fine Arts (D.F.A.). 203 432-1507 <https://drama.yale.edu>

School of Management Est. 1976. Courses for college graduates. Master of Business Administration (M.B.A.), Master of Advanced Management (M.A.M.), Master of Management Studies (M.M.S.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. <https://som.yale.edu>

Jackson School of Global Affairs Est. 2022. Courses for college graduates. Master in Public Policy (M.P.P) and Master of Advanced Study (M.A.S.). 203 432-6253 <https://jackson.yale.edu>

COURSES

- Accounting (ACCT)
- Aerospace Studies (USAF)
- African American Studies (AFAM)
- African Studies (AFST)
- Akkadian (AKKD)
- American Sign Language (ASL)
- American Studies (AMST)
- Ancient Greek (GREK)
- Anthropology (ANTH)
- Applied Mathematics (AMTH)
- Applied Physics (APHY)
- Arabic (ARBC)
- Archaeological Studies (ARCG)
- Architecture (ARCH)
- Armenian (ARMN)
- Art (ART)
- Astronomy (ASTR)
- Biology (BIOL)
- Biomedical Engineering (BENG)
- Bosnian-Serbian-Croatian (SBCR)
- British Studies (BRST)
- Burmese (BURM)
- Chemical Engineering (CENG)
- Chemistry (CHEM)
- Child Study (CHLD)
- Chinese (CHNS)
- Classical Civilization (CLCV)
- Classics (CLSS)
- Cognitive Science (CGSC)
- Comparative Literature (LITR)
- Computer Science (CPSC)
- Computer Science and Economics (CSEC)
- Computing and the Arts (CPAR)
- Czech (CZEC)
- Directed Studies (DRST)
- Dutch (DUTC)
- Earth and Planetary Sciences (EPS)
- East Asian Languages and Literatures (EALL)

- East Asian Studies (EAST)
- Ecology & Evolutionary Biology (E&EB)
- Economics (ECON)
- Education Studies (EDST)
- Egyptian (EGYP)
- Electrical Engineering (EENG)
- Energy Studies (ENRG)
- Engineering & Applied Science (ENAS)
- English Language and Literature (ENGL)
- Environmental Engineering (ENVE)
- Environmental Studies (EVST)
- Ethics, Politics, & Economics (EP&E)
- Ethnicity, Race, & Migration (ER&M)
- Film and Media Studies (FILM)
- Finnish (FNSH)
- French (FREN)
- German Studies (GMAN)
- Global Affairs (GLBL)
- Global Health Studies (HLTH)
- Hebrew (HEBR)
- Hindi (HNDI)
- History (HIST)
- History of Art (HSAR)
- History of Science, Medicine, and Public Health (HSHM)
- Human Rights Studies (HMRT)
- Humanities (HUMS)
- Hungarian (HGRN)
- Indonesian (INDN)
- Italian Studies (ITAL)
- Japanese (JAPN)
- Jewish Studies (JDST)
- Khmer (KHMR)
- Kiswahili (SWAH)
- Korean (KREN)
- Latin (LATN)
- Latin American Studies (LAST)
- Linguistics (LING)
- Mathematics (MATH)
- Mechanical Engineering (MENG)
- Modern Greek/Hellenic Studies (MGRK)
- Modern Middle East Studies (MMES)

- Modern Tibetan (MTBT)
- Molecular Biophysics and Biochemistry (MB&B)
- Molecular, Cellular, and Developmental Biology (MCDB)
- Music (MUSI)
- Naval Science (NAVY)
- Near Eastern Languages and Civilizations (NELC)
- Neuroscience (NSCI)
- Ottoman (OTTM)
- Persian (PERS)
- Philosophy (PHIL)
- Physics (PHYS)
- Polish (PLSH)
- Political Science (PLSC)
- Portuguese (PORT)
- Psychology (PSYC)
- Punjabi (PNJB)
- Religious Studies (RLST)
- Romanian (ROMN)
- Russian (RUSS)
- Russian, East European, and Eurasian Studies (RSEE)
- Sanskrit (SKRT)
- Science (SCIE)
- Sinhala (SNHL)
- Slavic Languages and Literatures (SLAV)
- Sociology (SOCY)
- South Asian Studies (SAST)
- Spanish (SPAN)
- Special Divisional Major (SPEC)
- Statistics and Data Science (S&DS)
- Study of the City (STCY)
- Tamil (TAML)
- The DeVane Lecture Course (DEVN)
- Theater, Dance, and Performance Studies (THST)
- Tibetan (TBTN)
- Turkish (TKSH)
- Twi (TWI)
- Ukrainian (UKRN)
- Urban Studies (URBN)
- Vietnamese (VIET)
- Wolof (WLOF)
- Women's Gender and Sexuality Studies (WGSS)

- Yoruba (YORU)
- Zulu (ZULU)

Accounting (ACCT)

* ACCT 270b, Foundations of Accounting and Valuation Rick Antle

Modern accounting practices and their use in distinguishing value creation from value redistribution. Basic determinants of value and the techniques used to assess it; the creation of value through the production and delivery of goods or services; the conversion of that value into cash flows; basic financial statements, balance sheets, income statements, and cash flow statements, and the accounting mechanics with which they are built.

Aerospace Studies (USAF)

* USAF 101a, Heritage and Values of the U.S. Air Force I Christopher Goad

Introduction to the U.S. Air Force and how it works as a military institution, including an overview of its basic characteristics, missions, and organizations. Students attend one 50-minute lecture and one 110-minute laboratory each week. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 201a, Team and Leadership Fundamentals I Christopher Goad

This course focuses on laying the foundation for teamwork and leadership, particularly the skills that allow cadets to improve their leadership on a personal level and within a team. The course prepares cadets for their field training experience, where they are able to put the concepts learned into practice. The purpose of this course is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 301a, Leading People and Effective Communication I Staff

Advanced study of leadership concepts and ethics, management and communication skills, and Air Force personnel and evaluation systems. Emphasis on the enhancement of leadership skills. Case studies and exercise of leadership and management techniques in a supervised environment. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 411a, Foundations of American Airpower Lester Oberg

This course is an exploration of the evolution and employment of airpower in the United States military. The course is designed to give students an understanding of what role modern airpower plays in the use of national instruments of power; how American airpower has shaped U.S. grand strategy and vice versa. The course traces the development of airpower doctrine and strategy from World War I to modern day. Applications to deterrence theory, the role of technology, counterinsurgency/counterterrorism, and the "information revolution" are discussed.

African American Studies (AFAM)

* AFAM 016a / AFST 015a / ENGL 015a, *South African Writing after Apartheid*

Stephanie Newell

An introduction to creative writing published in South Africa from the end of Apartheid in 1994 to the present. Close readings of contemporary fiction with additional material drawn from popular culture, including films, magazines, and music. Enrollment limited to first-year students. WR, HU

* AFAM 017a / ENGL 006a, *Black Nature: African American Nature Writing*

Jonathan Howard

What stories do we tell about nature? How are the stories we are *able* to tell about nature informed by race? And how do these stories shape our understanding of what it means to be human? In contrast to a largely white tradition of nature writing that assumes a superior position outside of Nature, this course undertakes a broad survey of African American nature writing. Over the course of the semester, we read broadly across several genres of African American literature, including: slave narrative, fiction, poetry, drama and memoir. In this way, we center the unique environmental perspectives of those, who, once considered no more than livestock, *were* the nature over which their white masters ruled. Indeed, as those who were drowned in the ocean during the trans-Atlantic slave trade, forced to cultivate the soil on slave plantations, and hung from trees across the Jim Crow South, black Americans are bound up and entangled in nature in incredibly complex and precarious ways. Perhaps for this very reason, however, we may ultimately come to find in these black nature stories the resources for reclaiming a proper relationship to the Earth, and for imagining a sustainable human life in nature, rather than apart from it. Enrollment limited to first-year students. HU

AFAM 115a / WGSS 125a, “We Interrupt this Program: The Multidimensional Histories of Queer and Trans Politics” Staff

In 1991, the arts organizations Visual AIDS and The Kitchen collaborated with video artist and filmmaker Charles Atlas to produce the live television broadcast “We Interrupt this Program.” Part educational presentation, part performance piece, the show was aired in millions of homes across the nation. The program, in The Kitchen’s words, “sought to feature voices that had often been marginalized within many discussions of AIDS, in particular people of color and women.” This course builds upon and is inspired by this aspect of Atlas’s visionary presentation, an aspect that used the show to produce a critically multicultural platform that could activate cultural histories and critical traditions from various communities. In effect, the course uses this aspect as a metonym for the racial, gender, sexual, and class heterogeneity of queer art and organizing. It conducts its investigation by looking at a variety of primary materials that illustrate the heterogeneous makeup of queer and trans politics. The course also draws on more recent texts and visual works that arose from the earlier contexts that the primary texts helped to illuminate and shape. HU RP o Course cr

AFAM 117a / AMST 207a / MUSI 156a / WGSS 117a, *Beyonce Makes History: Black Radical Tradition History, Culture, Theory & Politics through Music* Staff

This class centers the 2010s and 2020s’ sonic and visual repertoire of Beyonce Knowles-Carter (from 2013’s self-titled album through 2024’s *Cowboy Carter*) as the portal through which to rigorously examine key interdisciplinary works of Black intellectual

thought and grassroots activist practices across the centuries. Its aim is two-fold: to both explore and analyze the dense, robust and virtuosic aesthetics, socio-historical and political dimensions of Beyonce's pathbreaking, mid-career body of work and to, likewise, use her aesthetics; the multi-dimensional form and content of her recordings; her boundary-transgressing performance politics; her history-making visual albums; her innovative concert films; her unprecedented pop music archival endeavors and more as the occasion to explore landmark Black Studies scholarship and Black freedom struggle scholarly and cultural texts (in history, Black feminist theory, philosophy, anthropology, art history, performance studies, musicology, political science, sociology, dance, American Studies, religious studies, archival studies etc.) that directly resonate with Beyonce's sonic, visual and live performance endeavors. In short, this is a class that traces the relationship between Beyonce's artistic genius and Black intellectual practice. HU o Course cr

AFAM 146b / ECON 171b / EDST 271b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K-12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. so

AFAM 160a / AFST 184a / AMST 160a / HIST 184a, History of Atlantic Slavery Staff
The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

*** AFAM 177b / EP&E 248b / PLSC 256b, American Political Institutions** Michael Fotos

The origins and development of American political institutions, especially in relation to constitutional choice and the agency of persons seeking freedom, equality, and self-governing capabilities as a driver of constitutional change. Key concepts include: American federalism, compound republic, citizenship, social movements, racial justice, and nonviolence. WR, SO

*** AFAM 182a / AMST 286a / ENGL 182a / HUMS 241a, James Baldwin's American Scene** Staff

In-depth examination of James Baldwin's canon, tracking his work as an American artist, citizen, and witness to United States society, politics, and culture during the Cold War, the Civil Rights era, and the Black Arts Movement. HU o Course cr

AFAM 186a / LAST 214a / PLSC 378a / SOCY 170a, Contesting Injustice Staff
Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. so o Course cr

AFAM 192a / AFST 238a / AMST 238a / ER&M 238a, Third World Studies Staff
Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

*** AFAM 220b / FILM 434b, Archive Aesthetics and Community Storytelling** Thomas Harris

This production course explores strategies of archive aesthetics and community storytelling in film and media. It allows students to create projects that draw from archives—including news sources, personal narratives, and found archives—to produce collaborative community storytelling. Conducted as a production workshop, the course explores the use of archives in constructing real and fictive narratives across a variety of disciplines, such as—participants create and develop autobiographies, biographies, or fiction-based projects, tailored to their own work in film/new media around Natalie Goldberg’s concept that “our lives are at once ordinary and mythical.” HU

*** AFAM 239b / AMST 461b / EDST 209b / ER&M 292b / WGSS 202b, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

*** AFAM 244a / PLSC 200a, The Politics of Crime and Punishment in American Cities** Allison Harris

This course explores the relationship between politics and crime and punishment. We review literature focused on political behavior and political institutions to better understand the phenomena we hear about in the news from sentencing algorithms, to felon (dis)enfranchisement, to stop-and-frisk, and police use of force. SO

*** AFAM 253a / MUSI 381a, Jazz in Transition, 1960–2000** Michael Veal

A survey of musicians, stylistic currents, and critical issues relevant to the evolution of jazz between 1960 and 2000. Topics include Third Stream, free jazz, jazz-rock fusion, the influence of world music, neo-classicism, jazz and hip-hop, and others. HU

*** AFAM 261a / AMST 263a / EDST 263a, Place, Race, and Memory in Schools** Errol Saunders

As places, schools both shape and are profoundly shaped by the built environment and the breathed, braved, and believed everyday experiences of the people that interact with them. That everyday environment is just as grounded in the past as it is in the present. Teachers, administrators, students, and parents are impacted by the racialized narratives about the past that groups and individuals take up to explain the bygone, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Given the weight that narratives of social mobility in the United States place upon education, there is profound interest in the roles that schools play in perpetuating racial disparities

in American society and the opportunities that education writ large might provide for remedying them. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

*** AFAM 277a / AFST 484a / MUSI 485a, Musical Pan-Africanisms** Michael Veal
This seminar surveys the musical conversation that has circulated around the “Black Atlantic” cultural sphere (sub-Saharan Africa, Afro-America, the Afro-Caribbean, and Latin America) for most of the twentieth century, facilitated by the advent of sound recording and broadcast technologies at the beginning of the twentieth century, and articulated through discourses of black cultural connection and concrete histories of trans-Atlantic encounter. Many –though not all– of the readings focus on the decades immediately following World War II, when “Pan-Africanism” was an explicit and prominent political discourse. Others address earlier or later examples when the idea of cross-cultural connection was more implicit but equally influential. We trace the unfolding of this conversation through a variety of sources: scholarly, personal (i.e. biographies/autobiographies), journalistic, and, of course, sonic. WR, HU

*** AFAM 305a / ENGL 258a, African American Autobiography** Sarah Mahurin
Examination of African American autobiography, from slave narratives to contemporary memoirs, and how the genre approaches the project (and problem) of knowing, through reading, the relationships of fellow humans. Chronological consideration of a range of narratives and their representations of race, of space, of migration, of violence, of self, and of other, as well as the historical circumstances that inform these representations. Prerequisite: one college-level literature course. HU

*** AFAM 313a / THST 319a, Embodying Story** Renee Robinson
The intersection of storytelling and movement as seen through historical case studies, cross-disciplinary inquiry, and studio practice. Drawing on eclectic source materials from different artistic disciplines, ranging from the repertoire of Alvin Ailey to journalism, architectural studies, cartoon animation, and creative processes, students develop the critical, creative, and technical skills through which to tell their own stories in movement. No prior dance experience necessary. Limited Enrollment. See Canvas for application. HU

*** AFAM 315a / WGSS 305a, Black Feminist Theory** Gail Lewis
This course is designed to introduce you to some of the major themes in black feminist theory. The course does so by presenting classic texts with more recent ones to give you a sense of the vibrancy of black feminist theory for addressing past and present concerns. Rather than interpret black feminist theory as a critical formation that simply puts race, gender, sexuality, and class into conversation with one another, the course apprehends that formation as one that produced epistemic shifts in how we understand politics, empire, history, the law, and literature. This is by no means an exhaustive list of the areas into which black feminism intervened. It is merely a sample of some of the most vibrant ideological and discursive contexts in which black feminism caused certain epistemic transformations. SO

*** AFAM 322b / ENGL 360b, Coming of Age in Black Literature** Sarah Mahurin
 Phillip Atiba Goff's 2014 study "The Essence of Innocence" confirmed that Black children are widely perceived as older than they actually are, and are presumed to be less innocent than their white classmates—often with devastating consequences. This course aims to challenge the "systematic adultification" so prevalent in American (mis)understandings of Black youth by centering narratives of Black childhood across literary genres. How do these texts disrupt conventional approaches to the *bildungsroman*, and what can these writers teach us about coming of age in America?
 HU

*** AFAM 326b / AMST 312b / ER&M 310b / WGSS 298b, Postcolonial Cities of the West** Fadila Habchi
 Examination of various texts and films pertaining to the representation of postcolonial cities in the global north and a range of social, political, and cultural issues that concern those who inhabit these spaces. HU

*** AFAM 329a / SOCY 342a, Managing Blackness in a "White Space"** Elijah Anderson
 "White space" is a perceptual category that assumes a particular space to be predominantly white, one where black people are typically unexpected, marginalized when present, and made to feel unwelcome—a space that blacks perceive to be informally "off-limits" to people like them and where on occasion they encounter racialized disrespect and other forms of resistance. This course explores the challenge black people face when managing their lives in this white space. SO

*** AFAM 342a / ENGL 239a / THST 239a, African American Drama through 1959**
 Shane Vogel
 This course surveys the formal development and major themes of African American drama from the antebellum period through 1959. We examine how dramatists and performers reimagined the various meanings of Blackness in the U.S. public sphere, as well as individual and collective acts of self-fashioning on and off the stage. Special attention is given to aesthetic experimentation and its relationship to political theater; transformations of genre and form; Black dramatic theory; historical drama; diasporic connections and disconnections; the relationship between music, dance, spectacle, and drama; anti-lynching drama and folk drama; representations of class, gender, and sexuality; inter- and intra-racial conflict; Black radical theatre in the New Deal; and institutional histories of key Black theatre companies. HU

*** AFAM 345a / AFST 363a / ER&M 252a / SPAN 360a, Our Guinea: Locating Africa in Early Iberian Archives** Staff
 African coastlines were the first horizons of Iberian imperial expansion into the Atlantic, and eventually, the world. While the worlds made by Africans displaced by the slave trade and their descendants have received extensive attention in recent years, Africa itself rarely enters the frame. The histories that unfolded on the continent in many ways challenge our understandings of Spanish and Portuguese expansion and colonialism, shaped as they are by the "New World" paradigm of conquest and conversion. Were African societies part of the "New World" or the "Old World"? In this course we study an often-overlooked domain of Spanish and Portuguese imperialism and commerce from an approach that includes but does not limit itself to the study of slavery and enslaved Africans in the Americas. We read a selection of primary texts from the early modern Ibero-African archive, with a focus on texts produced about the African continent and Africans (and when possible, by Africans) in

Spanish, and to a lesser extent Portuguese, seeking (1) to challenge existing narratives and frameworks for the study of precolonial Africa, but also (2) to see what kinds of African worlds appear when we set aside our assumptions and generalizations. L5, HU

*** AFAM 349b / AMST 326b / HIST 115Jb / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

*** AFAM 352a / AMST 438a / ER&M 291a / LITR 295a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

*** AFAM 354a / ENGL 351a / HUMS 370a, Fictions of the Harlem Vogue: Novels, Short Stories, and Novellas of the "Harlem Renaissance"** Ernest Mitchell

In this seminar, we examine the major novels, short stories, and novellas of the Harlem Vogue (1923–1934), the first decade of the Negro Renaissance. Key texts by Jessie Fauset, Nella Larsen, Jean Toomer, and Eric Walrond are central, along with lesser-known works by Zora Neale Hurston and Langston Hughes. We consider critical debates about these texts and their standard designation as part of the "Harlem Renaissance." Careful close reading is emphasized throughout; students are guided through a process of archival research and sustained formal analysis to produce a polished critical essay. WR, HU

*** AFAM 362b / ER&M 272b / FREN 262b / GLBL 272b / HIST 223b, Black France** Marlene Daut

This course offers an in-depth exploration of the complex history of Black France, tracing its roots from the era of French colonization in the Caribbean and the transatlantic slave trade to its contemporary manifestations across France and its overseas territories. Beginning with an examination of French colonialism in the Caribbean, particularly focusing on the brutal system of slavery and the development of the Code Noir under the reign of Louis XIV, students gain a comprehensive understanding of the origins of race-thinking in France. Students also read about the pivotal role of French colonies like Saint-Domingue, Martinique, and Guadeloupe in the resistance against slavery, highlighting the Haitian Revolution as a watershed moment in the struggle for freedom and self-determination. Through the lens of this historic event, students analyze the complexities of slave rebellion, the quest for abolition, and the enduring legacy of resistance in Black (francophone) communities. By highlighting the socio-political relationship of the colonial and revolutionary era to the present, students explore the interconnectedness of slavery, colonialism, and power dynamics within the French empire and the enduring impact of this tumultuous history on contemporary conceptions of Blackness in France. Using an interdisciplinary approach that encompasses history, sociology, literary, and cultural studies, students

analyze the formation of Black identity, racial ideologies, and the ongoing struggle for recognition and equality within French society. WR, HU

*** AFAM 364a / ENGL 277a, Blackness and the Problem** Jonathan Howard

In *The Souls of Black Folk* (1903), W.E.B. Du Bois famously theorizes blackness as a serial confrontation with a fundamental question: “How does it feel to be a problem?” This question is in many ways the organizing query of black studies and the devoted preoccupation of this class. Over the course of the semester, we undertake a sustained interrogation of the “problem” of being black, from the advent of racial slavery through to its manifold afterlives. Reading widely across a black literary and intellectual tradition spanning multiple centuries, genres, and disciplines, we explore how black writers not only bear witness to the evolution of the problem of being black over time, but also imagine its redress. Furthermore, we explore how blackness has been conceived as a problem not merely in the conventional sense of an unwelcome condition to be solved or overcome, but also a full and ethical way of dwelling in the world. HU

*** AFAM 371a / AFST 377a / FREN 370a, Caribbean Poetry in French** Thomas Connolly

An introduction to Caribbean poetry in French from the turn of the twentieth century to the present day. Topics covered will include literary, social, and political movements including surrealism, colonization, decolonization, immigration, the relation of French to other languages of the Caribbean including Créole, Spanish, and English, and points of contact between poetry, music, theater, and the visual arts. Students will learn how to read, comment on, and write about poetry. Primary authors will include Étienne Léro, Aimé Césaire, Saint-John Perse, Magloire-Saint-Aude, Édouard Glissant, René Depestre, Davertige, Jean Métellus, Raphaël Confiant, Suzanne Dracius, and Patrick Chamoiseau. Readings, assignments, and discussions in French. Ability to read, write, and discuss in French.

*** AFAM 375a / AMST 465a / FREN 365a / HIST 378a / LITR 377a, Haiti in the Age of Revolutions** Marlene Daut

The Haitian Revolution (1791–1804) was an event of monumental world-historical significance. This class studies the collection of slave revolts and military strikes beginning in August of 1791 that resulted in the eventual abolition of slavery in the French colony of Saint-Domingue and its subsequent independence and rebirth in January of 1804 as Haiti, the first independent and slavery-free nation of the American hemisphere. Considering Haiti's war of independence in the broader context of the Age of Revolutions, we cover topics such as enlightenment thought, natural history, the workings and politics of the printing press, and representations of the Haitian Revolution in art, literature, music, and in various kinds of historical writings and archival documents. Students develop an understanding of the relevant scholarship on the Haitian Revolution as they consider the relationship of this important event to the way it was written about both as it unfolded and in its long wake leading up to the present day. WR, HU

*** AFAM 382a / AMST 482a / ENGL 273a / FREN 382a / LITR 424a, Zombies, Witches, Gods, and Spirits in Caribbean Literature** Marlene Daut

This course delves into the rich tapestry of Caribbean literature through the lens of the seemingly supernatural, such as zombies, witches, gods, and spirits. Throughout the semester, students critically analyze a diverse range of texts by authors as varied as Edwidge Danticat, René Depestre, Derek Walcott, Alejo Carpentier, Jean Rhys, and

Aimé Césaire, and others, to explore how Caribbean authors have employed other worldly elements as powerful metaphors for colonialism and resistance, trauma and cultural memory.

*** AFAM 457a / AFST 457a / AMST 470a / ER&M 467a / FREN 481a, Racial Republic:**

African Diasporic Literature and Culture in Postcolonial France Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the “beur” author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.
HU

*** AFAM 480a, Senior Colloquium: African American Studies** Elizabeth Hinton

A seminar on issues and approaches in African American studies. The colloquium offers students practical help in refining their senior essay topics and developing research strategies. Students discuss assigned readings and share their research experiences and findings. During the term, students are expected to make substantial progress on their senior essays; they are required to submit a prospectus, an annotated bibliography, and a draft of one-quarter of the essay.

African Studies (AFST)

*** AFST 002a / LITR 001a, Introduction to African Literature** Helen Yitah

This is a survey course meant to offer a formal introduction to African Literature in its broadest historical and cultural contexts. The aim is for each student to gain a close, personal familiarity with selected representative texts of major forms/genres and of the major writers of various periods, including the traditional raconteurs who daily regale communities with their oral arts; Chinua Achebe, considered the ‘father’ of modern African literature; Ama Ata Aidoo, groundbreaking African woman writer; Nawal El Saadawi, physician, activist, and feminist who writes about women in Islam; Keorapetse Kgositsile, award winning poet and South African Poet Laureate; Patricia Jabbah Wesley whose poetry gives voice to the hundreds of Liberians who were killed during the country’s civil war. We begin with oral genres—the earliest and the predominant forms of African literature—including folktales, myths and legends, and oral poetry. We then look at selected writers and their works from around the continent. The texts are placed in the general socio-political and cultural contexts of their production. Enrollment limited to first-year students. HU

*** AFST 015a / AFAM 016a / ENGL 015a, South African Writing after Apartheid**

Stephanie Newell

An introduction to creative writing published in South Africa from the end of Apartheid in 1994 to the present. Close readings of contemporary fiction with additional material drawn from popular culture, including films, magazines, and music. Enrollment limited to first-year students. WR, HU

AFST 184a / AFAM 160a / AMST 160a / HIST 184a, History of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

AFST 238a / AFAM 192a / AMST 238a / ER&M 238a, Third World Studies Staff

Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

AFST 340b / HIST 340b, Africa in the Era of the Slave Trade Robert Harms

Examination of the tumultuous changes experienced by African societies during the era of the Atlantic slave trade, approximately 1450–1850. Focus on the complex interaction between the internal dynamics of African societies and the impact of outside forces. HU o Course cr

*** AFST 344a / HIST 344a, African Independence: A Cup of Plenty or a Poisoned Chalice?** Staff

In every African colony after World War Two there emerged nationalist movements which no longer called for civil rights as in the pre-war years but demanded self-determination. While many of them got it easy, some had to fight long and bloody wars for it. By the 1960s the colonial edifice had crumbled except for the few settler colonies in southern Africa. But even here the winds of change could not be stopped. But what did decolonization and independence mean to Africa? Did Africans get what they wanted? Was independence a cup of plenty or a poisoned chalice? In addressing these questions, this course charts the economic, political, and cultural transformations of postcolonial Africa from the 1960s to the present. The argument is this: there can be no understanding of Africa's challenges today without an inquiry into the nature of what the continent got from the departing colonial powers. HU o Course cr

*** AFST 352b / AKKD 350b / HIST 352Jb, Culture and Politics in Lusophone Africa, 1885–1992** Benedito Machava

The peculiar nature of Portugal as a colonial power produced a very distinct history in the five Portuguese-speaking African countries, namely Angola, Guiné-Bissau (Guinea-Bissau), Moçambique (Mozambique), and the Atlantic islands of Cabo-Verde (Cape Verde) and São Tomé e Príncipe. Lusophone Africa is a loose term that refers to the world created by Portugal's colonialism in Africa. This course explores this distinct history through the lens of culture and politics. Focusing on the long twentieth century, we consider Lusophone Africa as a study unit, dissecting its disparate societies, cultures, and political trajectories, while remaining anchored in the general context of Africa. Military conquest, colonial rule, race/lusotropicalism, nationalism, and liberation struggle are some of the core themes of the course. We begin with a brief assessment of Portugal's efforts to retain its colonial enclaves amid the voracious expansion of British,

French, Belgian, and German presence in Africa in the late 19th century. But our focus is on the twentieth century, from the establishment of the colonial administration in the early 1900s to the fall of the Portuguese empire in 1974. We dedicate a good portion of the term to exploring the multiple ways (cultural and political) in which Africans responded to Portugal's encroachment and how they navigated the color bar that came to dictate their social mobility under colonial rule. We end with the multifaceted longings for self-determination that led to the longest and bloodiest liberation wars in Africa. Our readings include scholarly essays (old and recent), primary sources, literary works (novels, poetry and short stories), photographs, music and films. We become acquainted with Portuguese-speaking African voices, faces, and places. Luís Bernardo Honwana's collection of short stories in *We Killed Mangy Dog and Other Stories* (1964) and Zezé Gamboa's film *The Great Kilapy* (2012) carry us through the important theme of race and race relations. While cautious in situating the discussion of race in its historical context, these and other materials challenge us to think about race relations and emancipation in our time. WR, HU

*** AFST 363a / AFAM 345a / ER&M 252a / SPAN 360a, Our Guinea: Locating Africa in Early Iberian Archives** Staff

African coastlines were the first horizons of Iberian imperial expansion into the Atlantic, and eventually, the world. While the worlds made by Africans displaced by the slave trade and their descendants have received extensive attention in recent years,

Africa itself rarely enters the frame. The histories that unfolded on the continent in many ways challenge our understandings of Spanish and Portuguese expansion and colonialism, shaped as they are by the "New World" paradigm of conquest and conversion. Were African societies part of the "New World" or the "Old World"?

In this course we study an often-overlooked domain of Spanish and Portuguese imperialism and commerce from an approach that includes but does not limit itself to the study of slavery and enslaved Africans in the Americas. We read a selection of primary texts from the early modern Ibero-African archive, with a focus on texts produced about the African continent and Africans (and when possible, by Africans) in Spanish, and to a lesser extent Portuguese, seeking (1) to challenge existing narratives and frameworks for the study of precolonial Africa, but also (2) to see what kinds of African worlds appear when we set aside our assumptions and generalizations. L5, HU

*** AFST 366a / EP&E 305a / HIST 367a / PLSC 364a, Bureaucracy in Africa:**

Revolution, Genocide, and Apartheid Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

*** AFST 368a / EVST 369a / HIST 366Ja, Commodities of Colonialism in Africa**

Robert Harms

This course examines historical case studies of several significant global commodities produced in Africa to explore interactions between world market forces and African resources and societies. Through the lens of four specific commodities—ivory, rubber, cotton, and diamonds—this course evaluates diverse industries and their historical

trajectories in sub-Saharan Africa within a global context from ~1870–1990s. Students become acquainted with the historical method by developing their own research paper on a commodity using both primary and secondary sources. WR, HU

*** AFST 377a / AFAM 371a / FREN 370a, Caribbean Poetry in French** Thomas

Connolly

An introduction to Caribbean poetry in French from the turn of the twentieth century to the present day. Topics covered will include literary, social, and political movements including surrealism, colonization, decolonization, immigration, the relation of French to other languages of the Caribbean including Créole, Spanish, and English, and points of contact between poetry, music, theater, and the visual arts. Students will learn how to read, comment on, and write about poetry. Primary authors will include Étienne Léro, Aimé Césaire, Saint-John Perse, Magloire-Saint-Aude, Édouard Glissant, René Depestre, Davertige, Jean Métellus, Raphaël Confiand, Suzanne Dracius, and Patrick Chamoiseau. Readings, assignments, and discussions in French. Ability to read, write, and discuss in French.

*** AFST 389a / ER&M 417a / MMES 389a, Comparative settler geographies** Leslie

Gross-Wyrtzen

This advanced undergraduate seminar delves into theories and comparative studies of recent and contemporary settler colonial geographies to ask the following questions:

1) What are the key characteristics of settler colonial geographies and (how) are they distinct from colonial geographies? 2) What are the intellectual and political stakes of applying settler colonialism as an analytical lens? 3) How does comparative analysis deepen or disrupt concepts such as sovereignty, race, and I/indigeneity, especially in a majority world context? 4) How do Indigenous or and/or occupied peoples contest settler cartographies through placemaking and other strategies? In this seminar, we read key theoretical texts in colonial, postcolonial, settler, Native, and Indigenous studies with an emphasis on global and Southern intervention. Alongside theoretical texts, we focus on four case studies that, to a greater or lesser degree, push the boundaries of settler colonial definitions and concepts: South Africa, Morocco/Western Sahara, Israel/Palestine, and southwestern China and Tibet. Where possible, we invite scholars with expertise in the cases to speak to the class. SO

*** AFST 396a / HIST 396Ja, Revolutions and Socialist Experiments in Africa**

Benedito Machava

This seminar explores the contours of Africa's embrace and engagement with the most influential ideology of the twentieth-century. Why, and through which channels, were Africans attracted to socialism? Did particular forms of colonialism and decolonization push African political actors towards revolution and socialist experiments? Is it legitimate, as some scholars have suggested, to speak of genuinely African socialisms? If so, what was the nature of these socialisms and how did they differ from the versions of socialism around the world? What political, social, economic, and cultural ends did socialism serve in Africa? And what were the consequences and legacies of African socialist experiments? The seminar addresses these questions. Our goal is to place Africa in the mainstream of conversations about socialism. We begin with the assumption that, like any doctrine, socialism was the object of multiple interpretations, modification, and appropriation from its inception. In so doing, we challenge orthodox understandings of socialism, which hold the European versions as the pure models and the rest as diluted if not populist façades of the 'true' doctrine. We begin with

theoretical readings that help us situate the major debates about socialism in general and socialism in Africa. We then proceed to examine the overall historical context in which African nationalists adopted socialism. We differentiate the first branch of “African Socialism” from the second wave of “Afro-Marxism.” We also pay close attention to issues of decolonization and political imagination; ideas and experiments of development; gender, morality, and social engineering. WR, HU

*** AFST 435a / THST 335a, West African Dance: Traditional to Contemporary** Lacina Coulibaly

A practical and theoretical study of the traditional dances of Africa, focusing on those of Burkina Faso and their contemporary manifestations. Emphasis on rhythm, kinesthetic form, and gestural expression. The fusion of modern European dance and traditional African dance. Admission by audition during the first class meeting. HU

*** AFST 457a / AFAM 457a / AMST 470a / ER&M 467a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the “beur” author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements. HU

*** AFST 484a / AFAM 277a / MUSI 485a, Musical Pan-Africanisms** Michael Veal
This seminar surveys the musical conversation that has circulated around the “Black Atlantic” cultural sphere (sub-Saharan Africa, Afro-America, the Afro-Caribbean, and Latin America) for most of the twentieth century, facilitated by the advent of sound recording and broadcast technologies at the beginning of the twentieth century, and articulated through discourses of black cultural connection and concrete histories of trans-Atlantic encounter. Many –though not all– of the readings focus on the decades immediately following World War II, when “Pan-Africanism” was an explicit and prominent political discourse. Others address earlier or later examples when the idea of cross-cultural connection was more implicit but equally influential. We trace the unfolding of this conversation through a variety of sources: scholarly, personal (i.e. biographies/autobiographies), journalistic, and, of course, sonic. WR, HU

*** AFST 491a, The Senior Essay** Veronica Waweru

Independent research on the senior essay. By the end of the sixth week of classes, a rough draft of the entire essay should be completed. By the end of the last week of classes (fall term) or three weeks before the end of classes (spring term), two copies of the final essay must be submitted.

Akkadian (AKKD)

AKKD 110a, Elementary Akkadian I Staff

Akkadian was one of the primary languages of ancient Mesopotamia (modern Iraq), with an attested history of more than 2000 years (from the second half of the 3rd millennium BCE to the beginning of the Common Era). It is a Semitic language, similar to Arabic, Aramaic, and Hebrew, written on clay tablets in the Cuneiform script. Hundreds of thousands of documents in Akkadian have come down to us. They include everything from great works of literature like the Gilgamesh Epic, to everyday texts such as letters that document the lives of people from all walks of life, from great kings to commoners and slaves. Whether it be a letter to a paranoid emperor who refuses to eat and shuts himself in his own palace, or a particularly inept spy reporting to his superiors about the suspicious dreams of a suspected enemy of the state, knowledge of Akkadian opens a window into the world of those who lived thousands of years ago, the struggles they faced and the stories they told. Akkadian for Beginners provides students with the tools to begin to explore that ancient and once-forgotten world of ancient Mesopotamia. After finishing the course, students will have acquired a sound knowledge of Akkadian grammar and syntax, along with practice in Cuneiform. L1

AKKD 120b, Elementary Akkadian II Staff

Continuation of AKKD 110. Prerequisite: AKKD 110. L2 RP

AKKD 130a, Intermediate Akkadian I Gojko Barjamovic

Close reading of selected Akkadian texts; introduction to Akkadian dialects, cuneiform epigraphy, and research techniques of Assyriology. Prerequisite: AKKD 120. L3 RP

*** AKKD 350b / AFST 352b / HIST 352Jb, Culture and Politics in Lusophone Africa, 1885–1992** Benedito Machava

The peculiar nature of Portugal as a colonial power produced a very distinct history in the five Portuguese-speaking African countries, namely Angola, Guiné-Bissau (Guinea-Bissau), Moçambique (Mozambique), and the Atlantic islands of Cabo-Verde (Cape Verde) and São Tomé e Príncipe. Lusophone Africa is a loose term that refers to the world created by Portugal's colonialism in Africa. This course explores this distinct history through the lens of culture and politics. Focusing on the long twentieth century, we consider Lusophone Africa as a study unit, dissecting its disparate societies, cultures, and political trajectories, while remaining anchored in the general context of Africa. Military conquest, colonial rule, race/lusotropicalism, nationalism, and liberation struggle are some of the core themes of the course. We begin with a brief assessment of Portugal's efforts to retain its colonial enclaves amid the voracious expansion of British, French, Belgian, and German presence in Africa in the late 19th century. But our focus is on the twentieth century, from the establishment of the colonial administration in the early 1900s to the fall of the Portuguese empire in 1974. We dedicate a good portion of the term to exploring the multiple ways (cultural and political) in which Africans responded to Portugal's encroachment and how they navigated the color bar that came to dictate their social mobility under colonial rule. We end with the multifaceted longings for self-determination that led to the longest and bloodiest liberation wars in Africa. Our readings include scholarly essays (old and recent), primary sources, literary works (novels, poetry and short stories), photographs, music and films. We become acquainted with Portuguese-speaking African voices, faces, and places. Luís Bernardo Honwana's collection of short stories in *We Killed Mangy Dog and Other Stories* (1964)

and Zezé Gamboa's film *The Great Kilapy* (2012) carry us through the important theme of race and race relations. While cautious in situating the discussion of race in its historical context, these and other materials challenge us to think about race relations and emancipation in our time. WR, HU

American Sign Language (ASL)

ASL 110a, American Sign Language I Staff

An introduction to American Sign Language (ASL), with emphasis on vocabulary, ASL grammar, Deaf Culture and Conversational skills. Use of visual material (DVD), communicative activities, grammar drills, classifiers and Deaf Culture study. ASL 120 is not required to earn credit for ASL 110 L1 1½ Course cr

*** ASL 130a, American Sign Language III** Staff

Building on ASL 120, this course covers in depth the structure of ASL grammar, fingerspelling, narratives, and visual communication. Students develop expressive and receptive skills in storytelling and dialogue. Prerequisites: ASL 120 or a placement evaluation by professor. L3 1½ Course cr

American Studies (AMST)

*** AMST 029b / ENGL 029b / HUMS 032b, Henry Thoreau** Michael Warner

Henry Thoreau played a critical role in the development of environmentalism, American prose, civil rights, and the politics of protest. We read his writing in depth, and with care, understanding it both in its historical context and in its relation to present concerns of democracy and climate change. We read his published writing and parts of the journal, as well as biographical and contextual material. The class makes a field trip to Walden Pond and Concord, learning about climate change at Walden as revealed by Thoreau's unparalleled documentation of his biotic surroundings. Students consider Thoreau's place in current debates about the environment and politics, and are encouraged to make connection with those debates in a final paper. Enrollment limited to first-year students. HU

*** AMST 031a / WGSS 031a, LGBTQ Spaces and Places** Scott Herring

Overview of LGBTQ cultures and their relation to geography in literature, history, film, visual culture, and ethnography. Discussion topics include the historical emergence of urban communities; their tensions and intersections with rural locales; race, sexuality, gender, and suburbanization; and artistic visions of queer and trans places within the city and without. Emphasis is on the wide variety of U.S. metropolitan environments and regions, including New York City, Los Angeles, Miami, the Deep South, Appalachia, New England, and the Pacific Northwest. Enrollment limited to first-year students. HU

*** AMST 032b / WGSS 036b, Gender, Sexuality, and U.S. Empire** Talya Zemach-Bersin

This course explores the cultural history of America's relationship to the world across the long twentieth century with particular attention to the significance of gender, sexuality, and race. We locate U.S. culture and politics within an international dynamic, exposing the interrelatedness of domestic and foreign affairs. While exploring specific geopolitical events like the Spanish-American War, World War I and II, and the Cold War, this course emphasizes the political importance of culture and ideology rather

than offering a formal overview of U.S. foreign policy. How have Americans across the twentieth century drawn from ideas about gender to understand their country's relationship to the wider world? In what ways have gendered ideologies and gendered approaches to politics shaped America's performance on the world's stage? How have geopolitical events impacted the construction of race and gender on the home front? In the most general sense, this course is designed to encourage students to understand American cultural and gender history as the product of America's engagement with the world. In so doing, we explore the rise of U.S. global power as an enterprise deeply related to conceptions of race, sexuality, and gender. We also examine films, political speeches, visual culture, music, and popular culture. Enrollment limited to first-year students. HU

*** AMST 039a / ENGL 039a / ER&M 039a, *Latinx Literature Aside the Law*** Joseph Miranda

How has Latinx identity emerged through and against the law? From the suspension of Puerto Rican sovereignty to the contemporary proliferation of ethnic studies bans, the state has used the law to delimit Latinx to transparent or static categories of irregular "citizen," "refugee," and "migrant." If conventional thinking assumes that art only responds to the law in protest or affirmation of the status quo, this seminar introduces students to the ways Latinx literature engages, resists, and disidentifies with the law as it delineates national belonging. We ask how do Latinx creative expressions expand the notions of citizenship, nation, and family beyond their raced, classed, and gendered origins to imagine new futures. Through attention to contemporary tv, film, novels, and poetry, we examine how Latinx artists build alternative forms of thriving collective life in forms of mutual aid, queer kinship, party, and protest. Works up for discussion include those by Justin Torres, Raquel Salas Rivera, and the television show *Vida*. Drawing inspiration from these texts, students collaborate on podcasts, write analytical essays, and complete other critical and creative projects. Enrollment limited to first-year students. WR, HU

*** AMST 050b / ENGL 050b, *Reading Poetry for Life*** Jim Berger

This is a course about reading poetry—about how to read poetry. It is also a course about how reading poetry helps us live, and especially in a world of multiple zones of crisis, violence, injustice, and environmental degradation. Thus, the course's goals are intellectual, aesthetic, emotional, and ethical. True engagement with poetry is an engagement of the whole person. The course is organized thematically: There are units on poetic responses to war and social injustice; on personal pain and transformation; on poetry of happiness; and on poems that just enjoy their own formal processes. Poetry can say powerfully—sometimes directly, sometimes obliquely—what may be difficult to express in other forms. And yet, we must ask also, what good does it do? It helps us feel? It helps us think? It helps us feel and think with others? Poetry is a very old form of linguistic expression, perhaps the oldest. Here we are, still writing and reading it. And the sufferings, crimes, and hopes it has always imagined still are happening. Here we are. Maybe poetry is our best attempt at honesty, as simple and complex as that is. Enrollment limited to first-year students. HU

*** AMST 099a / ER&M 089a / HIST 059a / PHYS 047a, *Asian Americans and STEM*** Eun-Joo Ahn

As both objects of study and agents of discovery, Asian Americans have played an important yet often unseen role in fields of science, technology, engineering, and

math (STEM) in the U.S. Now more than ever, there is a need to rethink and educate students on science's role in society and its interface with society. This course unites the humanities fields of Asian American history and American Studies with the STEM fields of medicine, physics, and computer science to explore the ways in which scientific practice has been shaped by U.S. histories of imperialism and colonialism, migration and racial exclusion, domestic and international labor and economics, and war. The course also explores the scientific research undertaken in these fields and delves into key scientific principles and concepts to understand the impact of such work on the lives of Asians and Asian Americans, and how the migration of people may have impacted the migration of ideas and scientific progress. Using case studies, students engage with fundamental scientific concepts in these fields. They explore key roles Asians and Asian Americans had in the development in science and technology in the United States and around the world as well as the impact of state policies regarding the migration of technical labor and the concerns over brain drains. Students also examine diversity and inclusion in the context of the experiences of Asians and Asian Americans in STEM. Enrollment limited to first-year students. HU, SC

*** AMST 104a, Country Music in America** Ryan Brasseaux

Country music is a distinctly American music. The genre blossomed from its vernacular Southern roots during the twentieth century and grew in scope and popularity with the rise of the recording industry in the United States. Populated by guitars and fiddles, heroes and outlaws, country music gave the world Jimmie Rodgers, Hank Williams, Elvis Presley, Johnny Cash, Willie Nelson, Dolly Parton and Carrie Underwood. Why have these artists achieved iconic status in America? What meaning can we cull about life in the United States from their musical legacies? This interdisciplinary course considers the major trends, influential artists, and varied influences affecting country music through time. More broadly, the genre is used as a vehicle for understanding shifting socio-cultural, political, and economic phenomena in the United States from 1927 to the present. The readings cover a broad range of issues and perspectives that have come to define country music historiography. Race, culture, commercialization, notions of authenticity, and the assertion proposed by country music's senior authority, Bill C. Malone, "that the music emerged from southern working-class culture" are all used as frames for understanding the genre. Each seminar meeting will include discussion of that week's readings followed by song analyses presented by students. HU

AMST 115a / EDST 110a / SOCY 112a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO
o Course cr

*** AMST 117a / HSAR 217a, American Art to 1900** Staff

This course offers a survey of American art from European colonization of the continent to the establishment of a US overseas empire circa 1900. Through paintings, sculpture, prints, drawings, photographs, and material culture, we consider the role of the visual arts in settler colonialism and nation building, in the invention of race and enforcement of its categories, and in the construction of citizenship. Throughout the term we think about how American art is shaped within wider Atlantic, Pacific, and Caribbean worlds.

We look at plantation and “frontier” landscapes, the art of natural history, the cult of presidential images, the emergence of photojournalism, the creation of the modern museum, and the politics of public monuments. The aim of this course is three-fold: to acquire a foundational understanding of the art and visual culture of the United States, to situate the visual in the context of a historical and cultural framework, and to learn how to think and write about objects. The course is open to students at all levels, including those with no prior background in art history. HU o Course cr

AMST 160a / AFAM 160a / AFST 184a / HIST 184a, History of Atlantic Slavery Staff
The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

AMST 163b / EVST 120b / HIST 120b / HSHM 204b, American Environmental History Paul Sabin

Ways in which people have shaped and been shaped by the changing environments of North America from precolonial times to the present. Migration of species and trade in commodities; the impact of technology, agriculture, and industry; the development of resources in the American West and overseas; the rise of modern conservation and environmental movements; the role of planning and impact of public policies. WR, HU

*** AMST 190b / URBN 307b, Race, Class, and Gender in American Cities** Laura Barraclough

This seminar explores how racial, gender, and class inequalities have been built, sustained, and challenged in U.S. cities, with a focus on the twentieth and twenty-first centuries. The first part of the course examines historical processes that are especially salient for identity and inequality, such as the gendered organization of public and private space, the shifting fate of industrial work, and suburbanization. The second part of the course focuses on contemporary processes that reproduce or challenge the historical construction of urban inequality. Topics include gentrification, transit equity, environmental justice, and the relationships between public space, democracy, and community wellbeing. SO

AMST 200b / HUMS 165b / SOCY 207b / WGSS 200b, Topics in Human Sexuality Joseph Fischel

In 1970, Yale professors and sexuality scholars Lorna and Philip Sarrel introduced what came to be their wildly popular lecture, “Topics in Human Sexuality.” The course, offered at the height of the sexual revolution and shortly after Yale University admitted women undergraduates, was multipurpose: to teach students about pressing, contemporary social problems around sex, gender, and sexuality; to help students learn about their bodies, sexualities, and relationships; to direct students to resources and information about their sexual and reproductive health; and to advance the mission of a liberal arts education, namely, the cultivation of well-rounded, critically engaged, curious, participatory young citizens. This iteration of the course is inspired by the Sarrels’ ambitions, even if we are unlikely to realize them in full. The course is offered in the spirit of a critical sexuality education, critical as in 1) theory—rather than practicum-driven, but nonetheless 2) urgent. As political movements that endanger transgender children, suppress sexual expression, and rescind reproductive rights gain traction, the course offers candid, careful focus on: abortion, sexual education, queer and trans kids, pornography, university sexual politics, hooking up, and breaking up. Along the way, we watch a season of Netflix’s “Sex Education” together. The

class (nonexclusively) focuses on social and political problems in the contemporary United States, and examines those problems by drawing upon scholarship in Gender & Sexuality Studies, American Studies, Sociology, Psychology, and Public Law. HU, SO

*** AMST 205a, American Exceptionalism** Roberto Sirvent

This class takes a critical look at the ideology of American exceptionalism and the ways it is represented and reinforced in American popular culture, electoral politics, the U.S. corporate media, and various academic disciplines. This course pays special attention to how a study of slavery, settler colonialism, and U.S. imperialism challenges narratives of U.S. exceptionalism and innocence, as well as stories commonly told about freedom, emancipation, and racial progress. Students explore how the *1619 Project*, dinosaur paleontology, and the Broadway Musical *Hamilton* are rooted in ideologies of American exceptionalism and why Indigenous groups say Mount Rushmore, Thanksgiving, and native-themed sports mascots are celebrations of genocide. Students examine how claims that the U.S. is “redeemable” or that the country must “reckon with its shameful past” and “live up to its founding ideals” – or even fears that “our democracy is under threat” and that we’re “slipping toward fascism” – are deeply grounded in logics of exceptionalism and innocence. This course therefore invites students to re-think their national attachments, investments, allegiances, and fantasies and to consider the circumstances that led Audre Lorde to say, “We are citizens of a country that stands upon the wrong side of every liberation struggle on earth.” SO

AMST 207a / AFAM 117a / MUSI 156a / WGSS 117a, Beyonce Makes History: Black Radical Tradition History, Culture, Theory & Politics through Music Staff

This class centers the 2010s and 2020s’ sonic and visual repertoire of Beyonce Knowles-Carter (from 2013’s self-titled album through 2024’s *Cowboy Carter*) as the portal through which to rigorously examine key interdisciplinary works of Black intellectual thought and grassroots activist practices across the centuries. Its aim is two-fold: to both explore and analyze the dense, robust and virtuosic aesthetics, socio-historical and political dimensions of Beyonce’s pathbreaking, mid-career body of work and to, likewise, use her aesthetics; the multi-dimensional form and content of her recordings; her boundary-transgressing performance politics; her history-making visual albums; her innovative concert films; her unprecedented pop music archival endeavors and more as the occasion to explore landmark Black Studies scholarship and Black freedom struggle scholarly and cultural texts (in history, Black feminist theory, philosophy, anthropology, art history, performance studies, musicology, political science, sociology, dance, American Studies, religious studies, archival studies etc.) that directly resonate with Beyonce’s sonic, visual and live performance endeavors. In short, this is a class that traces the relationship between Beyonce’s artistic genius and Black intellectual practice. HU o Course cr

*** AMST 218b / WGSS 218b, Sex, Gender, and American Moderns** Scott Herring

What did being “modern” mean to those whose marginalized aesthetics negotiated sexual, racial, regional, national, and gender norms in the first half of the twentieth-century United States? This course functions as an intensive immersion into the creeds and concerns of recent scholarship regarding modes of U.S. modernity as the field overlaps with current forays into sexuality and gender studies. Via painting, photography, print culture, a “homosexual comedy,” oral history and other resources, we discuss the popularization of heteronormativity in US sex manuals; the emergence of LGBTQ subcultures within and without urban East Coast environments; queer

feminist agency through experimental photography in Provincetown; slumming and sensationalism in the Chicago Loop; and modern crip intimacies in Connecticut. Students meet the artists of the PaJaMa collective; James Weldon Johnson's Ex-Colored Man; avant-garde Pacific Rim poets such as José García Villa; a Nepali American surrealist; and a bohemian of the Harlem Renaissance whose drawings are held at the Beinecke. HU

*** AMST 222a / WGSS 226a, Pop Sapphism** Staff

Lesbian popular culture, despite rare waves of visibility, is construed as generically niche and embalmed in past eras like the 1970s and 1990s. As we enter deeper into the millennium, the lesbian presence in pop—from music and literature, to film, TV, and other media—is revived through the more expansive sexual and aesthetic imaginary of “sapphism,” a term that signals the explicitly gay, as well as the more implicitly “queer coded.” Female-identified artists and creators, whether they're out or not, inspire a sapphic pop culture comprised of both artists and a robust fan culture, that calls upon the historical archives and intimate reading practices of lesbian cultures and queer theory, including the resurgence of Sapphic poetry itself. This seminar revisits the key historical and aesthetic touchstones of “sapphism,” while engaging contemporary iterations of sapphic pop culture, from figures like K-Stew (Kristen Stewart), Janelle Monáe, and a slew of “converted” reality contestants, to the controversies surrounding “Gaylorism” itself. The seminar teaches genealogical and historiographic approaches to sexuality studies, along with techniques of close reading and analysis in Queer Studies—especially recent books on lesbian aesthetics, as well as earlier iterations queer of color critique. HU

AMST 234b / ER&M 243b / HIST 188b / RLST 342b, Spiritual But Not Religious
Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

AMST 238a / AFAM 192a / AFST 238a / ER&M 238a, Third World Studies Staff
Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

AMST 239a / ENGL 187a, Love and Hate in the American South Staff

An introduction to the literature and culture of the American South, a region of the mind identified with the former Confederate States of America and fabricated from a mix of beautiful dreams and violent nightmares, including: histories of slavery and settler colonialism, gothic fiction, the Delta blues, Hollywood movies, evangelical sermons, *The Confessions of Nat Turner*, love poems, protest poems, prison songs, *The Adventures of Huckleberry Finn*, country music, photographs, “Strange Fruit,” folk tales, memoirs, cookbook recipes, and other fantasies. Close reading, cultural analysis, and historical context. Literary works by Capote, Faulkner, Hurston, Jacobs, O'Connor, Poe, Twain, Toomer, Walker, Welty, Wright. Music, film, and other media. HU o Course cr

*** AMST 245a / ENGL 246a / PLSC 247a, The Media and Democracy** Joanne Lipman
In an era of "fake news," when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media's role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. SO

*** AMST 257a / ENGL 325a, Modern Apocalyptic Narratives** Jim Berger
The persistent impulse in Western culture to imagine the end of the world and what might follow. Social and psychological factors that motivate apocalyptic representations. Differences and constant features in apocalyptic representations from the Hebrew Bible to contemporary science fiction. Attitudes toward history, politics, sexuality, social class, and the process of representation in apocalyptic texts. HU

*** AMST 263a / AFAM 261a / EDST 263a, Place, Race, and Memory in Schools** Errol Saunders

As places, schools both shape and are profoundly shaped by the built environment and the breathed, braved, and believed everyday experiences of the people that interact with them. That everyday environment is just as grounded in the past as it is in the present. Teachers, administrators, students, and parents are impacted by the racialized narratives about the past that groups and individuals take up to explain the bygone, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Given the weight that narratives of social mobility in the United States place upon education, there is profound interest in the roles that schools play in perpetuating racial disparities in American society and the opportunities that education writ large might provide for remedying them. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

*** AMST 270a / ENGL 270a, Asian Culture in U.S. Literature and Film** John Williams
This course offers a survey of literary and cinematic representations of Asia and Asian America by a number of highly influential Euro- and Asian-American authors and filmmakers in the twentieth century. Unlike more traditional survey of American orientalism that deal exclusively with white American images of the East, this course examines the notion that Asian Americans contributed in significant ways to the representation of Asia and Asian America in the American imagination, often appropriating and re-purposing stereotypical images to secure a more positive space in the American cultural landscape. Our readings and discussions consider the extent to which the "Asia" that emerges in twentieth-century American literary and visual culture was a product of not only powerful (and often powerfully racist) Euro-American visions of Asian "others," but also dialogic re-imaginings of Asia created by Asian-

Americans themselves. Questions that the course addresses include: In what sense is “Asia” an aesthetic category in American literary and visual culture? What role does genre play in the circulation and recirculation of American images of Asia during the twentieth century? How do the political and economic demands of artistic production (for both literature and film) influence the type and heterogeneity of American images of Asia? WR, HU

*** AMST 286a / AFAM 182a / ENGL 182a / HUMS 241a, James Baldwin's American Scene** Staff

In-depth examination of James Baldwin's canon, tracking his work as an American artist, citizen, and witness to United States society, politics, and culture during the Cold War, the Civil Rights era, and the Black Arts Movement. HU o Course cr

*** AMST 300a / WGSS 350a, The Invention of Love** Igor De Souza

This course proposes a historical, theoretical, and cultural investigation of what we call “romantic love,” the kind of love we tend to associate with courtship, with relationships that include a sexual-erotic component, and with marriage. We begin with Denis de Rougemont's controversial thesis that romantic love was invented around the 1200s in the courtly culture of Southern France. We examine manifestations of romantic love in medieval Arab cultures as precedents to the invention of courtly love. In the second part of our course, we turn to modern humanistic theories about romantic love. Among the questions that critical theorists and philosophers have posed, we consider: How is love related to desire? Is sexual desire an indispensable component of romantic love? Is romantic love ultimately a selfish, exclusionary act, or is it about renouncing the self, losing the self in the other? In the third part of our course, we apply the insights of parts 1 and 2 to discuss case studies of romantic love in the contemporary United States. In this section, we explore reigning assumptions between romantic love and: marriage; monogamy; dating; the digital environment; queerness; age; and transnationalism.

*** AMST 307b / ER&M 298b / HIST 117b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. WR, HU

*** AMST 310b / HSAR 447b, The American West: Art, Land, Politics** Jennifer Raab

The American West holds a powerful place in the cultural and political imagination of the United States. This seminar considers changing conceptions of the land across media—from maps and guidebooks, to paintings, panoramas, and photographs, to earth art and satellite imagery. We examine the politics of water rights; artists' engagement with ecological questions; the representation of railroads, National Parks, ghost towns, and highways; the mythology of the frontier; and the visual construction

of settler colonialism and indigenous resistance. The course emphasizes close attention to works of art, archival research, and developing term papers that engage with the Beinecke's extraordinary Western Americana Collection. Classes are held at the Beinecke as well as the Yale University Art Gallery, the Yale Center for British Art, and the Peabody Museum. HU

*** AMST 312b / AFAM 326b / ER&M 310b / WGSS 298b, Postcolonial Cities of the West** Fadila Habchi

Examination of various texts and films pertaining to the representation of postcolonial cities in the global north and a range of social, political, and cultural issues that concern those who inhabit these spaces. HU

*** AMST 314b / ER&M 314b / WGSS 306b, Gender and Transgender** Greta LaFleur

Introduction to transgender studies, an emergent field that draws on gender studies, queer theory, sociology, feminist science studies, literary studies, and history. Representations of gender nonconformity in a cultural context dominated by a two-sex model of human gender differentiation. Sources include novels, autobiographies, films, and philosophy and criticism. RP

*** AMST 315b / ANTH 319b / WGSS 217b, Writing Anthropology: Digital Fan Communities** Staff

Are you a Twihard? BTS ARMY? A Chalamaniac? This course investigates the communities and practices that emerge around popular media. In this course we think critically about fan responses to popular media through fanfiction, fanvids, shipping, and online fandoms. Through which we explore how fan responses point to and rely on the questioning and rethinking of media texts, to reinvent them as powerful but covert means of access and transformation. We examine fandoms/online fan communities as addressing the needs of marginalized communities to adapt, expand, and challenge books, movies, music, and other media to meet their needs. This course engages fan cultural practices as robust networks of critique through examinations of gender, race, sexuality, intellectual property ownership, and the production of fan labor. WR, SO

*** AMST 326b / AFAM 349b / HIST 115Jb / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

*** AMST 328a / ER&M 357a / HIST 112a / HUMS 418a, "None Dare Call It Conspiracy:" Paranoia and Conspiracy Theories in 20th and 21st-Century America** David Walsh

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as

the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

*** AMST 336a / WGSS 335a, LGBTQ Life Spans** Scott Herring

Interdisciplinary survey of LGBTQ life spans in the United States concentrating primarily on later life. Special attention paid to topics such as disability, aging, and ageism; queer and trans creative aging; longevity and life expectancy during the AIDS epidemic; intergenerational intimacy; age and activism; critiques of optimal aging; and the development of LGBTQ senior centers and affordable senior housing. We explore these topics across multiple contemporary genres: documentary film (*The Joneses*), graphic memoir (Alison Bechdel's *Fun Home*), poetry (Essex Hemphill's "Vital Signs"), fabulation (Saidiya Hartman's *Wayward Lives, Beautiful Experiments*), and oral history. We also review archival documents of later LGBTQ lives—ordinary and iconic—held at the Beinecke Rare Book and Manuscript Library as well as the Lesbian Herstory Archives. HU

*** AMST 371a / ER&M 297a, Food, Race, and Migration in United States Society**
Quan Tran

Exploration of the relationship between food, race, and migration in historical and contemporary United States contexts. Organized thematically and anchored in selected case studies, this course is comparative in scope and draws from contemporary work in the fields of food studies, ethnic studies, migration studies, American studies, anthropology, and history. SO

*** AMST 394a / ER&M 404a / HIST 114Ja, Texas Histories** Stephen Pitti

An exploration of topics in Texas history from the 16th century into the contemporary moment. Readings focus on Native American, African American, Latinx, Asian American, and LGBTQ histories, as well as broader political developments and patterns over the last two centuries. WR, HU

*** AMST 395a / FILM 327a, Studies in Documentary Film** Charles Musser

This course examines key works, crucial texts, and fundamental concepts in the critical study of non-fiction cinema, exploring the participant-observer dialectic, the performative, and changing ideas of truth in documentary forms. HU RP

*** AMST 403b, Introduction to Public Humanities** Matthew Jacobson and Ryan Brasseaux

Introduction to the various media, topics, debates, and issues framing public humanities. The relationship between knowledge produced in the university and the circulation of ideas among a broader public, including modes of inquiry, interpretation, and presentation. Public history, museum studies, oral and community history, public art, documentary film and photography, public writing and educational outreach, and the socially conscious performing arts. HU

*** AMST 406a / ENGL 326a, The Spectacle of Disability** Jim Berger

Examination of how people with disabilities are represented in U.S. literature and culture. Ways in which these representations, along with the material realities of disabled people, frame society's understanding of disability; the consequences of

such formulations. Various media, including fiction, nonfiction, film, television, and memoirs, viewed through a wide range of analytical lenses. WR, HU RP

*** AMST 416a / ENGL 396a / ER&M 339a, Region, Indigeneity, and American Literary Realism** Lloyd Kevin Sy

A study of American literature between roughly 1865 and 1930, with a focus on the themes of place and race, especially how authors handle the theme of being authentically American. An outsized focus is placed on the often neglected works of Indigenous American writers. Potential readings: Zitkala-Sa, Sarah Winnemucca, Susette La Flesche, Mourning Dove, Twain, James, Charles Chesnutt, Hurston, Cather, Dunbar, Wharton, Sherwood Anderson, Jewett, Sui Sin Far. May satisfy the 18th/19th century or 20th/21st century literature requirement for English majors with permission from the instructor and the DUS. HU

*** AMST 426a, U.S. Militarism and Popular Culture** Roberto Sirvent

What role do baking competitions, reality TV, and *American Idol* play in rallying support for the military? How did the Department of Defense and NASA develop such close ties with Iron Man and Captain Marvel? How can the field of critical food studies help us understand the connection between Starbucks, corporate power, and the U.S. war machine? This course examines the growing culture of American militarism across various mediums such as film, television, video games, music, toys, sports, and comic books. Students draw on interdisciplinary approaches to the study of popular culture to explore how different kinds of media promote war as a form of “militainment” that ultimately serves to valorize troops, sanitize war, and glorify territorial conquest. Throughout the course, students also are introduced to pop culture representations of nuclear weapons, AI, and biological warfare; the prevalence of Islamophobia in the digital games industry; current debates around UFOs, alien abduction, and government coverup; and the ways professional sport teams like the Kansas City Chiefs reenact and celebrate the killing of Indigenous people for pleasure and entertainment – and how such native cultural appropriation fits into the larger historical context of the Indian wars and U.S. military violence. SO

*** AMST 428a / ENGL 332a / ER&M 448a / WGSS 328a, “I Don’t Like to Argue”: The Styles and Politics of Humility** Sunny Xiang and Minh Vu

What can academic writing do besides argue? Why does critical thinking so often compel an idiom of claiming, exploring, discovering, and mastering? What might writers strive for, if not newness, rigor, excellence, or even one’s own voice? In this class, we defamiliarize and repair the habits of mind and body that have been normalized by the university. Some of our time goes toward identifying the racial and colonial logics as well as presumptions about gender and ability that inform the conventions, genres, and styles of scholarly prose. For example, we contemplate the power relations and tonal effects embedded in the familiar maneuvers of advancing and defending arguments. Most of the class’s energy, however, is devoted to testing out less combative modes of inhabiting the page. We pursue these experiments not in the name of novelty but with the hope that our compositional practices can move us toward different values and different futures for writing, conversing, and living as subjects of the university. To guide us in this endeavor, we look to scholars who have critiqued the politics of knowledge by mobilizing alternative styles of knowing. Some, for example, have turned footnotes into an occasion for giving thanks instead of exhibiting mastery.

Others have repurposed quotations and images in ways that challenge traditional regimes of evidence. HU

*** AMST 430a / ANTH 430a / ER&M 432a / HIST 123a, Muslims in the United States**

Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

*** AMST 438a / AFAM 352a / ER&M 291a / LITR 295a / WGSS 343a, Caribbean**

Diasporic Literature Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

*** AMST 439a / ER&M 439a, Fruits of Empire** Gary Okihiro

Readings, discussions, and research on imperialism and “green gold” and their consequences for the imperial powers and their colonies and neo-colonies. Spatially conceived as a world-system that enmeshes the planet and as earth’s latitudes that divide the temperate from the tropical zones, imperialism as discourse and material relations is this seminar’s focus together with its implantations—an empire of plants. Vast plantations of sugar, cotton, tea, coffee, bananas, and pineapples occupy land cultivated by native and migrant workers, and their fruits move from the tropical to the temperate zones, impoverishing the periphery while profiting the core. Fruits of Empire, thus, implicates power and the social formation of race, gender, sexuality, class, and nation. HU, SO

*** AMST 447b / EDST 270b / ER&M 367b, Contemporary Native American K-12 and Postsecondary Educational Policy** Mira Debs

This course will explore current Native American educational policy issues, programming, funding, and success. Native American representation in policy conversations is often incomplete, complicated, or relegated to an asterisk resulting in a lack of resources, awareness, and visibility in educational policy. This course examines

the challenges and issues related to Native education; however, the impetus of this course centers on the resiliency, strength, and imagination of Native American students and communities to redefine and achieve success in a complex and often unfamiliar educational environment. EDST 110 recommended SO

*** AMST 450a / ER&M 430a / WGSS 461a, Islam in the American Imagination**
Zareena Grewal

The representation of Muslims in the United States and abroad throughout the twentieth century. The place of Islam in the American imagination; intersections between concerns of race and citizenship in the United States and foreign policies directed toward the Middle East. WR, SO

*** AMST 459b / ANTH 465b, Multispecies Worlds** Kathryn Dudley

This seminar explores the relational and material worlds that humans create in concert with other-than-human species. Through an interdisciplinary analysis of the problematic subject of anthropology—Anthropos—we seek to pose new questions about the fate of life worlds in the present epoch of anthropogenic climate change. Our readings track circuits of knowledge from anthropology and philosophy to geological history, literary criticism, and environmental studies as we come to terms with the loss of biodiversity, impending wildlife extinctions, and political-economic havoc wrought by global warming associated with the Anthropocene. A persistent provocation guides our inquiry: What multispecies worldings become possible to recognize and cultivate when we dare to decenter the human in our politics, passions, and aspirations for life on a shared planet? SO

*** AMST 461b / AFAM 239b / EDST 209b / ER&M 292b / WGSS 202b, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

*** AMST 463a and AMST 464b / EVST 463a and EVST 464b / FILM 455a and FILM 456b / THST 457a and THST 458b, Documentary Film Workshop** Staff

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

*** AMST 465a / AFAM 375a / FREN 365a / HIST 378a / LITR 377a, Haiti in the Age of Revolutions** Marlene Daut

The Haitian Revolution (1791–1804) was an event of monumental world-historical significance. This class studies the collection of slave revolts and military strikes beginning in August of 1791 that resulted in the eventual abolition of slavery in the French colony of Saint-Domingue and its subsequent independence and rebirth in January of 1804 as Haiti, the first independent and slavery-free nation of the American hemisphere. Considering Haiti's war of independence in the broader context of the Age of Revolutions, we cover topics such as enlightenment thought, natural history, the workings and politics of the printing press, and representations of the Haitian Revolution in art, literature, music, and in various kinds of historical writings and

archival documents. Students develop an understanding of the relevant scholarship on the Haitian Revolution as they consider the relationship of this important event to the way it was written about both as it unfolded and in its long wake leading up to the present day. WR, HU

*** AMST 467b / HSHM 469b / MCDB 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

*** AMST 470a / AFAM 457a / AFST 457a / ER&M 467a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the “beur” author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements. HU

*** AMST 471a and AMST 472b, Individual Reading and Research for Juniors and Seniors** Laura Wexler

Special projects intended to enable the student to cover material not otherwise offered by the program. The course may be used for research or for directed reading, but in either case a term paper or its equivalent is required as evidence of work done. It is expected that the student will meet regularly with the faculty adviser. To apply for admission, a student should submit a prospectus signed by the faculty adviser to the director of undergraduate studies.

*** AMST 482a / AFAM 382a / ENGL 273a / FREN 382a / LITR 424a, Zombies, Witches, Gods, and Spirits in Caribbean Literature** Marlene Daut

This course delves into the rich tapestry of Caribbean literature through the lens of the seemingly supernatural, such as zombies, witches, gods, and spirits. Throughout the semester, students critically analyze a diverse range of texts by authors as varied as Edwidge Danticat, René Depestre, Derek Walcott, Alejo Carpentier, Jean Rhys, and Aimé Césaire, and others, to explore how Caribbean authors have employed other

worldly elements as powerful metaphors for colonialism and resistance, trauma and cultural memory.

*** AMST 491a or b, Senior Project** Laura Wexler

Independent research and proseminar on a one-term senior project. For requirements see under “Senior requirement” in the American Studies program description.

*** AMST 493a and AMST 494b, Senior Project for the Intensive Major** Laura Wexler

Independent research and proseminar on a two-term senior project. For requirements see under “Senior requirement” in the American Studies program description.

Ancient Greek (GREK)

GREK 110a, Beginning Greek: The Elements of Greek Grammar Staff

Introduction to ancient Greek. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for GREK 120. No prior knowledge of Greek assumed. L1 1½ Course cr

GREK 120b, Beginning Greek: Review of Grammar and Selected Readings Staff

Continuation of GREK 110. Emphasis on consolidating grammar and on readings from Greek authors. The sequence GREK 110, 120 prepares for 131 or 141. Prerequisite: GREK 110 or equivalent. L2 RP 1½ Course cr

*** GREK 125b, Intensive Beginning Greek** Staff

An introduction to classical Greek for students with no prior knowledge of the language. Readings from Greek authors supplement intensive instruction in grammar and vocabulary. The course is intended to be of use to students with diverse academic backgrounds and interests. Prepares for GREK 131. Not open to students who have taken GREK 110, 120. L1, L2 RP 2 Course cr

GREK 131a, Greek Prose: An Introduction Staff

Close reading of selections from classical Greek prose with review of grammar. Counts as L4 if taken after GREK 141 or equivalent. L3

GREK 141b, Homer: An Introduction Staff

A first approach to reading Homeric poetry in Greek. Selected books of the *Iliad* or the *Odyssey*. Counts as L4 if taken after GREK 131 or equivalent. L3

GREK 403a, The History and Structure of Ancient Greek: From Word to Text Egbert Bakker

An introduction to three essential aspects of Ancient Greek: (i) the structure of the word; (ii) the structure of sentences and clauses in the language; (iii) the structure of longer stretches of connected discourse. The first component (weeks 1–7) is a brief introduction into Indo-European comparative-historical linguistics and will focus on the phonology and morphology of Greek verbs and nouns; the third component (weeks 8–13) is a systematic analysis of Greek prose, with detailed attention to the properties through which texts “cohere” (such as particles, deictics, and tenses); the second component is taught as part of each class meeting on the basis of translation-into-Greek (“composition”) exercises. GREK 131 or equivalent. This course is open to all undergraduate students who are eligible to enroll in GREK 400-level courses. It is also required for graduate students in the Classical Philology track as per the current program. L5, HU 0 Course cr

*** GREK 419a, Helen After Troy** Pauline LeVen

Focus on the representation of Helen of Troy in Homer, Sappho, and other lyric poets. Readings from Gorgias's *Encomium of Helen*, Euripides' *Helen*, and Longus. Attention to problems of aesthetics, rhetoric, and poetics. L4 Greek or permission of the instructor. L5

*** GREK 450b, Euripides** Staff

Close reading of Euripidean tragedy, varying by semester. Form and structure of tragedy; Euripides' literary and dramatic technique; issues of myth, geography, and cultural and personal identity; reception of tragedy in modernity. See notes below for which tragedy will be read. L5, HU

GREK 467a, Satires and Dialogues of Lucian John Dillon

Close reading of selected satirical works and dialogues by Lucian of Samosata. Focus on grammar, syntax, and translation. Some attention to the teachings of competing philosophical schools, the culture of the Second Sophistic movement, and the nature of satire, rhetoric, and conversational dialogue. A bridge course between intermediate and advanced courses. L5, HU

GREK 703a, The History and Structure of Ancient Greek: From Word to Text Egbert Bakker

This course provides a brief introduction to the comparative-historical study of Greek verbs and nouns; sentence-level grammatical training based on “composition” exercises; and awareness of “syntax beyond the sentence”: the linguistic means ancient Greek speakers and writers had at their disposal to create “cohesion” of their discourse as a means for the text to achieve its communicative or rhetorical goals. The course provides a thorough grounding in the structure of ancient Greek words, sentences, and texts. It fulfills the graduate course requirements for Greek prose composition and historical or comparative linguistics.

GREK 719a, Helen after Troy Pauline LeVen

Focus on the representation of Helen of Troy in Homer, Sappho, and other lyric poets. Readings from Gorgias's *Encomium of Helen*, Euripides' *Helen*, and Longus. Attention to problems of aesthetics, rhetoric, and poetics.

GREK 750b, Euripides Staff

Close reading of Euripidean tragedy, varying by semester. Form and structure of tragedy; Euripides' literary and dramatic technique; issues of myth, geography, and cultural and personal identity; reception of tragedy in modernity.

Anthropology (ANTH)

*** ANTH 011a, Reproductive Technologies** Marcia Inhorn

Introduction to scholarship on the anthropology of reproduction. Focus on reproductive technologies such as contraceptives, prenatal diagnostics, childbirth technologies, abortion, assisted reproduction, surrogacy, and embryonic stem cells. The globalization of reproductive technologies, including social, cultural, legal, and ethical responses. Enrollment limited to first-year students. SO

*** ANTH 018a, Scientific Thinking and Reasoning** Eduardo Fernandez-Duque

Students read, discuss and reflect on the paramount importance of science and quantitative reasoning in their lives through an exploration of the basic elements

of a quantitative scientific process of inquiry. The goal of the course is to introduce students to foundational topics in science that must be, but sometimes are not, thoroughly considered early in the process of scientific inquiry. The first part focuses on reading about truth, facts and skepticism, causality, inference, deductive and inductive reasoning, research questions, and formulation of hypotheses and predictions. The second part considers aspects related to the actual development and implementation of a scientific study including considerations of types of study (e.g., observational, experimental), study feasibility, sample size, selection and validity of variables, power analysis, confounding factors. The third part considers the analyses, interpretation and presentation of results, offering introductory explanations of *a priori* statistical protocols; predictive and/or explanatory power and interpretation of both statistical significance and research relevance. The course is neither a lecture or seminar, but instead each meeting is a hybrid of both formats; a format where students are required to be active participants in the process of learning. Enrollment limited to first-year students. SC, SO

*** ANTH 030b / ARCG 030b / LAST 030b, Inca Culture and Society** Richard Burger
History of the Inca empire of the Central Andes, including the empire's impact on the nations and cultures it conquered. Overview of Inca religion, economy, political organization, technology, and society. Ways in which different schools of research have approached and interpreted the Incas over the last century, including the influence of nationalism and other sources of bias on contemporary scholarship. Enrollment is limited to first-year students. SO

*** ANTH 075a, Observing the World** Jane Lynch
How do we learn about the worlds of others? How do we represent our own? This seminar focuses on the poetics and politics of social observation and engagement. We examine the qualitative research methods (e.g., asking, listening, and observing) used by scholars—as well as other professionals, including journalists and government officials—to produce texts (e.g., academic books, magazine articles, and case files) based on empirical observation. Thinking critically about observation and observational writing as modes of knowledge production, we discuss and develop tools of reading, thinking, and writing to address questions of injustice and power. Texts are juxtaposed with documentary film, photography, and other forms of artistic and visual representation, to help bring both the conventions and possibilities of observational writing more clearly into view. Students complete a range of writing projects, including: descriptive and analytical “field notes,” interviews, and essays based on their own observations of the world(s) around them. In addition to developing their writing skills, students also learn basic concepts in the practice and politics of social research and analysis. Enrollment limited to first-year students. WR, HU, SO

*** ANTH 112b, Agent, Person, Subject, Self** Paul Kockelman
Introduction to the interconnections between language and personality development and to the social construction of person and self. Focus on the capacities of agency, subjectivity, selfhood, and personhood as analyzed in classic works from anthropology, psychology, and philosophy. Ways in which these seemingly human-specific and individual-centric capacities are essential for understanding social processes. SO

ANTH 116b, Introduction to Biological Anthropology David Watts
Introduction to human and primate evolution, primate behavior, and human biology. Topics include a review of principles of evolutionary biology and basic molecular and

population genetics; the behavior, ecology, and evolution of nonhuman primates; the fossil and archaeological record for human evolution; the origin of modern humans; biological variation in living humans; and the evolution of human behavior. SC, SO
O Course cr

ANTH 140b / ER&M 241b / SOCY 138b, The Corporation Douglas Rogers
Survey of the rise, diversity, and power of the capitalist corporation in global contexts, with a focus on the 20th and 21st centuries. Topics include: the corporation as legal entity and the social and cultural consequences of this status; corporations in the colonial era; relationships among corporations, states, and non-governmental organizations in Western and non-Western contexts; anti-corporate critique and response; corporate social responsibility; and race, gender, and indigeneity. HU, SO
O Course cr

ANTH 203b, Primate Conservation David Watts
A study of nonhuman primates threatened by deforestation, habitat disturbance, hunting, and other human activities; the future of primate habitats, especially tropical rainforests, as they are affected by local and global economic and political forces. Examination of issues in primate conservation, from the principles of conservation biology and rainforest ecology to the emergence of diseases such as AIDS and Ebola and the extraction of tropical resources by local people and by transnational corporations. SO

*** ANTH 204a, Molecular Anthropology** Serena Tucci
This course is a perfect introduction for anyone interested in understanding how genetics can help us answer fundamental questions in human evolution and population history. The course studies the basic principles of population genetics, molecular evolution, and genetic data analysis. Topics include DNA and human origins, human migrations, genetic adaptation, ancient DNA, and Neandertals. By the end of this course, students learn about the processes that generate and shape genetic variation, as well as the molecular and statistical tools used to reconstruct human evolutionary history. SC

*** ANTH 213a / EAST 313a, Contemporary Japan and the Ghosts of Modernity**
Yukiko Koga
This course introduces students to contemporary Japan, examining how its defeat in the Second World War and loss of empire in 1945 continue to shape Japanese culture and society. Looking especially at the sphere of cultural production, it focuses on the question of what it means to be modern as expressed through the tension between resurgent neonationalism and the aspiration to internationalize. The course charts how the legacy of Japan's imperial failure plays a significant role in its search for renewal and identity since 1945. How, it asks, does the experience of catastrophic failure—and failure to account for that failure—play into continued aspirations for modernity today? How does Japanese society wrestle with modernity's two faces: its promise for progress and its history of catastrophic violence? The course follows the trajectory of Japan's postwar nation-state development after the dissolution of empire, from its resurrection out of the ashes after defeat, to its identity as a US ally and economic superpower during the Cold War, to decades of recession since the 1990s and the search for new relations with its neighbors and new reckonings with its own imperial violence and postwar inactions against the background of rising neonationalism. HU, SO

ANTH 215a / ARCG 215a, Archaeology of China Anne Underhill

Archaeology of China, one of the world's oldest and most enduring civilizations, from the era of early humans to early empires. Methods of interpreting remains from prehistoric and historic period sites. SO

ANTH 217a, Hormones, Evolution, and Human Behavior Richard Bribiescas

This course examines the evolution of human behavior through the lens of endocrinology and life history theory. Topics include the evolution of social behavior, pair bonding, parental investment, aggression, sex, feeding behavior, and risk tolerance. This course also addresses these topics with a mindful eye towards variation throughout the human life course from birth to death. Specific attention is made towards examining behavioral endocrinology within the context of human diversity in all its forms, social, biological, and ecological as well as in comparison with other species including non-human primates. ANTH 116, ANTH 242, or a similar course is recommended before enrolling in this course. SO o Course cr

ANTH 230a / WGSS 230a, Evolutionary Biology of Female Bodies Claudia Valeggia

Evolutionary, biosocial, and situated perspectives on the female body. Physiological, ecological, social and cultural aspects of the development of female bodies from puberty through menopause and aging, with special attention to lived experiences. Variation in female life histories in a variety of cultural and ecological settings. Examples from both traditional and modern societies. SC o Course cr

ANTH 232a / ARCG 232a / LAST 232a, Ancient Civilizations of the Andes Richard Burger

Survey of the archaeological cultures of Peru and Bolivia from the earliest settlement through the late Inca state. SO

ANTH 237a / GMAN 233a / HUMS 225a / LITR 242a / PHIL 219a, Karl Marx's Capital Staff

A careful reading of Karl Marx's classic critique of capitalism, *Capital* volume 1, a work of philosophy, political economy, and critical social theory that has had a significant global readership for over 150 years. Selected readings also from *Capital* volumes 2 and 3. HU o Course cr

*** ANTH 253b / ARCG 253b, Introduction to Experimental Archaeology** Ellery Frahm

Experimental archaeology is one of the most important tools to develop and test models which link human behaviors and natural forces to the archaeological record. This class explores the elements of good experimental design and procedures. ANTH 316L, ARCG 316L recommended. SO

ANTH 264a / ARCG 264a / SPAN 404a, Aztec Archaeology and Ethnohistory

Oswaldo Chinchilla Mazariegos

An anthropological and ethnohistorical examination of the Aztec civilization that dominated much of Mexico from the fourteenth century until the Spanish Conquest of 1521. SO

*** ANTH 303b, Field Methods in Cultural Anthropology** Yukiko Koga

The fundamentals of cultural anthropology methods. The foundations of fieldwork approaches, including methods, theories, and the problem of objectivity. WR, SO

*** ANTH 307b / EP&E 256b, Reparation, Repair, Reconciliation: Reckoning with Slavery and Colonialism in Global Perspective** Yukiko Koga

Imperial reckoning for slavery, imperialism, and colonialism has gained new momentum in recent years, from official apologies for colonial violence to reparations lawsuits filed in Asia, Europe, and the US for slavery, genocide, and massacres, to demands for the return of bodily remains and cultural artifacts from established cultural institutions. This seminar explores how these new attempts for belated imperial reckoning are reshaping relations between former empires and their ex-colonies. It approaches imperial reckoning as a site for redressing not only the original violence but also the transitional *injustice* incurred in the process of the unmaking of empire, which calls for post-imperial reckoning. Drawing on examples from recent cases, this course explores what it means to belatedly reckon with imperial violence today. What does it mean to reckon with imperial violence through legal means, decades after the dissolution of empires? What is the role of law in belated redress? How is historical responsibility articulated and by whom? Who is responsible for what, then and now? What are the stakes in reckoning with distant, yet still alive, pasts? Why and how does it matter today for those of us who have no direct experience of imperial violence? This course approaches these questions through an anthropological exploration of concepts such as debt, gift, moral economy, structural violence, complicity and implication, and abandonment. Instructor permission required. HU, SO

*** ANTH 308b / WGSS 407b, Feminist & Queer Ethnographies: Borders and Boundaries** Eda Pepi

This seminar gives students a storm's eye view of contemporary crises, where borders are as volatile as the ring of a wedding bell or the birth of a child. Feminist and queer ethnographies explore the geopolitical lines and social divides that define and confine us. Manifesting through laws, social norms, and physical barriers, borders and boundaries shape our identities, turning the intimate act of living into a fiercely political one. We consider them as lived experiences that cross militarized lines—as the everyday realities of families, detention centers, workplaces, universities, and even nightclubs. Our readings trace the fluidity of borders, the extension of the global north's influence, and the internal colonialism that redraws the landscapes of nations. Contemporary ways of bridging time and space are profoundly gendered, sexualized racialized, and class-specific, capable of materializing with sudden intensity for some and remaining imperceptible to others, morphing from ephemeral lines to seemingly permanent barriers. The course is an invitation to think beyond the map—to understand borders as something people live, challenge, and transform. Our intellectual battleground is the liminal space where geopolitics meets the raw human struggle for recognition, peeling back the layers of political theatre to witness the making and unmaking of our borderlands. Anchored by a “radical hope for living otherwise,” the seminar also aims to expand the intellectual horizons necessary for dreaming of, and working towards, the world to come. HU, SO

*** ANTH 309a, Language and Culture** Paul Kockelman

The relations between language, culture, and cognition. What meaning is and why it matters. Readings in recent and classic works by anthropologists, linguists, psychologists, and philosophers. SO o Course cr

*** ANTH 311a, Anthropological Theory and the Post Colonial Encounter** Jane Lynch
Key texts in the theoretical development of sociocultural anthropology. Theorists include Karl Marx, Max Weber, Emile Durkheim, Franz Boas, Zora Neale Hurston, Sidney Mintz, Bernard Cohn, Michel Foucault, Edward Said, Antonio Gramsci, Sherry Ortner, and Joan Scott. SO o Course cr

ANTH 316La / ARCG 316La, Introduction to Archaeological Laboratory Sciences

Ellery Frahm

Introduction to techniques of archaeological laboratory analysis, with quantitative data styles and statistics appropriate to each. Topics include dating of artifacts, sourcing of ancient materials, remote sensing, and microscopic and biochemical analysis. Specific techniques covered vary from year to year. SC

*** ANTH 318b / SAST 308b / URBN 412b, Peril and Possibility in the South Asian City** Kalyanakrishnan Sivaramakrishnan

For the first time in human history, at some point in the last decade a majority of humankind became city dwellers. A fifth of these city-dwelling masses inhabit the massive and massifying megacities of the Indian sub-continent. Karachi, Dhaka, and Bombay frequently threaten to be the most populous urban centers on earth, and it may only be faith in the accuracy of government census data that defers this dubious honor. For while these cities are plugged into the global flows of people, ideas, things, and capital; such developments also bring with them anomie, alienation, dispossession, and depredations. Historical social conflicts born of a century of European colonialism and millennia of caste society have in some cases been mitigated, in others intensified in ways both insidious and invidious. Much ink has been spilt on contouring both the perils and possibilities attending the urbanization of the sub-continent. This course explores a ground-up view of the many ways in which the urban denizens of these bustling cities where pasts and futures collide, experience this collision. While this course draws on interdisciplinary scholarly examinations engaging the urban emergent, it focuses on the realm of experience, desire and affect germinating in the city. Students sample ethnography, art, speculative fiction, and film to map out the textures of this complex and mutating fabric. In doing so we chart the emergence and application of new ideas and cultures, practices and constraints, identities and conflicts in the contemporary urban landscapes. SO

*** ANTH 319b / AMST 315b / WGSS 217b, Writing Anthropology: Digital Fan Communities** Staff

Are you a Twihard? BTS ARMY? A Chalamaniac? This course investigates the communities and practices that emerge around popular media. In this course we think critically about fan responses to popular media through fanfiction, fanvids, shipping, and online fandoms. Through which we explore how fan responses point to and rely on the questioning and rethinking of media texts, to reinvent them as powerful but covert means of access and transformation. We examine fandoms/online fan communities as addressing the needs of marginalized communities to adapt, expand, and challenge books, movies, music, and other media to meet their needs. This course engages fan cultural practices as robust networks of critique through examinations of gender, race, sexuality, intellectual property ownership, and the production of fan labor. WR, SO

*** ANTH 324a / ANTH 824a / EAST 324a, Politics of Memory** Yukiko Koga
This course explores the role of memory as a social, cultural, and political force in contemporary society. How societies remember difficult pasts has become a contested

site for negotiating the present. Through the lens of memory, we examine complex roles that our relationships to difficult pasts play in navigating issues we face today. This course explores this politics of memory that takes place in the realm of popular culture and public space. The class asks such questions as: How do you represent difficult and contested pasts? What does it mean to enable long-silenced victims' voices to be heard? What are the consequences of re-narrating the past by highlighting past injuries and trauma? Does memory work heal or open wounds of a society and a nation? Through examples drawn from the Holocaust, the atomic bombing in Hiroshima, the Vietnam War, genocide in Indonesia and massacres in Lebanon, to debates on confederacy statues, slavery, and lynching in the US, this course approaches these questions through an anthropological exploration of concepts such as memory, trauma, mourning, silence, voice, testimony, and victimhood. HU, SO

* **ANTH 326b / ARCG 326b, Ancient Civilizations of the Eurasian Steppes** William Honeychurch

Examination of peoples of the steppe zone that stretches from Eastern Europe to Mongolia. Overview of what archaeologists know about Eurasian steppe societies, with emphasis on the Neolithic, Bronze and Iron, and medieval ages. Attention both to material culture and to historical sources. Topics range from the domestication of the horse to Genghis Khan's world empire, including the impact these events had on neighboring civilizations in Europe and Asia. SO

* **ANTH 342a / EAST 346a, Cultures and Markets in Asia** Helen Siu

Historical and contemporary movements of people, goods, and cultural meanings that have defined Asia as a region. Reexamination of state-centered conceptualizations of Asia and of established boundaries in regional studies. The intersections of transregional institutions and local societies and their effects on trading empires, religious traditions, colonial encounters, and cultural fusion. Finance flows that connect East Asia and the Indian Ocean to the Middle East and Africa. The cultures of capital and market in the neoliberal and postsocialist world. SO

* **ANTH 353a / ARCG 353a, The Archaeology of Trade and Exchange** Richard Burger

This seminar will focus on archaeological approaches to exchange and trade. As background, we will review some of the principal theories of exchange from anthropology and sociology, such as those of Mauss, Malinowski and Polanyi. The role of trade and exchange in different kinds of societies will be examined by contextualizing these transactions within specific cultural configurations and considering the nature of production and consumption as they relate to movement of these goods. We will consider methods and models that have been used to analyze regions of interaction at different spatial scales and the theoretical arguments about the social impact of inter-regional and intra-regional interactions involving the transfer of goods, including approaches such as world systems, unequal development and globalization. In addition, we will examine the ways that have been utilized in archaeology to identify different kinds of exchange systems, often through analogies to well documented ethnographic and historic cases. Finally, we will consider the range of techniques that have been employed in order to track the movement of goods across space. These sourcing techniques will be evaluated in terms of their advantages and disadvantages from an archaeological perspective, and how the best technical analyses may vary according to the nature of natural or cultural materials under consideration (ceramics, volcanic

stone, metals, etc.). The theme for this year's seminar is obsidian so students should select some aspect of obsidian research for their final paper and presentation.

*** ANTH 354b, Cuerpos Femeninos (Female Bodies): Biology, Evolution, and Society**

Claudia Vaggia

This course is not your regular lecture or seminar class. It is indeed a journey, an exploration of female bodies from an evolutionary and biosocial perspective. We focus on physiological, ecological, and social aspects of women's development from puberty, through reproductive processes such as menstrual cycles, pregnancy, birth, postpartum and breastfeeding, and menopause. We also explore variation in female life histories in a variety of western and non-western cultural and ecological settings. Examples are drawn primarily from traditional and modern human societies and our own life experiences. We encourage critical thinking at all times with the hope that discussions in this class become useful when making decisions about your lives as citizens, potential parents, health care providers, health care recipients, and policy makers. This course is taught entirely in Spanish. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. L5, SO

*** ANTH 356b, Goods and Goodness** Jane Lynch

What is the good in buying organic milk or a shirt stitched with a "Made in USA" tag? Should people try to effect social, economic, and environmental change through their purchasing habits? This course examines "ethical consumerism" by tracing its antecedents and placing them in social, cultural, and historical contexts. We ask: how do different ideas of what makes goods *good* affect what we make and buy, give and take, keep as treasure and toss out as trash? To address this question, we investigate the moral claims that have been central in debates over what the economy is. Readings for this course provide students with a grounding in classic theories of political economy. However, we also examine scholarship that challenges and encourages us to read against the grain of those theories. Drawing upon this latter body of scholarship, we explore how "ethical consumerism" intersects with nationalist projects, socioeconomic privilege, race and racialization, religious values, and the gendering of consumer behaviors and identities. Our study of commodities in this course is thus an inquiry into diverse claims about "goodness" and the ways in which ethics and morality both intersect with and are embedded in economic life. SO o Course cr

*** ANTH 362a, Unity and Diversity in Chinese Culture** Helen Siu

An exploration of the Chinese identity as it has been reworked over the centuries. Major works in Chinese anthropology and their intellectual connections with general anthropology and historical studies. Topics include kinship and marriage, marketing systems, rituals and popular religion, ethnicity and state making, and the cultural nexus of power.

*** ANTH 367b, Technology and Culture** Lisa Messeri

This class examines how technology matters in our daily lives. How do technologies shape understandings of ourselves, the worlds we inhabit, and each other? How do the values and assumptions of engineers and innovators shape our behaviors? How do technologies change over time and between cultures. Students learn to think about technology and culture as co-constituted. We read and discuss texts from history and anthropology of science, as well as fictional explorations relevant to course topics. SO o Course cr

*** ANTH 376b / EVST 377b, Observing and Measuring Behavior, Part I: Study Design**

Eduardo Fernandez-Duque

This is the first course in a spring-fall sequence. The course surveys theoretical issues and practical methods relevant to studying the behavior of animals and humans, primarily in the “wild.” Topics covered include formulation of research questions, hypotheses and predictions, study design, sampling methods for studying behavior, genetics, endocrinology, ecology, climate. Students learn and practice various forms of behavioral and ecological sampling, as well as gain familiarity with some widely-used technologies that facilitate the study of behavior (e.g. radiotelemetry). Then, working around a specific research question, students design their own study. Those who choose can develop a study to be implemented during an NSF-funded Summer Program in Argentina (<https://www.owlmonkeyproject.com/open-calls>). Students who enrolled in ANTH 376 during spring 2021 when the summer program was cancelled due to the pandemic can apply to take part in the 2022 summer program in Argentina and may enroll in ANTH 377 during the fall 2022 term. Prerequisite: Some background (including high school) on evolutionary biology, animal behavior, biology recommended. Contact the Instructor if in doubt. SC, SO

*** ANTH 377a / EVST 379a, Observing and Measuring Behavior, Part II: Data Analyses and Reporting** Eduardo Fernandez-Duque

This is the second course in a spring-fall sequence. The course is primarily for students who have recently conducted research and are in the process of analyses and writing up the results of the research. In this course students learn how to analyze the data they have collected, strategies for interpreting and presenting results, including considerations of study design issues and a priori statistical protocols; predictive and/or explanatory power and interpretation of statistical significance, scientific inference and research relevance. Students practice writing and oral skills associated with how to write communicating the results of their study. Prerequisite: ANTH 376 or EVST 377 QR, SC, SO

*** ANTH 378b, Postwar Vietnam** Erik Harms

An introduction to the study of Vietnamese society since the end of the Vietnam War in 1975, with a focus on how economic and political changes intersect with cultural and social life. The historical challenges of postwar socialism, economic renovation, and the intersection of “market-oriented socialism” with class dynamics, urbanization, gender, health care, and ritual life. SO

ANTH 380b / LING 219b, The Evolution of Language and Culture Edwin Ko

Introduction to cultural and linguistic evolution. How human language arose; how diversity evolves; how innovations proceed through a community; who within a community drives change; how changes can be “undone” to reconstruct the past. Methods originally developed for studying evolutionary biology are applied to language and culture. WR, SO o Course cr

*** ANTH 383b / SAST 303b, In Ordinary Fashion** Jane Lynch

Clothing fashions not only our bodies but also our experiences in and claims about the world. It has been used to define the nature and radical possibilities of indigeneity, anti-colonial nationalism, counter-cultural narratives, and capitalist critiques. At the same time, dress—and its social and legal regulation—also creates and reinforces social hierarchies, systems of morality, and forms of exclusion. This course centers these competing social realities and histories using clothing as a way into understanding

the poetics and politics of everyday life. Readings include ethnographies and social histories of textiles, fashion, and the manufacture of garments including cases from India, Guatemala, Italy, China, Sri Lanka, Bangladesh, Trinidad, and the United States. SO

*** ANTH 385a / ARCG 385a, Archaeological Ceramics** Anne Underhill
Archaeological methods for analyzing and interpreting ceramics, arguably the most common type of object found in ancient sites. Focus on what different aspects of ceramic vessels reveal about the people who made them and used them. SO

*** ANTH 394a, Methods and Research in Molecular Anthropology I** Serena Tucci
The first part of a two-term practical introduction to molecular analysis of anthropological questions. Discussion of genetics and molecular evolution, particularly as they address issues in anthropology, combined with laboratory sessions on basic tools for genetic analysis and bioinformatics. Development of research projects to be carried out in ANTH 395. SC o Course cr

*** ANTH 395b, Methods and Research in Molecular Anthropology II** Serena Tucci
The second part of a two-term practical introduction to molecular analysis of anthropological questions. Design and execution of laboratory projects developed in ANTH 394. Research involves at least ten hours per week in the laboratory. Results are presented in a formal seminar at the end of the term. Prerequisite: ANTH 394. RP

*** ANTH 405b, Causal Inference in Behavioral Ecology, Evolution and Environmental Sciences** Eduardo Fernandez-Duque

If correlation does not usually imply causation, how can we understand causes and effects when we cannot do “real” experiments and most of our data are observational?

This seminar is intended for students who are planning or conducting research in the ecological, environmental, evolutionary, and behavioral sciences. The course is focused on how to design studies that allow us to make inferences about causality (“causal inference”) when most data are observational (as opposed to experimental). We read book chapters and journal articles on observational and experimental research, deductive and inductive reasoning, formulation of research questions, conceptual diagrams, hypotheses and predictions, selection/definition/validity of variables, causal diagrams and paths, mediators, moderators, and confounding factors. SC

*** ANTH 409a / ER&M 394a / EVST 422a / F&ES 422a / GLBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove
Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities. WR, SO

*** ANTH 414b / EAST 417b, Hubs, Mobilities, and World Cities** Helen Siu
Analysis of urban life in historical and contemporary societies. Topics include capitalist and postmodern transformations; class, gender, ethnicity, and migration; and global landscapes of power and citizenship. SO RP o Course cr

*** ANTH 415b, Culture, History, Power, and Representation** Helen Siu
This seminar critically explores how anthropologists use contemporary social theories to formulate the junctures of meaning, interest, and power. It thus aims to integrate symbolic, economic, and political perspectives on culture and social process. If culture refers to the understandings and meanings by which people live, then it constitutes the

conventions of social life that are themselves produced in the flux of social life, invented by human activity. Theories of culture must therefore illuminate this problematic of agency and structure. They must show how social action can both reproduce and transform the structures of meaning, the conventions of social life. Even as such a position becomes orthodox in anthropology, it raises serious questions about the possibilities for ethnographic practice and theoretical analysis. How, for example, are such conventions generated and transformed where there are wide differentials of power and unequal access to resources? What becomes of our notions of humans as active agents of culture when the possibilities for maneuver and the margin of action for many are overwhelmed by the constraints of a few? How do elites—ritual elders, Brahmanic priests, manorial lords, factory-managers—secure compliance to a normative order? How are expressions of submission and resistance woven together in a fabric of cultural understandings? How does a theory of culture enhance our analyses of the reconstitution of political authority from traditional kingship to modern nation-state, the encapsulation of pre-capitalist modes of production, and the attempts to convert “primordial sentiments” to “civic loyalties”? How do transnational fluidities and diasporic connections make instruments of nation-states contingent? These questions are some of the questions we immediately face when probing the intersections of culture, politics and representation, and they are the issues that lie behind this seminar. so

*** ANTH 421a / EAST 421a, Introduction to Remote Ethnography: The Xinjiang Crisis**
Staff

Methods such as participant observation, interviews, surveys, and ethnography are based on the assumption of access to a field. This course looks at whether and how one can understand a society if access is restricted and dangerous for local participants. We study the cluster of concepts known as “remote ethnography”—studying on-the-ground conditions from a distance—through the case of Xinjiang, China. It looks critically at methods used by journalists, social scientists, governments, corporations and others in situations where access is not possible, including open-source research, close reading of official texts, social media analysis, digital survey techniques, remote imaging, and diaspora interviews. In particular, we ask if these can be done without detailed knowledge of local context, culture and history, and study how these sources relate to recent ethnographic knowledge about people’s lives in rural southern Xinjiang. Students become familiar with the main concepts of remote ethnography and acquire basic tools for their own research. By the end of the semester, they also prepare to critically assess the methods used by anthropologists, social scientists, journalists and others in studying closed societies. HU

*** ANTH 423b / ANTH 623b, The Anthropology of Possible Worlds** Paul Kockelman
This course focuses on the nature of possible worlds: literary worlds (Narnia), ideological worlds (the world according to a particular political stance), psychological worlds (what someone remembers to be the case, wishes to be the case, or believes to be the case), environmental worlds (possible environmental futures), virtual worlds (the World of Warcraft), and—most of all—ethnographic works in which the actual and possible worlds of others are represented (the world according to the ancient Maya). We don’t focus on the contents of such worlds per se, but rather on the range of resources people have for representing, regimenting, and residing in such worlds; and the roles such resources play in mediating social relations and cultural values. so

*** ANTH 425a / ARCG 425a / EAST 428a, Archaeology of Protohistoric Japan** Staff
Where and when are the origins of Japanese culture? In this seminar we will examine the archaeology of the Japanese archipelago from the introduction of paddy rice agriculture through the end of the 8th century with an eye toward this question. Examining excavated materials and early textual accounts, we will confront myths – both ancient and modern – of Japanese origins, and interrogate the framing of these time periods. Students will explore the interplay between event and process; and between local developments and outside influence through topics including the arrival of immigrant populations and rice agriculture, political and trade relationships within the archipelago as well as on the Asian continent, and the emergence of political “statehood.” so

*** ANTH 430a / AMST 430a / ER&M 432a / HIST 123a, Muslims in the United States**
Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

*** ANTH 441a / MMES 430a / WGSS 430a, Gender and Citizenship in the Middle East**
Eda Pepi

This seminar explores the complex interplay between gender, sexuality, and citizenship in the Middle East and North Africa. We examine how they are both shaped by and shape experiences of nationality, migration, and statelessness. Highlighting how gender and sexual minorities, and the gendered regulation of life, more broadly, both animate and contest colonial legacies tied to a racialized notion of “modernity.” Through ethnography, history, and literature, students confront a political economy of intimacies that continuously reshape what it means to be or not to be a citizen. Our approach extends beyond borders and laws to include the everyday acts of citizenship that rework race, religion, and ethnicity across transnational fronts. We discuss how people navigate their lives in the everyday, from the ordinary poetry of identity and belonging to the spectacular drama of war and conflict. Our goal is to challenge orientalist legacies that dismiss theoretical insights from scholarship on and from this region by labeling it as focused on exceptional cases instead of addressing “universal” issues. Instead, we

take seriously that the specific historical and social contexts of the Middle East and North Africa reveal how connections based on gender and sexuality within and across families and social classes are deeply entwined with racial narratives of state authority and political sovereignty on a global scale. so

*** ANTH 447b / MMES 447b, Culture and Politics in the Contemporary Middle East**
Marcia Inhorn

In the decade since the 2011 Arab uprisings, the challenges facing the Middle East have been profound. They include various forms of war and displacement, political and economic instability, social upheaval and societal rupture. Indeed, by 2015, millions of Middle Eastern men, women, and children had been driven from their homes by conflict. This advanced undergraduate/graduate seminar is designed to explore some of the most important contemporary cultural and political shifts that are shaping life across the Middle East and North Africa (MENA). The course aims for broad regional coverage, with particular focus on a variety of important Middle Eastern nation-states (e.g., Egypt, Lebanon, Palestine, Saudi Arabia, Turkey, Iran). Students should emerge from the course with a keener sense of Middle Eastern regional histories and contemporary social issues, as described by a new generation of leading scholars in the field of Middle East Studies and particularly Middle East Anthropology. This course is thus designed for students in Anthropology, Modern Middle East Studies, and Global Affairs, but also from the disciplines of Sociology, History, Political Science, Near Eastern Languages and Cultures, and the like. The course is also intended for students in the CMES Graduate Certificate Program. so

*** ANTH 450a / ARCG 450a, Analysis of Lithic Technology** Oswaldo Chinchilla
Mazariegos

Introduction to the analysis of chipped and ground stone tools, including instruction in manufacturing chipped stone tools from obsidian. Review of the development of stone tool technology from earliest tools to those of historical periods; relevance of this technology to subsistence, craft specialization, and trade. Discussion of the recording, analysis, and drawing of artifacts, and of related studies such as sourcing and use-wear analysis. so

*** ANTH 451b / WGSS 431b, Intersectionality and Women's Health** Staff

The intersections of race, class, gender, and other axes of “difference” and their effects on women’s health, primarily in the contemporary United States. Recent feminist approaches to intersectionality and multiplicity of oppressions theory. Ways in which anthropologists studying women’s health issues have contributed to social and feminist theory at the intersections of race, class, and gender. so

*** ANTH 453b / HLTH 425b, Global Health: Equity and Policy** Catherine Panter-Brick
Current debates in global health have focused specifically on health disparities, equity, and policy. This *advanced undergraduate seminar class* is designed for students seeking to develop an interdisciplinary understanding of health research, practice, and policy. Each week, we address issues of importance for research and policy, and apply theory, ethics, and practice to global health debates and case studies. The class encourages critical thinking regarding the promotion of health equity. WR, so

*** ANTH 454b / ARCG 454b, Statistics for Archaeological Analysis** William Honeychurch

An introduction to quantitative data collection, analysis, and argumentation for archaeologists. Emphasis on the exploration, visualization, and analysis of specifically archaeological data using simple statistical approaches. No prior knowledge of statistics required. QR

ANTH 464b / ARCG 464b / E&EB 464b, Human Osteology Eric Sargis

A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions. SC, SO o Course cr

*** ANTH 465b / AMST 459b, Multispecies Worlds** Kathryn Dudley

This seminar explores the relational and material worlds that humans create in concert with other-than-human species. Through an interdisciplinary analysis of the problematic subject of anthropology—Anthropos—we seek to pose new questions about the fate of life worlds in the present epoch of anthropogenic climate change. Our readings track circuits of knowledge from anthropology and philosophy to geological history, literary criticism, and environmental studies as we come to terms with the loss of biodiversity, impending wildlife extinctions, and political-economic havoc wrought by global warming associated with the Anthropocene. A persistent provocation guides our inquiry: What multispecies worldings become possible to recognize and cultivate when we dare to decentre the human in our politics, passions, and aspirations for life on a shared planet? SO

*** ANTH 471a or b and ANTH 472a or b, Readings in Anthropology** William Honeychurch

For students who wish to investigate an area of anthropology not covered by regular departmental offerings. The project must terminate with at least a term paper or its equivalent. No student may take more than two terms for credit. To apply for admission, a student should present a prospectus and bibliography to the director of undergraduate studies no later than the third week of the term. Written approval from the faculty member who will direct the student's reading and writing must accompany the prospectus.

*** ANTH 491a or b, The Senior Essay** William Honeychurch

Supervised investigation of some topic in depth. The course requirement is a long essay to be submitted as the student's senior essay. By the end of the third week of the term in which the essay is written, the student must present a prospectus and a preliminary bibliography to the director of undergraduate studies. Written approval from an Anthropology faculty adviser and an indication of a preferred second reader must accompany the prospectus.

Applied Mathematics (AMTH)

*** AMTH 160b / MATH 160b / S&DS 160b, The Structure of Networks** Staff

Network structures and network dynamics described through examples and applications ranging from marketing to epidemics and the world climate. Study of social and biological networks as well as networks in the humanities. Mathematical

graphs provide a simple common language to describe the variety of networks and their properties. QR

AMTH 222a or b / MATH 222a or b, Linear Algebra with Applications Staff

Matrix representation of linear equations. Gauss elimination. Vector spaces. Linear independence, basis, and dimension. Orthogonality, projection, least squares approximation; orthogonalization and orthogonal bases. Extension to function spaces. Determinants. Eigenvalues and eigenvectors. Diagonalization. Difference equations and matrix differential equations. Symmetric and Hermitian matrices. Orthogonal and unitary transformations; similarity transformations. Students who plan to continue with upper level math courses should instead consider MATH 225 or 226. After MATH 115 or equivalent. May not be taken after MATH 225 or 226. QR

AMTH 232b / MATH 232b, Advanced Linear Algebra with Applications Ian Adelstein

This course is a natural continuation of MATH 222. The core content includes eigenvectors and the Spectral Theorem for real symmetric matrices; singular value decomposition (SVD) and principle component analysis (PCA); quadratic forms, Rayleigh quotients and generalized eigenvalues. We also consider a number of applications: optimization and stochastic gradient descent (SGD); eigen-decomposition and dimensionality reduction; graph Laplacians and data diffusion; neural networks and machine learning. A main theme of the course is using linear algebra to learn from data. Students complete (computational) projects on topics of their choosing. Prerequisites: MATH 120 and MATH 222, 225, or 226. This is not a proof-based course. May not be taken after MATH 340 (previously MATH 240). QR

AMTH 244a or b / MATH 244a or b, Discrete Mathematics Staff

Basic concepts and results in discrete mathematics: graphs, trees, connectivity, Ramsey theorem, enumeration, binomial coefficients, Stirling numbers. Properties of finite set systems. Prerequisite: MATH 115 or equivalent. Some prior exposure to proofs is recommended (ex. MATH 225). QR

AMTH 247b / MATH 247b, Intro to Partial Differential Equations Staff

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 222 or 225 or 226, MATH 246 or ENAS 194 or equivalents. QR

*** AMTH 342a / EENG 432a, Linear Systems** A Stephen Morse

Introduction to finite-dimensional, continuous, and discrete-time linear dynamical systems. Exploration of the basic properties and mathematical structure of the linear systems used for modeling dynamical processes in robotics, signal and image processing, economics, statistics, environmental and biomedical engineering, and control theory. Prerequisite: MATH 222 or permission of instructor. QR

AMTH 361b / S&DS 361b, Data Analysis Brian Macdonald

Selected topics in statistics explored through analysis of data sets using the R statistical computing language. Topics include linear and nonlinear models, maximum likelihood, resampling methods, curve estimation, model selection, classification, and clustering. Extensive use of the R programming language. Experience with R programming (from e.g. S&DS 106, S&DS 220, S&DS 230, S&DS 242), probability and statistics (e.g. 106, 220, 238, 241, or concurrently with 242), linear algebra (e.g. MATH 222, MATH 225,

MATH 118), and calculus is required. This course is a prerequisite for S&DS 425 and may not be taken after S&DS 425. QR

*** AMTH 362b / CPSC 362b / EENG 435b, Decisions and Computations across Networks** A Stephen Morse

For a long time there has been interest in distributed computation and decision making problems of all types. Among these are consensus and flocking problems, the multi-agent rendezvous problem, distributed averaging, gossiping, localization of sensors in a multi-sensor network, distributed algorithms for solving linear equations, distributed management of multi-agent formations, opinion dynamics, and distributed state estimation. The aim of this course is to explain what these problems are and to discuss their solutions. Related concepts from spectral graph theory, rigid graph theory, non-homogeneous Markov chain theory, stability theory, and linear system theory are covered. Although most of the mathematics need is covered in the lectures, students taking this course should have a working understanding of basic linear algebra. The course is open to all students. Prerequisite: Linear algebra or instructor permission. SC

AMTH 364b / EENG 454b / S&DS 364b, Information Theory Staff

Foundations of information theory in communications, statistical inference, statistical mechanics, probability, and algorithmic complexity. Quantities of information and their properties: entropy, conditional entropy, divergence, redundancy, mutual information, channel capacity. Basic theorems of data compression, data summarization, and channel coding. Applications in statistics and finance. After STAT 241. QR

AMTH 431a / ECON 431a / S&DS 431a, Optimization and Computation Zhuoran Yang

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

AMTH 447a / MATH 447a, Partial Differential Equations John Schotland

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 305

*** AMTH 482a, Research Project** John Wettlaufer

Individual research. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project. May be taken more than once for credit.

*** AMTH 491a, Senior Project** John Wettlaufer

Individual research that fulfills the senior requirement. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project.

Applied Physics (APHY)

* APHY 050a or b / ENAS 050a or b / PHYS 050a or b, Science of Modern Technology and Public Policy Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale immunization, and DNA made to order. Enrollment limited to first-year students. SC

* APHY 100b / ENAS 100b / EPS 105b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC RP

APHY 151a or b / ENAS 151a or b / PHYS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

APHY 194a or b / ENAS 194a or b, Ordinary and Partial Differential Equations with Applications Staff

Basic theory of ordinary and partial differential equations useful in applications. First- and second-order equations, separation of variables, power series solutions, Fourier series, Laplace transforms. Prerequisites: ENAS 151 or MATH 120 or equivalent, and knowledge of matrix-based operations. QR

APHY 293a / PHYS 293a, Einstein and the Birth of Modern Physics A Douglas Stone

The first twenty-five years of the 20th century represent a turning point in human civilization as for the first time mankind achieved a systematic and predictive understanding of the atomic level constituents of matter and energy, and the mathematical laws which describe the interaction of these constituents. In addition, the General Theory of Relativity opened up for the first time a quantitative study of cosmology, of the history of the universe as a whole. Albert Einstein was at the center of these breakthroughs, and also became an iconic figure beyond physics, representing scientist genius engaged in pure research into the fundamental laws of nature. This course addresses the nature of the transition to modern physics, underpinned by quantum and relativity theory, through study of Einstein's science, biography, and historical context. It also presents the basic concepts in electromagnetic theory, thermodynamics and statistical mechanics, special theory of relativity, and quantum mechanics which were central to this revolutionary epoch in science. Prerequisites: Two terms of PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261, or one term of any of these course with permission of instructor. QR, SC

APHY 320a / EENG 320a, Semiconductor Devices Hong Tang

An introduction to the physics of semiconductors and semiconductor devices. Topics include crystal structure; energy bands in solids; charge carriers with their statistics and dynamics; junctions, p-n diodes, and LEDs; bipolar and field-effect transistors; and device fabrication. Additional lab one afternoon per week. Prepares for EENG 325 and 401. Recommended preparation: EENG 200. PHYS 180 and 181 or permission of instructor QR, SC

APHY 322b, Electromagnetic Waves and Devices Robert Schoelkopf

Introduction to electrostatics and magnetostatics, time varying fields, and Maxwell's equations. Applications include electromagnetic wave propagation in lossless, lossy, and metallic media and propagation through coaxial transmission lines and rectangular waveguides, as well as radiation from single and array antennas. Occasional experiments and demonstrations are offered after classes. Prerequisites: PHYS 180, 181, or 200, 201. QR, SC

APHY 418b / EENG 402b, Advanced Electron Devices Mengxia Liu

The science and technology of semiconductor electron devices. Topics include compound semiconductor material properties and growth techniques; heterojunction, quantum well and superlattice devices; quantum transport; graphene and other 2D material systems. Formerly EENG 418. Prerequisite: EENG 320 or equivalent. QR, SC

*** APHY 420a / PHYS 420a, Thermodynamics and Statistical Mechanics** Eduardo Higino da Silva Neto

This course is subdivided into two topics. We study thermodynamics from a purely macroscopic point of view and then we devote time to the study of statistical mechanics, the microscopic foundation of thermodynamics. Prerequisites: PHYS 301, 410, and 440 or permission of instructor. QR, SC

APHY 439a / PHYS 439a, Basic Quantum Mechanics Robert Schoelkopf

The basic concepts and techniques of quantum mechanics essential for solid-state physics and quantum electronics. Topics include the Schrödinger treatment of the harmonic oscillator, atoms and molecules and tunneling, matrix methods, and perturbation theory. Prerequisites: PHYS 181 or 201, PHYS 301, or equivalents, or permission of instructor. QR, SC

APHY 448a / PHYS 448a, Solid State Physics I Vidvuds Ozolins

The first term of a two-term sequence covering the principles underlying the electrical, thermal, magnetic, and optical properties of solids, including crystal structure, phonons, energy bands, semiconductors, Fermi surfaces, magnetic resonances, phase transitions, dielectrics, magnetic materials, and superconductors. Prerequisites: APHY 322, 439, PHYS 420. QR, SC

APHY 449b / PHYS 449b, Solid State Physics II Yu He

The second term of the sequence described under APHY 448. QR, SC

*** APHY 450a / ENAS 450a / MENG 450a, Advanced Synchrotron Techniques and Electron Spectroscopy of Materials** Charles Ahn

Introduction to concepts of advanced x-ray and electron-based techniques used for understanding the electronic, structural, and chemical behavior of materials. Students learn from world-leading experts on fundamentals and practical applications of various diffraction, spectroscopy, and microscopy methods. Course highlights the use of synchrotrons in practical experiments. Prerequisites: physics and quantum

mechanics/physical chemistry courses for physical science and engineering majors, or by permission of instructor. QR, SC

APHY 458a / PHYS 458a, Principles of Optics with Applications Hui Cao

Introduction to the principles of optics and electromagnetic wave phenomena with applications to microscopy, optical fibers, laser spectroscopy, and nanostructure physics. Topics include propagation of light, reflection and refraction, guiding light, polarization, interference, diffraction, scattering, Fourier optics, and optical coherence. Prerequisite: PHYS 430. QR, SC

*** APHY 469a or b, Special Projects** Daniel Prober

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory). Students are expected to consult the director of undergraduate studies and appropriate faculty members to discuss ideas and suggestions for suitable topics. This course may be taken more than once, is graded pass/fail, is limited to Applied Physics majors, and does not count toward the senior requirement. Permission of the faculty adviser and of the director of undergraduate studies is required.

*** APHY 471a and APHY 472b, Senior Special Projects** Daniel Prober

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory). Students are expected to consult the director of undergraduate studies and appropriate faculty members to discuss ideas and suggestions for suitable topics. This course may be taken more than once and is limited to Applied Physics majors in their junior and senior years. Permission of the faculty adviser and of the director of undergraduate studies is required.

Arabic (ARBC)

ARBC 110a, Elementary Modern Standard Arabic I Staff

Development of a basic knowledge of Modern Standard Arabic. Emphasis on grammatical analysis, vocabulary acquisition, and the growth of skills in speaking, listening, reading, and writing. L1 1½ Course cr

ARBC 120b, Elementary Modern Standard Arabic II Staff

Continuation of ARBC 110. Prerequisite: ARBC 110 or requisite score on a placement test. L2 RP 1½ Course cr

*** ARBC 122a, Modern Standard Arabic for Heritage Learners I** Sarab Al Ani

This course is designed for students who have been exposed to Arabic—either at home or by living in an Arabic speaking country—but who have little or no formal training in the language. The main purpose of the course is to: build on the language knowledge students bring to the classroom to improve their skills and performance in the three modes of communication (Interpersonal, Presentational, and Interpretive), to fulfill various needs. Particular attention is paid to building, controlling, and mastering language structures. Effective study strategies are used in this course to strengthen writing skills in MSA. Various assignments and tasks are designed to improve the learner's understanding of several issues related to culture in various Arabic speaking countries. Prerequisite: Students must take the placement test or with permission of the instructor. L2

*** ARBC 130a, Intermediate Modern Standard Arabic I** Staff

Intensive review of grammar; readings from contemporary and classical Arab authors with emphasis on serial reading of unvoweled Arabic texts, prose composition, and formal conversation. Prerequisite: ARBC 120 or requisite score on a placement test.

L3 RP 1½ Course cr

*** ARBC 132b, Modern Standard Arabic for Heritage Learners II** Sarab Al Ani

Continuation of ARBC 122, MSA for Heritage Learners I. This course is designed for students who have been exposed to Arabic—either at home or by living in an Arabic-speaking country—but who have little or no formal training in the language. The main purpose of the course is to build on the language knowledge students bring to the classroom to improve their skills and performance in the three modes of communication (Interpersonal, Presentational, and Interpretive) in MSA to fulfill various needs. Particular attention is paid to building, controlling, and mastering language structures. Effective study strategies are used in this course to strengthen writing skills. Various assignments and tasks are designed to improve the learner's understanding of several issues related to culture in various Arabic speaking countries. Prerequisite: ARBC 122 or successful completion of placement test or instructor permission. L3

ARBC 136a, Beginning Classical Arabic I Staff

Introduction to classical Arabic, with emphasis on grammar to improve analytical reading skills. Readings include Qur'anic passages, literary material in both poetry and prose, biographical entries, and religious texts. Prerequisite: ARBC 120 or permission of instructor. May be taken concurrently with ARBC 130 or 150. L3 RP

ARBC 140b, Intermediate Modern Standard Arabic II Sarab Al Ani

Continuation of ARBC 130. Prerequisite: ARBC 130 or requisite score on a placement test. L4 RP 1½ Course cr

ARBC 146b, Beginning Classical Arabic II Staff

Continuation of ARBC 136. Prerequisite: ARBC 136 or permission of instructor. May be taken concurrently with ARBC 140 or 151. L4 RP

*** ARBC 150a, Advanced Modern Standard Arabic I** Muhammad Aziz

Further development of listening, writing, and speaking skills. For students who already have a substantial background in Modern Standard Arabic. Prerequisite: ARBC 140 or requisite score on a placement test. L5 RP

*** ARBC 151b, Advanced Modern Standard Arabic II** Muhammad Aziz

Continuation of ARBC 150. Prerequisite: ARBC 150 or requisite score on a placement test. L5 RP

ARBC 156a, Intermediate Classical Arabic I Staff

A course on Arabic grammar and morphology that builds on the skills acquired in ARBC 146/510, with emphasis on vocabulary, grammar, and reading skills and strategies. Readings drawn from a variety of genres, such as biography, history, hadith, and poetry. Previously ARBC 158. Prerequisite: ARBC 146 or 151. L5, HU

ARBC 166b, Intermediate Classical Arabic II Staff

A continuation of Intermediate Classical Arabic grammar and morphology that builds on the skills acquired in ARBC 156/511, with emphasis on vocabulary, grammar, and reading skills and strategies. Readings drawn from a variety of genres, such as

biography, history, hadith, and poetry.” Previously ARBC 159. Prerequisite: ARBC 156. L5, HU

*** ARBC 171b / ARBC 527b / MMES 177b, Hunger in Eden: Mohamed Choukri’s Narratives** Jonas Elbousty

A survey of the work of Mohamed Choukri, one of the most prominent Moroccan, if not Arab, writers to have shaped the modern Arabic literary canon. His influence has been instrumental in forming a generation of writers and enthusiastic readers, who fervently cherish his narratives. Students dive deeply into Choukri’s narratives, analyzing them with an eye toward their cultural and political importance. The class looks to Choukri’s amazing life story to reveal the roots of his passion for writing and explores the culture of the time and places about which he writes. Through his narratives, students better understand the political environment within which they were composed and the importance of Choukri’s work to today’s reader regarding current debates over Arab identity. This class surveys the entirety of his work, contextualizing within the sphere of Arabic novelistic tradition. Prerequisite: ARBC 151 or completion of the placement test. L5, HU

*** ARBC 178a / MMES 172a, Yemeni Literature & Culture** Muhammad Aziz

This seminar introduces students to a variety of Yemeni novels, short stories, poetry, history, movies, songs, and culture. We delve deeply into the major Arabic literary styles, in their forms of poetry, prose, movies, and series. A general sense of the transitional period between past and present in the modern era. Students are expected to read the material at home and prepare for class discussions. Students grasp some sense of Yemeni history as well as literature in general. Prerequisite: ARBC 151. L5

ARBC 191a, Egyptian Arabic Randa Muhammed

A basic course in the Egyptian dialect of Arabic. Principles of grammar and syntax; foundations for conversation and listening comprehension. Prerequisite: ARBC 130 or equivalent. RP

Archaeological Studies (ARCG)

*** ARCG 030b / ANTH 030b / LAST 030b, Inca Culture and Society** Richard Burger
History of the Inca empire of the Central Andes, including the empire’s impact on the nations and cultures it conquered. Overview of Inca religion, economy, political organization, technology, and society. Ways in which different schools of research have approached and interpreted the Incas over the last century, including the influence of nationalism and other sources of bias on contemporary scholarship. Enrollment is limited to first-year students. SO

*** ARCG 031a / EVST 030a / NELC 026a, Origins of Civilization: Egypt and Mesopotamia** Harvey Weiss

The origins of the earliest civilizations in Mesopotamia and Egypt along the Nile and Tigris-Euphrates Rivers explored with archaeological, historical and environmental data for the origins of agriculture, the classes and hierarchies that marked earliest cities, states and empires, the innovative monumental architecture, writing, imperial expansion, and new national ideologies. How and why these civilizational processes occurred with the momentous societal collapses at periods of abrupt climate change. Enrollment limited to first-year students. HU, SO

ARCG 161a / CLCV 161a / HSAR 247a, Art and Myth in Greek Antiquity Staff

Visual exploration of Greek mythology through the study of ancient Greek art and architecture. Greek gods, heroes, and mythological scenes foundational to Western culture; the complex nature of Greek mythology; how art and architecture rendered myths ever present in ancient Greek daily experience; ways in which visual representations can articulate stories. Use of collections in the Yale University Art Gallery. HU o Course cr

ARCG 215a / ANTH 215a, Archaeology of China Anne Underhill

Archaeology of China, one of the world's oldest and most enduring civilizations, from the era of early humans to early empires. Methods of interpreting remains from prehistoric and historic period sites. SO

ARCG 232a / ANTH 232a / LAST 232a, Ancient Civilizations of the Andes Richard Burger

Survey of the archaeological cultures of Peru and Bolivia from the earliest settlement through the late Inca state. SO

ARCG 244b / NELC 109b / RLST 245b, The Age of Akhenaton Nadine Moeller and John Darnell

Study of the period of the Egyptian pharaoh Akhenaton (reigned 1353–1336 B.C.E.), often termed the Amarna Revolution, from historical, literary, religious, artistic, and archaeological perspectives. Consideration of the wider Egyptian, ancient Near Eastern, African, and Mediterranean contexts. Examination of the international diplomacy, solar theology, and artistic developments of the period. Reading of primary source material in translation. HU o Course cr

ARCG 245a / NELC 243a, Archaeology of Ancient Egypt: An Introduction Gregory Marouard

This lecture is an introductory class that examines in detail the archaeology of ancient Egypt following the chronological order of Egyptian history and covering almost 4000 years, from the late Neolithic period to the end of the Greco-Roman period. The aim is not only to give a comprehensive overview of major sites and discoveries but also to use as much as possible information from recent excavations, discuss problems and priorities concerning this field, offer an introduction to new fieldwork methods and approaches used in Egypt as well as a short history of this discipline. none HU o Course cr

*** ARCG 253b / ANTH 253b, Introduction to Experimental Archaeology** Ellery Frahm
Experimental archaeology is one of the most important tools to develop and test models which link human behaviors and natural forces to the archaeological record. This class explores the elements of good experimental design and procedures. ANTH 316L, ARCG 316L recommended. SO

ARCG 264a / ANTH 264a / SPAN 404a, Aztec Archaeology and Ethnohistory Oswaldo Chinchilla Mazariegos

An anthropological and ethnohistorical examination of the Aztec civilization that dominated much of Mexico from the fourteenth century until the Spanish Conquest of 1521. SO

ARCG 316La / ANTH 316La, Introduction to Archaeological Laboratory Sciences

Ellery Frahm

Introduction to techniques of archaeological laboratory analysis, with quantitative data styles and statistics appropriate to each. Topics include dating of artifacts, sourcing of ancient materials, remote sensing, and microscopic and biochemical analysis. Specific techniques covered vary from year to year. SC

*** ARCG 326b / ANTH 326b, Ancient Civilizations of the Eurasian Steppes** William Honeychurch

Examination of peoples of the steppe zone that stretches from Eastern Europe to Mongolia. Overview of what archaeologists know about Eurasian steppe societies, with emphasis on the Neolithic, Bronze and Iron, and medieval ages. Attention both to material culture and to historical sources. Topics range from the domestication of the horse to Genghis Khan's world empire, including the impact these events had on neighboring civilizations in Europe and Asia. SO

*** ARCG 353a / ANTH 353a, The Archaeology of Trade and Exchange** Richard Burger

This seminar will focus on archaeological approaches to exchange and trade. As background, we will review some of the principal theories of exchange from anthropology and sociology, such as those of Mauss, Malinowski and Polanyi. The role of trade and exchange in different kinds of societies will be examined by contextualizing these transactions within specific cultural configurations and considering the nature of production and consumption as they relate to movement of these goods. We will consider methods and models that have been used to analyze regions of interaction at different spatial scales and the theoretical arguments about the social impact of inter-regional and intra-regional interactions involving the transfer of goods, including approaches such as world systems, unequal development and globalization. In addition, we will examine the ways that have been utilized in archaeology to identify different kinds of exchange systems, often through analogies to well documented ethnographic and historic cases. Finally, we will consider the range of techniques that have been employed in order to track the movement of goods across space. These sourcing techniques will be evaluated in terms of their advantages and disadvantages from an archaeological perspective, and how the best technical analyses may vary according to the nature of natural or cultural materials under consideration (ceramics, volcanic stone, metals, etc.). The theme for this year's seminar is obsidian so students should select some aspect of obsidian research for their final paper and presentation.

*** ARCG 362b / EPS 362b / EVST 362b, Observing Earth from Space** Xuhui Lee

A practical introduction to satellite image analysis of Earth's surface. Topics include the spectrum of electromagnetic radiation, satellite-borne radiometers, data transmission and storage, computer image analysis, the merging of satellite imagery with GIS and applications to weather and climate, oceanography, surficial geology, ecology and epidemiology, forestry, agriculture, archaeology, and watershed management. Prerequisites: college-level physics or chemistry, two courses in geology and natural science of the environment or equivalents, and computer literacy. QR, SC o Course cr

*** ARCG 363a / EVST 371a / NELC 189 / NELC 330a, Archaeologies of Empire** Harvey Weiss

Empire is rarely studied cross-culturally, although it is second only to hunting-and-gathering as the most successful, longest-lived, regional politico-economic organization. Despite major empire-specific research efforts, there remains, as well,

little consensus as to empires' genesis and function. Here we attempt to define the features of empire, their genesis and their function, in ancient and modern times. Comparative study of origins, structures, efficiencies, and limitations of imperialism, ancient and modern, in the Old and New Worlds, from Akkad to "Indochine" and from Wari to Aztec. The contrast between ancient and modern empires examined from the perspectives of nineteenth- and twentieth-century archaeology and political economy. HU, SO

*** ARCG 385a / ANTH 385a, Archaeological Ceramics** Anne Underhill

Archaeological methods for analyzing and interpreting ceramics, arguably the most common type of object found in ancient sites. Focus on what different aspects of ceramic vessels reveal about the people who made them and used them. SO

*** ARCG 399b / EVST 399b / NELC 399b, Agriculture: Origins, Evolution, Crises**
Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

*** ARCG 425a / ANTH 425a / EAST 428a, Archaeology of Protohistoric Japan** Staff
Where and when are the origins of Japanese culture? In this seminar we will examine the archaeology of the Japanese archipelago from the introduction of paddy rice agriculture through the end of the 8th century with an eye toward this question. Examining excavated materials and early textual accounts, we will confront myths — both ancient and modern — of Japanese origins, and interrogate the framing of these time periods. Students will explore the interplay between event and process; and between local developments and outside influence through topics including the arrival of immigrant populations and rice agriculture, political and trade relationships within the archipelago as well as on the Asian continent, and the emergence of political "statehood." SO

*** ARCG 450a / ANTH 450a, Analysis of Lithic Technology** Oswaldo Chinchilla
Mazariegos

Introduction to the analysis of chipped and ground stone tools, including instruction in manufacturing chipped stone tools from obsidian. Review of the development of stone tool technology from earliest tools to those of historical periods; relevance of this technology to subsistence, craft specialization, and trade. Discussion of the recording, analysis, and drawing of artifacts, and of related studies such as sourcing and use-wear analysis. SO

*** ARCG 454b / ANTH 454b, Statistics for Archaeological Analysis** William
Honeychurch

An introduction to quantitative data collection, analysis, and argumentation for archaeologists. Emphasis on the exploration, visualization, and analysis of specifically archaeological data using simple statistical approaches. No prior knowledge of statistics required. QR

ARCG 464b / ANTH 464b / E&EB 464b, Human Osteology Eric Sargis

A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of

bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions. SC, SO o Course cr

*** ARCG 471a, Directed Reading and Research in Archaeology** Oswaldo Chinchilla Mazariegos

Qualified students may pursue special reading or research under the guidance of an instructor. A written statement of the proposed research must be submitted to the director of undergraduate studies for approval.

*** ARCG 473b / EVST 473b / NELC 373b, Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

*** ARCG 491a or b, Senior Research Project in Archaeology** Oswaldo Chinchilla Mazariegos

Required of all students majoring in Archaeological Studies. Supervised investigation of some archaeological topic in depth. The course requirement is a long essay to be submitted as the student's senior essay. The student should present a prospectus and bibliography to the director of undergraduate studies no later than the third week of the term. Written approval from the faculty member who will direct the reading and writing for the course must accompany the prospectus.

Architecture (ARCH)

*** ARCH 007a, Architecture as Space** Eeva-Liisa Pelkonen

This first-year seminar explores how architectural spaces, large and small, both public and private, have been designed, discussed, and experienced throughout history. The focal point of the course is to explore how architects, writers, artists, and filmmakers have mined the evocative richness of architectural space through various media. Ideas about multi-sensory and multi-temporal space, intimate and infinite space, domestic space, as well as modalities of excitement and belonging, as well as terror and anxiety will be discussed and explored. The goal is to sensitize students to the power of space to shape our mood and behavior. In addition, the course familiarizes students with Yale's campus architecture and its vast archival and museum collections. Enrollment limited to first-year students. HU

ARCH 150a, Introduction to Architecture Alexander Purves and Trattie Davies

Lectures and readings in the language of architecture. Architectural vocabulary, elements, functions, and ideals. Notebooks and projects required. Not open to first-year students. Required for all Architecture majors. HU

*** ARCH 250a, Methods and Form in Architecture I** Anne Barrett and Deborah Garcia

Analysis of architectural design of specific places and structures. Analysis is governed by principles of form in landscape, program, ornament, and space, and includes design methods and techniques. Readings and studio exercises required. Enrollment limited to 25. Open only to Architecture majors. 1½ Course cr

ARCH 260a / HSAR 326a, History of Architecture to 1750 Staff

Introduction to the history of architecture from antiquity to the dawn of the Enlightenment, focusing on narratives that continue to inform the present. The course begins in Africa and Mesopotamia, follows routes from the Mediterranean into Asia and back to Rome, Byzantium, and the Middle East, and then circulates back to mediaeval Europe, before juxtaposing the indigenous structures of Africa and America with the increasingly global fabrications of the Renaissance and Baroque. Emphasis on challenging preconceptions, developing visual intelligence, and learning to read architecture as a story that can both register and transcend place and time, embodying ideas within material structures that survive across the centuries in often unexpected ways. HU o Course cr

ARCH 272a / HSAR 150a / RLST 262a, Introduction to the History of Art: Art and Architecture of the Sacred Staff

A wide-ranging, cross-temporal exploration of religious images, objects, and architecture in diverse cultures, from ancient Mesopotamia to modern Manhattan. Buddhist, Christian, Hindu, Jewish, Muslim, and various polytheistic traditions are represented. Thematic threads include the human body; transformations of nature; death, memory, and afterlife; sacred kingship and other forms of political engagement; practices of concealment and revelation; images as embodiments of the divine; the framing and staging of ritual through architecture. HU o Course cr

ARCH 302a / HSAR 286a, Renaissance Architecture: A Global History Staff

The period known as the Renaissance (1400–1600) witnessed the rise and spread of ambitious new forms of architecture. During this era, builders pushed an earlier tradition of gothic design toward unprecedented heights of structural daring and ornamental expression. At the same time, they found inspiration in ancient pagan and non-European monuments, which offered alternative models of technical virtuosity, material splendor, and magnificence. Engineers invented fortifications of colossal scale to combat powerful gunpowder weapons, while new media such as print transmitted architectural designs across the globe. This course explores such developments across Europe and its cultural and colonial networks in Asia, Africa, and Latin America. It surveys a wide range of Renaissance building types, from palaces and gardens to churches, civic buildings, and urban infrastructure. Lectures consider how buildings and cities were reshaped by urban elites, absolutist monarchs, religious warfare, paper and print, and global expansion. Along the way, the course equips students with critical visual-technical skills and language to describe and interpret the built environment. Majors and non-majors of all years are welcome. Graduate students may register with advanced coursework. HU o Course cr

*** ARCH 314a / URBN 314a, History of Landscape in Western Europe and the United States: Antiquity to 1950** Warren Fuermann

This course is designed as an introductory survey of the history of landscape architecture and the wider, cultivated landscape in Western Europe and the United States from the Ancient Roman period to mid-twentieth century America. Included in the lectures, presented chronologically, are the gardens of Ancient Rome, medieval Europe, the early and late Italian Renaissance, 17th century France, 18th century Britain, 19th century Britain and America with its public and national parks, and mid-twentieth century America. The course focuses each week on one of these periods, analyzes

in detail iconic gardens of the period, and place them within their historical and theoretical context. HU RP

*** ARCH 327a / URBN 327a, Difference and the City** Justin Moore

Four hundred and odd years after colonialism and racial capitalism brought twenty and odd people from Africa to the dispossessed indigenous land that would become the United States, the structures and systems that generate inequality and white supremacy persist. Our cities and their socioeconomic and built environments continue to exemplify *difference*. From housing and health to mobility and monuments, cities small and large, north and south, continue to demonstrate intractable disparities. The disparate impacts made apparent by the COVID-19 pandemic and the reinvigorated and global Black Lives Matter movement demanding change are remarkable. Change, of course, is another essential indicator of *difference* in urban environments, exemplified by the phenomena of disinvestment or gentrification. This course explores how issues like climate change and growing income inequality intersect with politics, culture, gender equality, immigration and migration, technology, and other considerations and forms of disruption.

ARCH 345a / URBN 345a, Civic Art: Introduction to Urban Design Alan Plattus

Introduction to the history, analysis, and design of the urban landscape. Principles, processes, and contemporary theories of urban design; relationships between individual buildings, groups of buildings, and their larger physical and cultural contexts. Case studies from New Haven and other world cities. HU

*** ARCH 360a / URBN 360a, Urban Lab: An Urban World** Joyce Hsiang

Understanding the urban environment through methods of research, spatial analysis, and diverse means of representation that address historical, social, political, and environmental issues that consider design at the scale of the entire world. Through timelines, maps, diagrams, collages and film, students frame a unique spatial problem and speculate on urbanization at the global scale. Prerequisites: For non-majors: permission of the instructor is required. For ARCH majors: ARCH 150, 200, and 280. HU 1½ Course cr

*** ARCH 364a, The Architecture of Error: Matter, Measure and the Misadventures of Precision** Staff

This seminar examines the silent role physical error played in the cultural and technological transformations that marked architecture's twentieth century, from the rejection of organic materials to the reductive logics of digital optimisation. Aristotle's conflation of matter with error suggests error as able to provides a 'way-in' to the (always closed) question of matter. Might the symptomatic excess of precision that the century witnessed, inflated beyond practicable performance, signal nothing less than the architect's fear of matter itself? As precision, already a promiscuous term, became uncoupled from its contract with truthfulness, error, and the always-political space of its identification, reconfigured in newly unpredictable ways. With reference to disciplines and practices that have interrogated precision and failure with more curiosity than has architecture—historians of science, and visual artists Matta-Clark, Hepworth, Whiteread, and Celmins—the sessions will explore what architecture might learn from error and its ever-inventive tactics of dissent. Two concluding sessions ask: where precision and error relations now stand in contemporary architecture as what

we daily put in the cloud threatens to exhaust the ground beneath our feet? Familiarity with general history of modern art and architecture preferred.

*** ARCH 450a, Senior Studio** Adam Hopfner

Advanced problems with emphasis on architectural implications of contemporary cultural issues. The complex relationship among space, materials, and program. Emphasis on the development of representations—drawings and models—that effectively communicate architectural ideas. To be taken before ARCH 494. Enrollment limited to Architecture majors. 1½ Course cr

*** ARCH 471a, Individual Tutorial** Michael Schlabs

Special courses may be established with individual members of the department only. The following conditions apply: (1) a prospectus describing the nature of the studio program and the readings to be covered must be approved by both the instructor and the director of undergraduate studies; (2) regular meetings must take place between student and instructor; (3) midterm and final reviews are required. For juniors and seniors with DUS approval; meetings by appointment with DUS.

*** ARCH 472a, Individual Tutorial Lab** Michael Schlabs

RP ½ Course cr

*** ARCH 490a / URBN 490a, Senior Research Colloquium** Kyle Dugdale

Research and writing colloquium for seniors in the Urban Studies and History, Theory, and Criticism tracks. Under guidance of the instructor and members of the Architecture faculty, students define their research proposals, shape a bibliography, improve research skills, and seek criticism of individual research agendas. Requirements include proposal drafts, comparative case study analyses, presentations to faculty, and the formation of a visual argument. Guest speakers and class trips to exhibitions, lectures, and special collections encourage use of Yale's resources.

Armenian (ARMN)

Art (ART)

*** ART 006a, Art of the Printed Word** Jesse Marsolais

Introduction to the art and historical development of letterpress printing and to the evolution of private presses. Survey of hand printing; practical study of press operations using antique platen presses and the cylinder proof press. Material qualities of printed matter, connections between content and typographic form, and word/image relationships. Enrollment limited to first-year students. HU

*** ART 007b, Art of the Game** Sarah Stevens-Morling and Elena Bertozzi

Introduction to interactive narrative through video game programming, computer animation, and virtual filmmaking. Topics include interactive storytelling, video game development and modification, animation, and virtual film production. Students produce a variety of works including web-based interactive narratives, collaboratively built video games, and short game-animated film production (machinima). Enrollment limited to first-year students.

*** ART 010a, Interdisciplinary Exploration For Making Fictional Worlds, Flying Machines, and Shaking Things Up** Staff

Whether you aspire to be an engineer, doctor, or astronaut, it can still be vital to dream and invent—by drawing and sculpting in order to generate ideas and develop strategies for learning how to make something out of nothing. In this course, students consider how artists and inventors have used seemingly unrelated materials and content in order to activate creative thinking and generative activity. Students engage in a wide variety of interdisciplinary activities such as drawing, sculpting, painting, printing, photography, reprographics, instrument-building and sound broadcasting. This course emphasizes experimenting with strategies for generating ideas, images and objects, and employs broad modes of creating, including elements of chance, spontaneity, collaborating communally, and synthesizing disparate elements into the process of making. Enrollment limited to first-year students. HU

*** ART 013b, Temperamental Spaces** Yaminay Chaudhri

Spaces can sometimes appear as idiosyncratic as the people within them, taking on characteristics we usually ascribe to ourselves. They can appear erratic, comforting, uncanny—even threatening. Working like a therapy session for architecture, the body, and the objects around us, this seminar analyzes a diverse collection of readings and works, ranging from Renaissance mysticism to conceptual art and film, to explore how the visual arts have utilized a productive, but skeptical, relationship with space. Enrollment limited to first-year students. Enrollment limited to first-year students. HU

*** ART 014b, Research in the Making** Matthew Keegan

Artistic research expands the research form to focus on haptic and tactile study of physical and historical objects. Through field trips to various special collections and libraries, including the Beinecke, the Yale Art Gallery, and the Map Collection, students respond to specific objects in the vast resources of Yale University. Group discussions, lectures, and critiques throughout the term help foster individual projects. Each student conducts research through the artistic mediums of drawing, photography, video, and audio, to slowly build an interconnected collection of research that is also an artwork. Enrollment limited to first-year students. HU

*** ART 015a, Sculpture, Irrational Collaborative Play and Channeling Creativity** Staff

How do artists, writers, dancers, musicians, architects, designers, and performers break the tension of trying to generate something new and exciting? When do we feel the most free to create? This course explores strategies inspired by artists who use unstructured free play as a way to develop new ways of making art and generating new ideas, images, and objects. Students are introduced to group activities and actions such as the costumes created for Bauhaus School parties and the seemingly absurd, irrational games of Fluxus as a way to reinvent and energize their notions of how art could be created. Working collaboratively and individually, students use sculptural materials and the sculpture studios to create a space for their own inventions. Enrollment limited to first-year students.

*** ART 016a, Artists Teaching Artists** Ryan Sluggett

This course explores and questions artistic traditions between teachers and their students with a focus on how knowledge gets passed down, rejected, built upon, doubled down on, and sidestepped. Throughout history artists-as-educators have merged lived experiences, subjective taste, and ‘mis-readings’ of tradition in their

official and unofficial syllabi. Students imagine what it might have been like to be a student of a range of influential artists, be encouraged to put themselves directly in the seat of the emerging artist, and come to understand the two-way street nature in the formation of one's art education. Enrollment limited to first-year students.

*** ART 040b / ENGL 041b, Writer as Designer, Designer as Writer** Rachel Kauder Nalebuff and Andrew Walsh-Lister

This seminar invites us to explore the boundaries between written and visual expression. Students with a background or interest in visual art learn to harness their voices as writers, and writers learn tools for how words take on new meaning through visual compositions. The course investigates the relationship between form and content through the creation of three projects—an interview, a manual, and an essay—each of which is written, designed, and physically produced using a variety of tools at our disposal. Through readings, in-class discussion and exercises, as well as workshops, we consider the ways language and ideas can be communicated to others through different media, and how that media in itself also carries meaning. The aim of the course is to playfully blur the categories of “writer” and “designer” so that we can be both at once: messengers. Enrollment limited to first-year students. This course does not count toward the Creative Writing Concentration for English majors. HU

*** ART 110b, Sculpture Basics** Sandra Burns

Concepts of space, form, weight, mass, and design in sculpture are explored and applied through basic techniques of construction and material, including gluing and fastening, mass/weight distribution, hanging/mounting, and surface/finishing. Hands-on application of sculptural techniques and review of sculptural ideas, from sculpture as a unified object to sculpture as a fragmentary process. The shops and classroom studio are available during days and evenings throughout the week. Enrollment limited to 12. Recommended to be taken before ART 120–125. HU RP

*** ART 111a or b, Visual Thinking** Staff

An introduction to the language of visual expression, using studio projects to explore the fundamental principles of visual art. Students acquire a working knowledge of visual syntax applicable to the study of art history, popular culture, and art. Projects address all four major concentrations (graphic design, printing/printmaking, photography, and sculpture). No prior drawing experience necessary. Open to all undergraduates. Required for Art majors. HU RP

*** ART 114a or b, Basic Drawing** Staff

An introduction to drawing, emphasizing articulation of space and pictorial syntax. Class work is based on observational study. Assigned projects address fundamental technical and conceptual problems suggested by historical and recent artistic practice. No prior drawing experience required. Open to all undergraduates. Required for Art majors. HU

*** ART 116a, Color Practice** Halsey Rodman

Study of the interactions of color, ranging from fundamental problem solving to individually initiated expression. The collage process is used for most class assignments. HU RP

ART 120a, Introduction to Sculpture: Wood Staff

Introduction to wood and woodworking technology through the use of hand tools and woodworking machines. The construction of singular objects; strategies for installing

those objects in order to heighten the aesthetic properties of each work. How an object works in space and how space works upon an object. HU

*** ART 122b, Introduction to Sculpture: Video Installation** Ben Hagari

Exploration of time-based, three-dimensional works through such mediums as performance, video, installation, and sound, with consideration of how they inform contemporary practice. Emphasis on the integration and manipulation of mediums and materials to broaden historical context. Critiques, readings, video screenings, artist lectures, and frequent workshops to complement studio work both during and outside of scheduled class time. Enrollment limited to 12. HU RP

*** ART 123a, How Things Meet** Desmond Lewis

This introductory studio course uses the joint or juncture as a literal and metaphorical point of departure for exploring wood and metal fabrication techniques and themes in contemporary art. Through fabrication-based assignments, shop time, discussions, readings, critiques, and field trips, students develop a modular skillset for making parallel to investigating the narrative nature of material, sustainability, and social issues as a foundation for a holistic art practice. RP

*** ART 130a or b, Painting Basics** Staff

A broad formal introduction to basic painting issues, including the study of composition, value, color, and pictorial space. Emphasis on observational study. Course work introduces students to technical and historical issues central to the language of painting. Recommended for non-majors and art majors. HU RP

*** ART 132a or b, Introduction to Graphic Design** Staff

A studio introduction to visual communication, with emphasis on the visual organization of design elements as a means to transmit meaning and values. Topics include shape, color, visual hierarchy, word-image relationships, and typography. Development of a verbal and visual vocabulary to discuss and critique the designed world. HU RP

*** ART 136a, Black & White Photography Capturing Light** Staff

An introductory course in black-and-white photography concentrating on the use of 35mm cameras. Topics include the lensless techniques of photograms and pinhole photography; fundamental printing procedures; and the principles of film exposure and development. Assignments encourage the variety of picture-forms that 35mm cameras can uniquely generate. Student work is discussed in regular critiques. Readings examine the invention of photography and the flâneur tradition of small-camera photography as exemplified in the work of artists such as Henri Cartier-Bresson, Helen Levitt, Robert Frank, and Garry Winogrand. HU RP

*** ART 138a or b, Digital Photography Seeing in Color** Staff

The focus of this class is the digital making of still color photographs with particular emphasis on the potential meaning of images in an overly photo-saturated world. Through picture-making, students develop a personal visual syntax using color for effect, meaning, and psychology. Students produce original work using a required digital SLR camera. Introduction to a range of tools including color correction, layers, making selections, and fine inkjet printing. Assignments include regular critiques with active participation and a final project. HU RP

*** ART 142a or b / FILM 162a or b, Introductory Documentary Filmmaking** Staff

The art and craft of documentary filmmaking. Basic technological and creative tools for capturing and editing moving images. The processes of research, planning, interviewing, writing, and gathering of visual elements to tell a compelling story with integrity and responsibility toward the subject. The creation of nonfiction narratives. Issues include creative discipline, ethical questions, space, the recreation of time, and how to represent “the truth.” RP

*** ART 145b, Introduction to Digital Video** Neil Goldberg

Introduction to the formal principles and basic tools of digital video production. Experimental techniques taught alongside traditional HD camera operation and sound capture, using the Adobe production suite for editing and manipulation. Individual and collaborative assignments explore the visual language and conceptual framework for digital video. Emphasis on the spatial and visual aspects of the medium rather than the narrative. Screenings from video art, experimental film, and traditional cinema. RP

*** ART 184a, 3D Modeling for Creative Practice** Alvin Ashiatey

Through creation of artwork, using the technology of 3D modeling and virtual representation, students develop a framework for understanding how experiences are shaped by emerging technologies. Students create forms, add texture, and illuminate with realistic lights; they then use the models to create interactive and navigable spaces in the context of video games and virtual reality, or to integrate with photographic images. Focus on individual project development and creative exploration. Frequent visits to Yale University art galleries. This course is a curricular collaboration with The Center for Collaborative Arts and Media at Yale (CCAM). RP

*** ART 225b, Adventures in Self-Publishing** Alexander Valentine

This course introduces students to a wide range of directions and legacies within arts publishing, including the development of fanzines, artists’ books, small press comics, exhibition catalogues, “just in time” publications, and social media. Students are given instruction in the Yale School of Art’s Print Shop on various printing and binding methods leading to the production of their own publications both individually and in collaboration. Attention is paid to ways artists’ publishing has been used to bypass traditional cultural and institutional gatekeepers, to foster community and activism, to increase visibility and representation, and to distribute independent ideas and narratives. Students explore the codex as it relates to contemporary concepts of labor, economics, archives, media forms, information technologies, as well as interdisciplinary and social art practices. Supplemental readings and visits to the Haas Arts Library, the Beinecke Rare Book and Manuscript Library, YUAG’s prints and drawings study room, and the Odds and Ends Art Book Fair provide case studies and key examples for consideration. Prerequisite: ART 111.

*** ART 236a, Picturing at the Peabody** Lisa Kereszi

A photography course that is taught both in the School of Art and also in the classrooms and Imaging Studio of the Peabody Museum, making use of the museum’s collections for subject matter and inspiration. Students choose a specific subject, theme, or collection in the museum, research it, and investigate it photographically on site or in the studio to create an original body of work that directly relates to themes and objects found in the museum’s collections. Students work collaboratively to curate a semi-public exhibition in the Peabody Museum building of their photographic artwork to put on view, as well as an exhibit of actual objects chosen in the course of

their photography project research. The course studies other artists' archival exhibits and makes use of an existing exhibition of actual objects curated from the collections to learn the history of photography, as well as learn how an exhibition of archival material is researched, organized, and executed. Prerequisite: ART 138 or permission of instructor.

*** ART 241a / FILM 161a, Introductory Film Writing and Directing** Jonathan Andrews

Problems and aesthetics of film studied in practice as well as in theory. In addition to exploring movement, image, montage, point of view, and narrative structure, students photograph and edit their own short videotapes. Emphasis on the writing and production of short dramatic scenes. Priority to majors in Art and in Film & Media Studies. RP

*** ART 245b, Digital Drawing** Anahita Vossoughi

Digital techniques and concepts as they expand the possibilities of traditional drawing. The structure of the digital image; print, video, and projected media; creative and critical explorations of digital imaging technologies. Historical contexts for contemporary artworks and practices utilizing digital technologies. Group critiques of directed projects. The second half of the course is focused on individual development and exploration. Enrollment limited.

*** ART 264a, Typography!** Nontsikelelo Mutiti

An intermediate graphic-design course in the fundamentals of typography, with emphasis on ways in which typographic form and visual arrangement create and support content. Focus on designing and making books, employing handwork, and computer technology. Typographic history and theory discussed in relation to course projects. Prerequisite: ART 132. RP

*** ART 266a, Graphic Design Histories** Geoff Kaplan

This three-part course examines the role of alternative and underground media in the formation of social movements in the United States from the mid- to late 20th century, specifically focusing on graphic design. Our animating question throughout the term is: "can graphic design be understood as a form of activism or protest?" Looking to histories of graphic innovation linked to diverse social interests (among them, Black power, women's liberation, queer activism, environmentalism, the antiwar movement, independence movements, etc.), we will study the ways in which collective practices fashion the image of a culture in times of pronounced political change: as a vehement challenge to the dominance of official media and a critical form of self-representation. One goal is to consider the implications of such work in the present, a moment in which corporate media, misinformation campaigns, and algorithmic capitalism has exerted decisive control over public discourse. HU

*** ART 285b, Digital Animation** Michael Rader

Introduction to the principles, history, and practice of animation in visual art and film. Historical and theoretical developments in twentieth- and twenty-first-century animation used as a framework for making digital animation. Production focuses on digital stop-motion and compositing, as well as 2-D and 3-D computer-generated animation. Workshops in relevant software. Prerequisites: ART 111, 114, or 145, and familiarity with Macintosh-based platforms.

*** ART 294b, Technology and the Promise of Transformation** Staff

Inherent transformative qualities are embedded within technology; it transforms our lives, the way we perceive or make art, and conversely, art can reflect on these transformations. Students explore the implementation of technologies in their art making from pneumatic kinetics, bioengineering, AR, VR, and works assisted by artificial intelligence – modes of production that carry movement, degradation, and displacement of authorship. The student practice is supported by readings, independent research, and essays on diverse artists and designers who make use of technology in their work or, on the contrary, totally avoid it. This course is a curricular collaboration with The Center for Collaborative Arts and Media at Yale (CCAM).

*** ART 331b, Intermediate Painting** Maria De Los Angeles

Further exploration of concepts and techniques in painting, emphasizing the individuation of students' pictorial language. Various approaches to representational and abstract painting. Studio work is complemented by in-depth discussion of issues in historical and contemporary painting. Prerequisite: ART 130, 230, 231, or permission of instructor. RP

ART 332a, Painting Time Alexandria Smith

Painting techniques paired with conceptual ideas that explore how painting holds time both metaphorically and within the process of creating a work. Use of different Yale locations as subjects for observational on-site paintings. Prerequisite: ART 130, 230, or 231, or with permission of instructor. HU RP

*** ART 337b, Picturing Us: Representation in Digital Photography** Tommy Kha

Photographic investigation of the politics of visibility and intersectionality, the social processes in which identities are formed and revised. Exploration of the constructions of race, gender, sexual orientation, nationality, citizenship, ethnicity, religion, and class. Students study problems through photography, including concepts of identity and the construction of identities; how some identities appear invisible, visible, or super-visible; and which identities speak authentically and also universally. Prerequisite: ART 136, ART 138, or equivalent. HU RP

*** ART 338a, Contemporary Problems in Color with Digital Photography** Tommy Kha

How do you make a contemporary portrait? What is an effective portrait? What makes a portrait today? Can one be made through observation? Is consent required? This class confronts these questions, among others, while addressing the often uneasy relationship between photographer and sitter. Using digital capture with an emphasis on color photography students produce original work in portraiture by committing to a regular and rigorous photographic practice. Range of tools addressed include working with RAW files, masks, compositing and grayscale, and medium and large-scale color inkjet printing. Students produce original work for critique, with special attention to ways in which their technical decisions can clarify their artistic intentions in representing a person. Course fee charged per term. Prerequisite: ART 138 or permission of the instructor. RP

ART 341b / FILM 355b, Intermediate Film Writing and Directing Jonathan Andrews

In the first half of the term, students write three-scene short films and learn the tools and techniques of staging, lighting, and capturing and editing the dramatic scene. In the second half of the term, students work collaboratively to produce their films. Focus

on using the tools of cinema to tell meaningful dramatic stories. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 241. RP

ART 342b / FILM 356b, Intermediate Documentary Filmmaking Michel Auder

Students explore the storytelling potential of the film medium by making documentaries an art form. The class concentrates on finding and capturing intriguing, complex scenarios in the world and then adapting them to the film form. Questions of truth, objectivity, style, and the filmmaker's ethics are considered by using examples of students' work. Exercises in storytelling principles and screenings of a vast array of films mostly made by independent filmmakers from now to the beginning of the last century. Limited enrollment. Priority to majors in Art and in Film & Media Studies.

Prerequisites: ART 141 or 142. HU RP

ART 346b, Dematerial/Material Desmond Lewis

Exploration of questions and topics pertinent to contemporary sculpture through making, writing, reading, looking, critique, discussions, and field trips. Projects become increasingly self-directed as students develop relationships to materials, techniques, and ideas both familiar and new. Limited enrollment. Prerequisite: ART 120, 121, 122, or equivalent; or with permission of instructor. RP

*** ART 348a, Body, Space, and Time** Kameelah Rasheed

Exploration of time-based art mediums such as moving-image work, performance, sound, and installation, with emphasis on the integration and manipulation of different mediums and materials. Ways in which the history of time-based works informs contemporary practice. Individual studio projects as well as workshops in the use of various processes, practices, and techniques. Prerequisite: ART 122 or permission of instructor. HU RP

*** ART 355a, Silkscreen Printing** Alexander Valentine

Presentation of a range of techniques in silkscreen and photo-silkscreen, from hand-cut stencils to prints using four-color separation. Students create individual projects in a workshop environment. Prerequisite: ART 114 or equivalent. HU

ART 356a, Printmaking I Hasabie Kidanu

An introductory course on the historical, material, and collaborative nature of printmaking. Through studio projects, lectures, and critiques, we will explore both a personal and technological understanding of the print medium. Where and how does it share a commonality with literature, sculpture, photography and the moving image? We will experiment with various techniques, including intaglio (dry-point etching, hard ground, aquatint), monotype, relief (linocut), and screen printing. Students will demonstrate critical thinking skills by engaging in a dialogue about their own work and the work of others. The themes of experimentation, reproducibility, storytelling, play, and patience will be particularly highlighted. Prerequisite: ART 114 or equivalent. RP

*** ART 358b, Introduction to Intaglio Printmaking** Hasabie Kidanu

This studio course introduces students to the foundations of intaglio printmaking including drypoint, line-etch, and aquatint along with plate preparation, printing, and registration. Intaglio, a 500-year old process offering a wide range of marks and tones, involves incising a surface to create a repeatable image matrix. Visiting artists, visits to Yale special collections, essays and lectures will supplement studio instruction. No previous printmaking experience necessary.

*** ART 359b, Introduction to Lithography** Staff

This studio course introduces students to the foundations of Lithographic printmaking including stone, ball ground, and photographic plates, printing, and registration. Lithography, a planographic process developed in the 19th century, is particularly suited to reproducing drawn marks and high resolution photo prints. Visiting artists, visits to Yale special collections, essays and lectures supplement studio instruction. No previous printmaking experience necessary.

*** ART 368b, Graphic Design Methodologies** Pamela Hovland

Various ways that design functions; how visual communication takes form and is recognized by an audience. Core issues inherent in design: word and image, structure, and sequence. Analysis and refinement of an individual design methodology. Attention to systematic procedures, techniques, and modes of inquiry that lead to a particular result. Prerequisites: ART 132 and 264, or permission of instructor. RP

*** ART 369a or b, Interactive Design and the Internet: Software for People** Staff

In this studio course, students create work within the web browser to explore where the internet comes from, where it is today, and where it's going—recognizing that there is no singular history, present, or future, but many happening in parallel. The course in particular focuses on the internet's impact on art—and vice versa—and how technological advance often coincides with artistic development. Students will learn foundational, front-end languages HTML, CSS, and JavaScript in order to develop unique graphic forms for the web that are considered alongside navigation, pacing, and adapting to variable screen sizes and devices. Open to Art majors. No prior programming experience required. Prerequisite: ART 132 or permission of instructor. RP

*** ART 379b, Form For Content in Large Format** Benjamin Donaldson

A course for experienced photography students to become more deeply involved with the important technical and aesthetic aspects of the medium, including a concentrated study of operations and conceptual thinking required in the use of loaned analog view cameras, added lighting and advanced printing techniques. Scanning and archival printing of negatives are included. Student work is discussed in regular rigorous critiques. Review of significant historic photographic traditions is covered. Students are encouraged to employ any previous digital training although this class is primarily analog. Prerequisite: ART 237 or permission of instructor. RP

*** ART 384a, Intermediate Stop Motion Puppet Animation** Ben Hagari

This interdisciplinary studio class explores the life of puppets in stop motion animations. Sculptural objects, photographs, and performances are set into motion through integrated assignments. Exploring materials and ideas from shadow puppet theater; claymation and puppets with movable joints; paper toy theater sets; and stop motion “pixilation” in which real human beings are turned into puppets. Building on skills acquired in Principles of Animation (ART 185) students animate puppets, objects, and ideas using new materials, environments, movements, timing, and sound design for the production of short stop motion animations which will be shown in a public screening. The course is designed for hands-on interaction with various collections from Yale centers including: the Wurtele Study Center, the Film Archive, Peabody Museum and Yale Center for British Art. Prerequisite: ART 185 or prior experience in animation.

*** ART 395a or b, Junior Seminar** Staff

Ongoing visual projects addressed in relation to historical and contemporary issues. Readings, slide presentations, critiques by School of Art faculty, and gallery and museum visits. Critiques address all four areas of study in the Art major. Prerequisite: at least four courses in Art. HU RP

*** ART 401b, Photography Project Seminar** Lisa Kereszi

A further exploration of the practice of photography through a sustained, singular project executed in a consistent manner over the course of the semester, either by analog or digital means. Student work is discussed in regular critiques, the artist statement is discussed, and lectures are framed around the aesthetic concerns that the students' work provokes. Students are exposed to contemporary issues through visits to Yale's collections and in lectures by guest artists, and are asked to consider their own work within a larger context. Students must work with the technical skills they have already gained in courses that are the pre-reqs, as this is not a skills-based class. Required of art majors concentrating in photography. Prerequisites: ART 136 or 138 *and* preferably, 237, 338 or 379, or permission of the instructor. ART 136 for those working in analog and, for those working digitally, ART 138. RP

ART 421b, Advanced Drawing Sophy Naess

Further instruction in drawing related to all four disciplines taught in the Art major. Emphasis on the development of students' conceptual thinking in the context of the physical reality of the drawing process. Class time is divided between studio work, group critiques, discussion of assigned readings, and visits to working artists' studios. Open to all students by permission of instructor. Art majors prioritized. RP

*** ART 442a and ART 443b / FILM 483a and FILM 484b, Advanced Film Writing and Directing** Jonathan Andrews

A yearlong workshop designed primarily for majors in Art and in Film & Media Studies making senior projects. Each student writes and directs a short fiction film. The first term focuses on the screenplay, production schedule, storyboards, casting, budget, and locations. In the second term students rehearse, shoot, edit, and screen the film. Priority to majors in Art and in Film & Media Studies. Prerequisite: ART 341.

*** ART 457b, Interdisciplinary Printmaking** Hasabie Kidanu

Printmaking is inherently collaborative, generative, and social. Through studio projects, readings, and critiques, we explore both a personal and historical understanding of this medium. We learn how we can integrate printmaking with other disciplines. Where and how does it share a commonality with literature, sculpture, photography, and the moving image? We experiment with techniques, including intaglio (dry-point etching, aquatint, hard ground etchings), woodcuts, stencil, and screen printing. The themes of experimentation, play, reproducibility, circulation, and patience are particularly highlighted. Prerequisite: at least one term of printmaking. RP

ART 468b, Advanced Graphic Design: Ad Hoc Series and Systems Julian Bittiner

Much of the field of design concerns itself with devising systems in an attempt to create aesthetic coherence and reduce creative uncertainties, seeking efficiencies with respect to time, production and materials. However this strategy always comes up against each individual set of circumstances; the materials and content at hand, a particular cast of collaborators, a given timeframe. There is an element of the ad hoc in every piece of design; a need to improvise, interpret, adapt, make exceptions. A second thematic

concern of this class is the exploration of medium-specificity and medium-porosity as they relate to such systems. The course is comprised of a series of interconnected prompts across distinct formats in print, motion, and interactive, at a wide variety of scales. A third and final thread is the cultivation of greater awareness of the evolving social and aesthetic functions of design processes, artifacts, and channels of engagement and distribution, within increasingly complex cultural contexts. Prerequisites: ART 264 or 265, and 367 or 368, or permission of instructor. RP

*** ART 469a, Advanced Graphic Design: Interpretation, Translation** Henk Van Assen
A probe into questions such as how artists can be present as idiosyncratic individuals in their work, and how that work can still communicate on its own to a broad audience. Concentration on making graffiti, i.e., the design of a set of outdoor marks and tours for New Haven. A technological component is included, both in the metaphor of designing outdoor interaction as a way to learn about screen-based interaction and in the final project to design an interface for a handheld computer. Prerequisites: ART 264 or 265, and 367 or 368, or permission of instructor. RP

*** ART 471a and ART 472b, Independent Projects** Alexandria Smith
Independent work that would not ordinarily be accomplished within existing courses, designed by the student in conjunction with a School of Art faculty member. A course proposal must be submitted on the appropriate form for approval by the director of undergraduate studies and the faculty adviser. Expectations of the course include regular meetings, end-of-term critiques, and a graded evaluation.

*** ART 495a or b, Senior Project I** Staff
A project of creative work formulated and executed by the student under the supervision of an adviser designated in accordance with the direction of the student's interest. Proposals for senior projects are submitted on the appropriate form to the School of Art Undergraduate Studies Committee (USC) for review and approval at the end of the term preceding the last resident term. Projects are reviewed and graded by an interdisciplinary faculty committee made up of members of the School of Art faculty. An exhibition of selected work done in the project is expected of each student. RP

*** ART 496a or b, Senior Project II** Staff
A project of creative work formulated and executed by the student under the supervision of an adviser designated in accordance with the direction of the student's interest. Proposals for senior projects are submitted on the appropriate form to the School of Art Undergraduate Studies Committee (USC) for review and approval at the end of the term preceding the last resident term. Projects are reviewed and graded by an interdisciplinary faculty committee made up of members of the School of Art faculty. An exhibition of selected work done in the project is expected of each student.

Astronomy (ASTR)

*** ASTR 040a / PHYS 040a, Expanding Ideas of Time and Space** Meg Urry
Discussions on astronomy, and the nature of time and space. Topics include the shape and contents of the universe, special and general relativity, dark and light matter, and dark energy. Observations and ideas fundamental to astronomers' current model of an expanding and accelerating four-dimensional universe. Enrollment limited to first-year students. SC

ASTR 110a, Planets and Stars Michael Faison

Astronomy introduction to stars and planetary systems. Topics include the solar system and extrasolar planets, planet and stellar formation, and the evolution of stars from birth to death. No prerequisite other than a working knowledge of elementary algebra. QR, SC

ASTR 120b, Galaxies and the Universe Michael Faison

An introduction to stars and stellar evolution; the structure and evolution of the Milky Way galaxy and other galaxies; quasars, active galactic nuclei, and supermassive black holes; cosmology and the expanding universe. No prerequisite other than a working knowledge of elementary algebra. QR, SC

ASTR 155a, Introduction to Astronomical Observing Michael Faison

A hands-on introduction to techniques used in astronomy to observe astronomical objects. Observations of planets, stars, and galaxies using on-campus facilities and remote observing with Yale's research telescopes. Use of electronic detectors and computer-aided data processing. Evening laboratory hours required. One previous college-level science laboratory or astronomy course recommended. SC ½ Course cr

ASTR 170a, Introduction to Cosmology Priyamvada Natarajan

An introduction to modern cosmological theories and observational astronomy. Topics include aspects of special and general relativity; curved space-time; the Big Bang; inflation; primordial element synthesis; the cosmic microwave background; the formation of galaxies; and large-scale structure. Prerequisite: a strong background in high school mathematics and physics. QR, SC

ASTR 210a, Stars and Their Evolution Robert Zinn

Foundations of astronomy and astrophysics, focusing on an intensive introduction to stars. Nuclear processes and element production, stellar evolution, stellar deaths and supernova explosions, and stellar remnants including white dwarfs, neutron stars, and black holes. A close look at our nearest star, the sun. How extrasolar planets are studied; the results of such studies. Prerequisite: a strong background in high school calculus and physics. May not be taken after ASTR 220. QR, SC 0 Course cr

ASTR 220b, Galaxies and Cosmology Robert Zinn

An intensive introduction to extragalactic astronomy. The structure and contents of galaxies, evolution of galaxies, observational cosmology, and the history of the universe. Students observe a deep-sky object with campus telescopes. Prerequisite: a strong background in high school calculus and physics. May not be taken after ASTR 210. QR, SC

ASTR 255a / PHYS 295a, Research Methods in Astrophysics Malena Rice

An introduction to research methods in astronomy and astrophysics. The acquisition and analysis of astrophysical data, including the design and use of ground- and space-based telescopes, computational manipulation of digitized images and spectra, and confrontation of data with theoretical models. Examples taken from current research at Yale and elsewhere. Use of the Python programming language. Prerequisite: background in high school calculus and physics. No previous programming experience required. QR, SC RP

ASTR 310a, Galactic and Extragalactic Astronomy Jeffrey Kenney

Structure of the Milky Way galaxy and other galaxies; stellar populations and star clusters in galaxies; gas and star formation in galaxies; the evolution of galaxies;

galaxies and their large-scale environment; galaxy mergers and interactions; supermassive black holes and active galactic nuclei. Prerequisites: MATH 115, PHYS 201, and ASTR 210 or 220, or equivalents, or with permission of instructor. QR, SC

ASTR 320b, Physical Processes in Astronomy Frank van den Bosch

Introduction to the physics required for understanding current astronomical problems. Topics include basic equations of stellar structure, stellar and cosmic nucleosynthesis, radiative transfer, gas dynamics, and stellar dynamics. Numerical methods for solving these equations. Prerequisites: MATH 120 and PHYS 201 or equivalents, or permission of instructor. Previous experience with computer programming recommended. Taught in alternate years. QR, SC

ASTR 330b, Scientific Computing in Astrophysics Earl Bellinger

Scientific computer programming in Astrophysics with a focus on the Python Programming language. Algorithms and workflows for reducing and analyzing Astrophysical datasets, both observational and computational. Emphasis is placed on best coding practices, including readability, version control, documentation, and computational efficiency. Weekly lectures, in-depth tutorial/workshops, and invited outside expert guest speakers. Students complete a programming project based on real astrophysical datasets. Prerequisite: ASTR 255 or permission of instructor. Some basic programming experience in Python is strongly recommended.

ASTR 343b / PHYS 343b, Gravity, Astrophysics, and Cosmology Staff

Introduction to frontier areas of research in astrophysics and cosmology exploring ideas and methods. In-depth discussion of the physics underlying several recent discoveries including extrasolar planets—their discovery, properties, and issues of habitability; black holes—prediction of their properties from GR, observational signatures, and detection; and the accelerating universe—introduction to cosmological models and the discovery of dark energy. Prerequisites: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR, SC

*** ASTR 356a / ASTR 556 / PHYS 356a, Astrostatistics and Data Mining** Earl Bellinger

This course is intended to give students majoring in astronomy, physics, or any other physical science the necessary background to be able to conduct research with large and complex datasets. The course provides an introduction to the tools needed for analyzing large volumes of data and gives students more experience in building codes to analyze to them. The course starts with a review of basic probability and statistics. Students then learn the basics of classical statistical inference, regression and model fitting, Bayesian statistical inference, as well as different data-mining techniques. Coding with the Python programming language. Prerequisite: ASTR 255 or equivalent. QR, SC

ASTR 360b, Interstellar Matter and Star Formation Hector Arce

The composition, extent, temperature, and density structure of the interstellar medium (ISM). Excitation and radiative processes; the properties of dust; the cold and hot ISM in the Milky Way and other galaxies. Dynamics and evolution of the ISM, including interactions between stars and interstellar matter. Physics and chemistry of molecular clouds and the process of star formation. Prerequisites: MATH 120 and PHYS 201 or equivalents. Taught in alternate years. QR, SC RP

*** ASTR 375b, Exoplanets** Malena Rice

Planet formation, exoplanet detection techniques, and the modeling of observations of exoplanet atmospheres. Solar system architecture compared with other planetary systems. From an Earth-centric perspective, habitability factors of rocky planets and the implications for life elsewhere. Prerequisites: MATH 120 and PHYS 201 or equivalents, and one astronomy course numbered above 200. QR, SC

ASTR 385a, Introduction to Radio Astronomy Hector Arce

Introduction to the theory and techniques of radio astronomy, including radio emission mechanisms, propagation effects, antenna theory, interferometry, and spectroscopy. Discussion of specific sources such as Jupiter, radio stars, molecular clouds, radio galaxies, ETI, and the microwave background. Includes observational exercises with a small radio telescope. Prerequisites: MATH 120 and PHYS 201 or equivalents. QR, SC

ASTR 418a, Stellar Dynamics Marla Geha

The study of dynamics in astronomy. Stellar dynamics attempts to answer what happens when a large number of particles (stars or galaxies) orbit under the influence of their mutual gravity. This course covers the dynamics of astronomical objects ranging from binary stars to globular clusters to galaxies. Particular emphasis is placed on direct applications to observational data. Taught in alternate years. Prerequisites: PHYS 201 and MATH 246 or equivalents; ASTR 310. QR, SC

ASTR 420a, Computational Methods for Astrophysics Paolo Coppi

The analytic, numerical, and computational tools necessary for effective research in astrophysics and related disciplines. Topics include numerical solutions to differential equations, spectral methods, and Monte Carlo simulations. Applications to common astrophysical problems including fluids and N-body simulations. Prerequisites: ASTR 320, MATH 120, 222 or 225, and 246. QR

ASTR 430b, Galaxies Jeffrey Kenney

A survey of the contents, structure, kinematics, dynamics, and evolution of galaxies; galaxy interactions and the environments of galaxies; properties of active galactic nuclei. Prerequisites: PHYS 201 and MATH 120, and one astronomy course numbered above 200. Taught in alternate years. QR, SC RP

ASTR 450b, Stellar Astrophysics Sarbani Basu

The physics of stellar atmospheres and interiors. Topics include the basic equations of stellar structure, nuclear processes, stellar evolution, white dwarfs, and neutron stars. Prerequisites: PHYS 201 and MATH 120. Taught in alternate years. QR, SC

ASTR 465a, The Evolving Universe Pieter van Dokkum

Overview of cosmic history from the formation of the first star to the present day, focusing on direct observations of the high-redshift universe. Prerequisites: MATH 120, PHYS 201, and one astronomy course numbered above 200. Taught in alternate years. QR, SC RP

*** ASTR 471a and ASTR 472b, Independent Project in Astronomy** Marla Geha

Independent project supervised by a member of the department with whom the student meets regularly. The project must be approved by the instructor and by the director of undergraduate studies; the student is required to submit a complete written report on the project at the end of the term.

*** ASTR 490a and ASTR 491b, The Two-Term Senior Project** Marla Geha

A two-term independent research project to fulfill the senior requirement for the B.S. degree. The project must be supervised by a member of the department and approved by the director of undergraduate studies.

*** ASTR 492a or b, The One-Term Senior Project** Marla Geha

A one-term independent research project or essay to fulfill the senior requirement for the B.A. degree. The project must be supervised by a member of the department and approved by the director of undergraduate studies.

Biology (BIOL)

BIOL 101a or b, Biochemistry and Biophysics Staff

The study of life at the molecular level. Topics include the three-dimensional structures and function of large biological molecules, the human genome, and the design of antiviral drugs to treat HIV/AIDS. The first of four modules in a yearlong foundational biology sequence; meets for the first half of the term. SC o Course cr

BIOL 102a or b, Principles of Cell Biology Staff

The study of cell biology and membrane physiology. Topics include organization and functional properties of biological membranes, membrane physiology and signaling, rough endoplasmic reticulum and synthesis of membrane/secretory membrane proteins, endocytosis, the cytoskeleton, and cell division. The second of four modules in a yearlong foundational biology sequence; meets for the second half of the term. Prerequisite: BIOL 101. SC o Course cr

*** BIOL 103a or b, Genetics and Development** Staff

Foundation principles for the study of genetics and developmental biology. How genes control development and disease; Mendel's rules; examples of organ physiology. The third of four modules in a yearlong foundational biology sequence; meets for the first half of the term. Prerequisites: BIOL 101 and 102. SC o Course cr

BIOL 104a or b, Principles of Ecology and Evolutionary Biology Staff

The study of evolutionary biology, animal behavior, and the history of life. Evolutionary transitions and natural selection. Adaptation at genic, chromosomal, cellular, organismal, and supra-organismal levels. Distributional and social consequences of particular suites of organismal adaptations. The fourth of four modules in a yearlong foundational biology sequence; meets for the second half of the term. Prerequisites: BIOL 101, 102, and 103. SC o Course cr

Biomedical Engineering (BENG)

*** BENG 205a, Discovery and Design in Biomedical Research** Jay Humphrey

Multi-disciplinary and team-based research approach to the study of clinical dilemma. Focus on an important health care problem, bringing to bear concepts and principles from diverse areas to identify possible solutions. Study of precision regenerative medicine as it involves aspects of bioengineering, materials science, immunobiology, mechanobiology, computational modeling, and experimental design, as well as hands-on fabrication and materials testing (i.e., data collection and analysis). Prerequisites: MATH 115 and MATH 120 or ENAS 151. SC

BENG 230a / MB&B 330a / MCDB 330a / NSCI 324a, Modeling Biological Systems I

Thierry Emonet and Kathryn Miller-Jensen

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116, BIOL 101–104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

BENG 249b, Introduction to Biomedical Computation Staff

Computational and mathematical tools used in biomedical engineering for the simulation of biological systems and the analysis of biomedical data. Basics of computational programming in MATLAB; applications to modeling, design, and statistical and data analysis. Prerequisite: MATH 120 or ENAS 151. QR o Course cr

*** BENG 280a, Sophomore Seminar in Biomedical Engineering** Cristina Rodriguez

Study of past successes and future needs of the multidisciplinary field of biomedical engineering. Areas of focus include: biomolecular engineering, including drug delivery and regenerative medicine; biomechanics, including mechanobiology and multiscale modeling; biomedical imaging and sensing, including image construction and analysis; and systems biology. ½ Course cr

*** BENG 350a / MCDB 310a, Physiological Systems** Staff

Regulation and control in biological systems, emphasizing human physiology and principles of feedback. Biomechanical properties of tissues emphasizing the structural basis of physiological control. Conversion of chemical energy into work in light of metabolic control and temperature regulation. Prerequisites: CHEM 165 or 167 (or CHEM 113 or 115), or PHYS 180 and 181; MCDB 120, or BIOL 101 and 102. SC o Course cr

BENG 351b / CENG 351b, Biotransport and Kinetics Staff

Creation and critical analysis of models of biological transport and reaction processes. Topics include mass and heat transport, biochemical interactions and reactions, and thermodynamics. Examples from diverse applications, including drug delivery, biomedical imaging, and tissue engineering. Prerequisites: MATH 115, ENAS 194; BIOL 101 and 102; CHEM 161, 163, or 167; BENG 249. QR o Course cr

BENG 352b, Biomedical Signals and Images James Duncan and Lawrence Staib

Principles and methods used to represent, model, and process signals and images arising from biomedical sources. Topics include continuous and discrete linear systems analysis, Fourier analysis and frequency response, metrics for signal similarity, and noise filtering. Biomedical examples range from one-dimensional electrical signals

in nerves and muscles to two-dimensional images of organs and cells. Prerequisite: MATH 120 or ENAS 151. BENG 249, 350, and ENAS 194 strongly recommended. QR

BENG 353a / PHYS 353a, Introduction to Biomechanics Michael Murrell

An introduction to the biomechanics used in biosolid mechanics, biofluid mechanics, biothermomechanics, and biochemomechanics. Diverse aspects of biomedical engineering, from basic mechanobiology to the design of novel biomaterials, medical devices, and surgical interventions. Prerequisites: PHYS 180, 181, MATH 115, and ENAS 194. QR o Course cr

*** BENG 355La, Physiological Systems Laboratory** Staff

Introduction to laboratory techniques and tools used in biomedical engineering for physiological measurement. Topics include bioelectric measurement, signal processing, and bone mechanics. Enrollment limited to majors in Biomedical Engineering, except by permission of the director of undergraduate studies. SC o Course cr

*** BENG 356Lb, Biomedical Engineering Laboratory** Staff

Continuation of BENG 355L, introducing laboratory techniques and tools used in biomedical engineering. Topics include biomaterials and cell interactions, magnetic resonance spectroscopy and imaging, and image processing and machine learning. Enrollment limited. SC o Course cr

*** BENG 403b / ECON 463b, The Economics and Science of Medicine** Gregory Raskin and Yashodhara Dash

This multidisciplinary class is an exploration of the background of today's bestselling medicines, their huge commercial impact, and the companies that created them. It focuses on the most compelling aspects of drug development and company formation in the context of topical issues like cancer treatment, gene editing, stem cell therapy, the opioid epidemic, and drug pricing controversies. Prerequisite: Introductory or intermediate microeconomics, introductory or intermediate Biology, Molecular Biology, Chemistry or Biomedical Engineering. SO

BENG 404b / MENG 404b, Medical Device Design and Innovation Daniel Wiznia

The engineering design, project planning, prototype creation, and fabrication processes for medical devices that improve patient conditions, experiences, and outcomes. Students develop viable solutions and professional-level working prototypes to address clinical needs identified by practicing physicians. Some attention to topics such as intellectual property, the history of medical devices, documentation and reporting, and regulatory affairs. o Course cr

*** BENG 405b / EVST 415b, Biotechnology and the Developing World** Staff

Study of technological advances that have global health applications. Ways in which biotechnology has enhanced quality of life in the developing world. The challenges of implementing relevant technologies in resource-limited environments, including technical, practical, social, and ethical aspects. Prerequisite: MCDB 120, or BIOL 101 and 102.

*** BENG 406b, Medical Software Design** Xenophon Papademetris

Software design and implementation for medical applications, with emphasis on how new ideas can be developed within today's healthcare regulatory environment. This is a project-based class. The lectures provide essential material to help the students successfully complete their projects. In particular, the lectures cover material in the following three broad areas: (i) Medical software design based on a clinical need. (ii)

Needs identification, verification, validation, and overview of the FDA regulatory process. (iii) Introductory material in experimental design, image analysis, and machine learning as needed by the projects. We also examine the new proposed FDA regulations on the use of machine learning in medical devices and related issues related to the use of these techniques in medical software in general. Prerequisite: Some programming background in at least one programming language. Instructor permission required.

*** BENG 410a, Physical and Chemical Basis of Bioimaging and Biosensing** Douglas Rothman and Ansel Hillmer

Basic principles and technologies for sensing the chemical, electrical, and structural properties of living tissues and of biological macromolecules. Topics include magnetic resonance spectroscopy, microelectrodes, fluorescent probes, chip-based biosensors, X-ray and electron tomography, and MRI. Prerequisites: BENG 351 and 352 or permission of instructor. QR, SC

BENG 411b, BioMEMS and Biomedical Microdevices Rong Fan

Principles and applications of micro- and nanotechnologies for biomedicine. Approaches to fabricating micro- and nanostructures. Fluid mechanics, electrokinetics, and molecular transport in microfluidic systems. Integrated biosensors and microTAS for laboratory medicine and point-of-care uses. High-content technologies, including DNA, protein microarrays, and cell-based assays for differential diagnosis and disease stratification. Emerging nanobiotechnology for systems medicine. Prerequisites: CHEM 161, 165, or 167 (or CHEM 112, 114, or 118), and ENAS 194. SC

*** BENG 415a / ENAS 415a, Practical Applications of Bioimaging and Biosensing** Daniel Coman, Ansel Hillmer, and Evelyn Lake

Detecting, measuring, and quantifying the structural and functional properties of tissue is of critical importance in both biomedical research and medicine. This course focuses on the practicalities of generating quantitative results from raw bioimaging and biosensing data to complement other courses focus on the theoretical foundations which enable the collection of these data. Participants in the course work with real, cutting-edge data collected here at Yale. They become familiar with an array of current software tools, denoising and processing techniques, and quantitative analysis methods that are used in the pursuit of extracting meaningful information from imaging data. The subject matter of this course ranges from bioenergetics, metabolic pathways, molecular processes, brain receptor kinetics, protein expression and interactions to wide spread functional networks, long-range connectivity, and organ-level brain organization. The course provides a unique hands-on experience with processing and analyzing *in vitro* and *in vivo* bioimaging and biosensing data that is relevant to current research topics. The specific imaging modes which are covered include *in vivo* magnetic resonance spectroscopy (MRS) and spectroscopic imaging (MRSI), functional, structural, and molecular imaging (MRI), wide-field fluorescent optical imaging, and positron emission tomography (PET). The course provides the necessary background in biochemistry, bioenergetics, and biophysics for students to motivate the image manipulations which they learn to perform. Prerequisites: Math through first order differential equations, PHYS 180/181, CHEM 161, BIOL 101/102, BENG 249 or other experience with scientific software like MATLAB®, BENG 350 and BENG 410 (both of which can be taken at the same time as this course) SC o Course cr

*** BENG 422a, Engineering and Biophysical Approaches to Cancer** Michael Mak

This course focuses on engineering and biophysical approaches to cancer. The course examines the current state of the art understanding of cancer as a complex disease and the advanced engineering and biophysical methods developed to study and treat this disease. All treatment methods are covered. Basic quantitative and computational backgrounds are required. Prerequisites: BENG 249 or equivalent, MATH 120 or equivalent. QR, SC

*** BENG 424b, Topics in Computational and Systems Biology** Purushottam Dixit

This course covers topics related to modeling biological networks across time and length scales. Specifically, the course covers models of intracellular signaling networks, transcriptional regulation networks, cellular metabolic networks, and ecological networks in microbial consortia. For each type of network, we cover the biological basics, standard mathematical treatments including deterministic and stochastic modeling, methods to infer model parameters from data, and new machine-learning based inference approaches. The required mathematical methods are briefly covered. The course assignments involve coding in MATLAB. Prerequisite: MATH 120 or ENAS 151.

BENG 434a, Biomaterials Anjelica Gonzalez

Introduction to the major classes of biomedical materials: ceramics, metals, and polymers. Their structure, properties, and fabrication connected to biological applications, from implants to tissue-engineered devices and drug delivery systems. Prerequisite: CHEM 165 (or CHEM 113 or 115); organic chemistry recommended. SC

*** BENG 435b, Biomaterial-Tissue Interactions** Themis Kyriakides

Study of the interactions between tissues and biomaterials, with an emphasis on the importance of molecular- and cellular-level events in dictating the performance and longevity of clinically relevant devices. Attention to specific areas such as biomaterials for tissue engineering and the importance of stem/progenitor cells, as well as biomaterial-mediated gene and drug delivery. Prerequisites: CHEM 161, 165, or 167 (or CHEM 112, 114, or 118); MCDB 120, or BIOL 101 and 102; or equivalents. SC

BENG 444a, Modern Medical Imaging: Lecture and Demonstrations Chi Liu, Dana Peters, and Gigi Galiana

Survey of engineering and physics foundations of modern medical imaging modalities with an emphasis on immersive and interactive experiences. Traditional lectures are balanced with guest lectures on state-of-the-art techniques and opportunities to observe procedures, acquire imaging data and reconstruct images. Modalities include MRI, X-ray, CT, SPECT, PET, optical and ultrasound methods. Prerequisite: BENG 352 or similar background. QR, SC

BENG 445a / EENG 445a, Biomedical Image Processing and Analysis Lawrence Staib and James Duncan

This course is an introduction to biomedical image processing and analysis, covering image processing basics and techniques for image enhancement, feature extraction, compression, segmentation, registration and motion analysis including traditional and machine learning techniques. Student learn the fundamentals behind image processing and analysis methods and algorithms with an emphasis on biomedical applications. Prerequisite: BENG 352 or EENG 310 or permission of instructors. Recommended preparation: familiarity with probability theory.

BENG 449b, Biomedical Data Analysis Staff

Study of biological and medical data analysis associated with applications of biomedical engineering. Provides basics of probability and statistics, as well as analytical approaches for determination of quantitative biological parameters from experimental data. Includes substantial programming in MATLAB. Prerequisite: MATH 120 or ENAS 151. After or concurrently with ENAS 194. QR o Course cr

BENG 455b, Vascular Mechanics Staff

Methods of continuum biomechanics used to study diverse vascular conditions and treatments from an engineering perspective. Topics include hypertension, atherosclerosis, aneurysms, vein grafts, and tissue engineered constructs. Emphasis on mechanics driven by advances in vascular mechanobiology. Prerequisite: BENG 353. QR

*** BENG 456b, Molecular and Cellular Biomechanics** Michael Murrell

The basic mechanical principles at the molecular and cellular level that underlie the major physical behaviors of the cell, from cell division to cell migration. Basic cellular physiology, methodology for studying cell mechanical behaviors, models for understanding the cellular response under mechanical stimulation, and the mechanical impact on cell differentiation and proliferation. Prerequisites: MENG 211 and 280 or equivalents, and experience with MATLAB. Recommended preparation: BENG 353 and MCDB 205. QR, SC

BENG 458b, Multiscale Models of Biomechanical Systems Stuart Campbell

Current methods for simulating biomechanical function across biological scales, from molecules to organ systems of the human body. Theory and numerical methods; case studies exploring recent advances in multiscale biomechanical modeling. Includes computer laboratory sessions that introduce relevant software packages. Prerequisites: BENG 249, 351, and 353, or permission of instructor. QR

BENG 463a, Immunoengineering Tarek Fahmy

Immuno-engineering uses engineering and applied sciences to better understand how the immune system works. It also uses immunity to build better models and biomaterials that help fight diseases such as cancer, diabetes, lupus, MS, etc. This is an integrative class. It integrates what we know in ENAS with what we know in Immunity to address critical and urgent concerns in health and disease. Students learn that analytical tools and reagents built by engineers address some extremely significant problems in immunity, such as optimal vaccine design. Students also have the opportunity to apply new understandings towards gaping holes in immunotherapy and immunodiagnostics. Prerequisite: A basic understanding of biochemistry, biophysics, cell biology; calculus and differential equations. QR, SC

BENG 465b / MB&B 361b / MCDB 361b / NSCI 325b, Modeling Biological Systems II

Thierry Emonet

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

BENG 466b, Engineering of Drug Delivery W. Mark Saltzman

Approaches and technologies for getting pharmaceutical agents into particular cells and tissues in the body for a biological effect, while minimizing unwanted toxic or side effects. Mathematical descriptions of the biological barriers to drug delivery, such as diffusion, permeation through membranes, and lifetime of circulation; engineering design to improve drug delivery. Prerequisites: ENAS 194 and BENG 351 or equivalents. SC

BENG 467b, Systems Biology of Cell Signaling Andre Levchenko

Approaches from systems biology to the fundamental processes underlying both the sensory capability of individual cells and cell-to-cell communication in health and disease. Prerequisites: BENG 249 and ENAS 194, or equivalents. QR, SC

BENG 468b, Topics in ImmunoEngineering Tarek Fahmy

This course addresses the intersection of Immunobiology with Engineering and Biophysics. It invokes engineering tools, such as biomaterials, solid-state devices, nanotechnology, biophysical chemistry, and chemical engineering towards developing newer and effective solutions to cancer immunotherapy, autoimmune therapy, vaccine design, transplantation, allergy, asthma, and infections. The central theme is that dysfunctional immunity is responsible for a wide range of disease states and that engineering tools and methods can forge a link between the basic science and clinically translatable solutions that will potentially be “modern cures” to disease. This course is a follow-up to BENG 463, Immunoengineering and focuses more on the clinical translation aspect as well as new understandings in immunology and how they can be translated to the clinic and eventually to the market. Prerequisites: BENG 463, Differential Equations, Advanced Calculus. SC

BENG 469a, Single-Cell Biology, Technologies, and Analysis Rong Fan

This course is to teach the principles of single-cell heterogeneity in human health and disease as well as computational techniques for single-cell analysis, with a particular focus on the omics-level data. Topics to be covered include single-cell level morphometric analysis, genomic alteration analysis, epigenomic analysis, mRNA transcriptome sequencing, small RNA profiling, surface epitope, intracellular signaling protein, and secreted protein analysis, metabolomics, multi-omics, and spatially resolved single-cell omics mapping. The students are expected to perform computational analysis of single-cell high-dimensional datasets to identify population heterogeneity, identify cell types, states, and differentiation trajectories. Finally, case studies are provided to show the power of single-cell analysis in therapeutic target discovery, biomarker research, clinical diagnostics, and personalized medicine. Lab tours may be provided to show how single-cell omics data are generated and how high-throughput sequencing is conducted. SC

*** BENG 471a and BENG 472b, Special Projects** Lawrence Staib

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics. This course, offered Pass/Fail, can be taken at any time during a student's career, and may be taken more than once. For the Senior Project, see BENG 473, 474. Permission of both the instructor and the director of undergraduate studies is required.

*** BENG 473a and BENG 474b, Senior Project** Lawrence Staib

Faculty-supervised biomedical engineering projects focused on research (laboratory or theory) or engineering design. Students should consult with the director of undergraduate studies and appropriate faculty mentors for suitable projects. BENG 473 is taken during the fall term of the senior year and BENG 474 is taken during the spring term of the senior year. Permission of both the faculty mentor and the director of undergraduate studies is required.

BENG 475a / CPSC 475a / EENG 475a, Computational Vision and Biological

Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and physiology students. Prerequisite: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

*** BENG 480a, Seminar in Biomedical Engineering** Cristina Rodriguez

Oral presentations and written reports by students analyzing papers from scientific journals on topics of interest in biomedical engineering, including discussions and advanced seminars from faculty on selected subjects. (For Class of 2020 and beyond this course is worth .5 credit.) ½ Course cr

*** BENG 485b, Fundamentals of Neuroimaging** Fahmeed Hyder and Douglas Rothman

The neuroenergetic and neurochemical basis of several dominant neuroimaging methods, including fMRI. Technical aspects of different methods, interpretation of results, and controversies or challenges regarding the application of fMRI and related methods in medicine. WR, SC

Bosnian-Serbian-Croatian (SBCR)

SBCR 110a, Elementary Bosnian-Croatian-Serbian I Staff

The first half of a two-term introduction to Bosnian-Croatian-Serbian designed to develop skills in comprehension, reading, speaking, and writing. The grammatical structure and the writing systems of the languages; communication on topics drawn from daily life. Study of Serbian, Bosnian, and Croatian culture, and of south Slavic culture more generally. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information.

L1 RP 1½ Course cr

*** SBCR 120b, Elementary Bosnian-Croatian-Serbian II** Staff

The second half of a two-term introduction to Bosnian-Croatian-Serbian designed to develop skills in comprehension, reading, speaking, and writing. The grammatical structure and the writing systems of the languages; communication on topics drawn from daily life. Study of Serbian, Bosnian, and Croatian culture, and of south Slavic culture more generally. Prerequisite: SBCR 110 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 RP 1½ Course cr

SBCR 130a, Intermediate Bosnian Croatian Serbian I Staff

This intermediate course is a continuation of the elementary course and is intended to enhance overall communicative competence in the language. This course moves forward from the study of the fundamental systems and vocabulary of the Bosnian/Croatian/Serbian to rich exposure to the spoken and written language with the wide range of speakers and situations. SBCR 120, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

*** SBCR 140b, Intermediate Bosnian Croatian Serbian II** Staff

The intermediate course in BCS is a continuation of the elementary course and is intended to enhance overall communicative competence in the language. This course moves forward from the study of the fundamental systems and vocabulary of the Bosnian/Croatian/Serbian to rich exposure to the spoken and written language with the wide range of speakers and situations. Prerequisite: SBCR 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

British Studies (BRST)

Burmese (BURM)

BURM 140b, Intermediate Burmese II Staff

This course is a continuation of BURM 130 and relies on student knowledge of Burmese script. The course aims to provide students with intermediate skills in all major aspects of the Burmese language. Students develop competency in reading and writing Burmese script, including formal style. Students also practice spoken Burmese using compound sentences, communicating at an increasingly complicated and practically useful level. Prerequisite: BURM 130 or equivalent. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

Chemical Engineering (CENG)

CENG S300b / CENG 300b, Chemical Engineering Thermodynamics Mingjiang Zhong

Online Course. This is a rigorous introductory course in thermodynamics. Material will include the first and second laws of thermodynamics, cyclic processes, chemical reaction and phase equilibria, and an introduction to statistical thermodynamics. The goal of this course is for students to obtain the necessary qualitative knowledge and quantitative skills for solving engineering science problems in thermodynamics. Prerequisite: Multivariable calculus. 1 Credit. Technology Fee: \$85. Tuition: \$4,500. Session B: July 12 - August 13. QR, SC

*** CENG 120b / ENAS 120b / ENVE 120b, Introduction to Environmental Engineering**

John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently) or permission of instructor. QR, SC

CENG 210a / ENVE 210a, Principles of Chemical Engineering and Process Modeling

Staff

Analysis of the transport and reactions of chemical species as applied to problems in chemical, biochemical, and environmental systems. Emphasis on the interpretation of laboratory experiments, mathematical modeling, and dimensional analysis. Lectures include classroom demonstrations. Prerequisite: MATH 115 or permission of instructor. QR, SC RP o Course cr

CENG 300b / CENG S300b, Chemical Engineering Thermodynamics

Mingjiang

Analysis of equilibrium systems. Topics include energy conservation, entropy, heat engines, Legendre transforms, derived thermodynamic potentials and equilibrium criteria, multicomponent systems, chemical reaction and phase equilibria, systematic derivation of thermodynamic identities, criteria for thermodynamic stability, and introduction to statistical thermodynamics. Prerequisite: MATH 120 or ENAS 151 or permission of instructor. QR, SC RP

CENG 301b, Chemical Kinetics and Chemical Reactors

Shu Hu

Physical-chemical principles and mathematical modeling of chemical reactors. Topics include homogeneous and heterogeneous reaction kinetics, catalytic reactions, systems of coupled reactions, selectivity and yield, chemical reactions with coupled mass transport, nonisothermal systems, and reactor design. Applications from problems in environmental, biomedical, and materials engineering. Prerequisite: ENAS 194 or permission of instructor. QR, SC RP

CENG 314a / ENVE 314a, Transport Phenomena I

Kyle Vanderlick

First of a two-semester sequence. Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of the instructor. QR, SC RP

CENG 315b / ENVE 315b, Transport Phenomena II

Amir Haji-Akbari

Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of instructor. QR, SC

CENG 351b / BENG 351b, Biotransport and Kinetics Staff

Creation and critical analysis of models of biological transport and reaction processes. Topics include mass and heat transport, biochemical interactions and reactions, and thermodynamics. Examples from diverse applications, including drug delivery, biomedical imaging, and tissue engineering. Prerequisites: MATH 115, ENAS 194; BIOL 101 and 102; CHEM 161, 163, or 167; BENG 249. QR o Course cr

CENG 373a / ENVE 373a, Air Pollution Control Drew Gentner

An overview of air quality problems worldwide with a focus on emissions, chemistry, transport, and other processes that govern dynamic behavior in the atmosphere. Quantitative assessment of the determining factors of air pollution (e.g., transportation and other combustion-related sources, chemical transformations), climate change, photochemical "smog," pollutant measurement techniques, and air quality management strategies. Prerequisite: ENVE 120. QR, SC RP

*** CENG 377b / ENVE 377b, Water-Energy Nexus** Lea Winter

This course explores processes and technologies at the water-energy nexus. We utilize chemical and environmental engineering fundamentals to explore the links between maintaining clean water supply and energy security globally, as well as implications for environmental contamination and climate change. We develop a quantitative understanding of water chemistry and energy considerations for topics including traditional water and wastewater treatment, energy recovery from wastewater, membrane processes, water electrolysis for energy storage and electrochemical contaminant conversion, industrial water consumption and wastewater production, underground water sources and water for oil and gas, opportunities for reuse of nontraditional source waters and contaminant valorization, and considerations for decentralization, resilience, and electrification. Quantitative understanding of these processes will be attained based on mass and energy balances, systems engineering, thermodynamics, and kinetics. Prerequisite: ENVE 120 or permission of instructor. The course is primarily designed for juniors and seniors majoring in environmental engineering, but students in other engineering majors are welcome. Students in non-engineering majors are also welcome but are encouraged to communicate with the instructor to make sure they have sufficient background knowledge in required mathematics. QR, SC

CENG 411a, Separation and Purification Processes Paul Van Tassel

Theory and design of separation processes for multicomponent and/or multiphase mixtures via equilibrium and rate phenomena. Topics include single-stage and cascaded absorption, adsorption, extraction, distillation, partial condensation, filtration, and crystallization processes. Applications to environmental engineering (air and water pollution control), biomedical-chemical engineering (artificial organs, drug purification), food processing, and semiconductor processing. Prerequisite: CENG 300 or 315 or permission of instructor. QR, SC RP

CENG 412Lb, Chemical Engineering Laboratory and Design Lisa Pfefferle

An introduction to design as practiced by chemical and environmental engineers. Engineering fundamentals, laboratory experiments, and design principles are applied toward a contemporary chemical process challenge. Sustainability and economic considerations are emphasized. SC

CENG 416b / ENVE 416b, Chemical Engineering Process Design Yehia Khalil

Study of the techniques for and the design of chemical processes and plants, applying the principles of chemical engineering and economics. Emphasis on flowsheet development and equipment selection, cost estimation and economic analysis, design strategy and optimization, safety and hazards analysis, and environmental and ethical considerations. Enrollment limited to seniors majoring in Chemical Engineering or Environmental Engineering. QR, SC RP

CENG 471a or b, Independent Research Paul Van Tassel

Faculty-supervised individual student research and design projects. Emphasis on the integration of mathematics with basic and engineering sciences in the solution of a theoretical, experimental, and/or design problem. May be taken more than once for credit.

CENG 480a, Chemical Engineering Process Control Michael Loewenberg

Transient regime modeling and simulations of chemical processes. Conventional and state-space methods of analysis and control design. Applications of modern control methods in chemical engineering. Course work includes a design project. Prerequisite: ENAS 194 or permission of instructor. QR, SC RP

*** CENG 490a or b, Senior Research Project** Paul Van Tassel

Individual research and/or design project supervised by a faculty member in Chemical Engineering, or in a related field with permission of the director of undergraduate studies.

Chemistry (CHEM)

CHEM 134La or b, General Chemistry Laboratory I Staff

An introduction to basic chemistry laboratory methods. Techniques required for quantitative analysis of thermodynamic processes and the properties of gases. To accompany or follow CHEM 161 or 163. May not be taken after a higher-numbered laboratory course. SC RP o Course cr

CHEM 136La or b, General Chemistry Laboratory II Staff

Introduction to rate and equilibrium measurements, acid-base chemistry, synthesis of inorganic compounds, and qualitative/quantitative analysis. After CHEM 134L or the equivalent in advanced placement. To accompany or follow CHEM 165 or 167. May not be taken after a higher-numbered laboratory course. SC RP o Course cr

*** CHEM 161a or b, General Chemistry I** Staff

A comprehensive survey of modern descriptive, inorganic, and physical chemistry. Atomic theory, stoichiometry, thermochemistry, chemical periodicity, concepts in chemical bonding, and the shapes of molecules. Appropriate either as a first chemistry course or for students with one year of high school chemistry. Attendance at a weekly discussion section required. Normally accompanied by CHEM 134L. QR, SC RP o Course cr

*** CHEM 163a, Advanced General Chemistry I** Staff

An in-depth examination of the principles of atomic, molecular, and solid state chemistry, including structures, periodicity, and chemical reactivity. Topics include the quantum mechanics of atoms and chemical bonding, and inorganic, organic, and solid state molecules and materials. For students with strong secondary school exposure

to general chemistry. Attendance at a weekly discussion section required. Normally accompanied by CHEM 134L. Enrollment by placement only. QR, SC RP o Course cr

*** CHEM 165a or b, General Chemistry II** Staff

Topics include kinetics, chemical equilibrium, acid-base chemistry, free energy and entropy, electrochemistry, and nuclear chemistry. Attendance at a weekly discussion section required. Prerequisite: CHEM 161. Normally accompanied by CHEM 136L. Enrollment by placement only. QR, SC RP o Course cr

*** CHEM 167b, Advanced General Chemistry II** Hailiang Wang

Topics include kinetics, chemical equilibrium, acid-base chemistry, free energy and entropy, electrochemistry, and nuclear chemistry. Attendance at a weekly discussion section required. Prerequisite: CHEM 163, or with equivalent placement. Normally accompanied by CHEM 136L. Enrollment by placement only. QR, SC RP o Course cr

*** CHEM 174a, Organic Chemistry for First Year Students I** Staff

An introductory course focused on current theories of structure and mechanism in organic chemistry, their development, and their basis in experimental observation. Open to first-year students with excellent preparation in chemistry, mathematics, and physics who have taken the department's advanced chemistry placement examination. Attendance at a weekly discussion section required. Normally accompanied by CHEM 222L. Enrollment by placement only. SC RP o Course cr

*** CHEM 175b, Organic Chemistry for First Year Students II** David Spiegel

Continuation of CHEM 174. Survey of simple and complex reaction mechanisms, spectroscopy, organic synthesis, and the molecules of nature. Attendance at a weekly discussion section required. After CHEM 174. Normally accompanied by CHEM 223L. Enrollment by placement only. SC RP o Course cr

CHEM 220a or b, Organic Chemistry Staff

An introductory course covering the fundamental principles of organic chemistry. The laboratory for this course is CHEM 222L. After college-level general chemistry. Students who have earned a grade lower than C in general chemistry are cautioned that they may not be sufficiently prepared for this course. Usually followed by CHEM 221 or 230. SC RP o Course cr

CHEM 221b, The Organic Chemistry of Life Processes Scott Miller

The principles of organic reactivity and how they form the basis for biological processes. The laboratory for this course is CHEM 223L. After CHEM 220. Students who have earned a grade lower than C in CHEM 220 are cautioned that they may not be sufficiently prepared for this course. SC RP o Course cr

CHEM 222La or b, Laboratory for Organic Chemistry I Staff

First term of an introductory laboratory sequence covering basic synthetic and analytic techniques in organic chemistry. Prerequisite: CHEM 136L or equivalent. After or concurrently with CHEM 174 or 220. SC o Course cr

CHEM 223Lb, Laboratory for Organic Chemistry II Christine DiMeglio

Second term of an introductory laboratory sequence covering basic synthetic and analytic techniques in organic chemistry. Prerequisite: CHEM 222L. After or concurrently with CHEM 175, 221, or 230. SC o Course cr

*** CHEM 226La, Advanced Chemistry Lab** Christine DiMeglio

An advanced course in chemistry laboratory technique intended to develop student independence and confidence with planning and executing experimental procedures, while performing synthetic and analytical experiments. The course includes workshops, interactions with specialists in instrumentation, library science, and safety, an individual project, and training in the use of various instrumentation and techniques. Students must have received a grade for General Chemistry Lab I and II (CHEM 134L and 136L), or their equivalents, such as a college course elsewhere or the Chemistry Department placement exam. Organic Chemistry Lecture I and II (CHEM 220 and 221) and Organic Chemistry Labs I and II (CHEM 222L and CHEM 223L), or their equivalents are also pre-requisites. Enrollment is limited; capped to 7 people. Please e-mail course instructor to be put on a waitlist if cap is reached. WR, SC RP

CHEM 251Lb, Inorganic Chemistry Laboratory Jonathan Parr

Introductory laboratory course covering synthetic and physical characterization techniques in inorganic chemistry. Prerequisite: 222L; concurrently with or after CHEM 252. SC o Course cr

CHEM 252b, Introductory Inorganic Chemistry Patrick Holland

Principles and applications of modern inorganic chemistry. Introduction to some of the fundamental concepts of solid-state chemistry, coordination chemistry, bioinorganic chemistry, and organometallic chemistry. Prerequisite: college-level general chemistry. After or concurrently with CHEM 220 or by permission of instructor. May not be taken after CHEM 450, 452, or 457. SC RP o Course cr

CHEM 319b, Chemical Biology: Chemical Dissection & Reprogramming of Biological Systems Stacy Malaker

This course is organized around the central dogma of life, progressing from genes to proteins and higher-order cellular structures, including core application areas such as imaging, chemical genetics, activity-based protein profiling, and natural product discovery and biosynthesis. Prerequisites: CHEM 220 and CHEM 221. SC o Course cr

CHEM 330La, Laboratory for Physical Chemistry I Staff

Introduction to the tools and techniques of modern experimental physical chemistry, including analog/digital electronics, quantitative measurements of basic thermodynamic properties, and nuclear magnetic resonance spectrometry. After or concurrently with CHEM 328 or 332. SC RP o Course cr

CHEM 331Lb, Laboratory for Physical Chemistry II Paul Cooper

Application of physical methods to chemical analysis by spectroscopic and spectrometric techniques. Please see the course syllabus for details regarding course registration. After CHEM 330L. After or concurrently with CHEM 333. SC RP o Course cr

*** CHEM 332a, Physical Chemistry with Applications in the Physical Sciences I** Staff

CHEM 332 is an introductory course to fundamentals of physical chemistry, with an emphasis on macroscopic phenomena in chemical, physical, and biological systems. This course covers topics including fundamental laws of thermodynamics, properties of gases, phase equilibrium and transition, properties of solutions, chemical equilibrium, and chemical kinetics. This course, together with CHEM 333, provides a foundation for understanding the connection between chemistry and physics as well as theoretical chemistry. Prerequisites: introductory physics (PHYS 170), college-level general

chemistry (CHEM 161/165 and/or CHEM 163/167), and single-variable calculus (MATH 120, ENAS 151, or upper-level MATH equivalents, all taken for a grade. May not be taken after CHEM 328. QR, SC RP o Course cr

*** CHEM 333b, Physical Chemistry with Applications in the Physical Sciences II**

Patrick Vaccaro

Continuation of CHEM 332, including topics drawn from quantum mechanics, atomic/molecular structure, spectroscopy, and statistical thermodynamics. Prerequisite: CHEM 328 or 332, or permission of instructor. QR, SC RP o Course cr

*** CHEM 400a, Current Chemistry Seminar** Patrick Holland, Paul Cooper, Christine DiMeglio, and Jonathan Parr

Designed to engage students in the Chemistry research-seminar program by providing requisite scientific guidance and a forum for directed discussion. Participants explore current avenues of chemical research as presented orally by the prime movers in the field, thereby exploring the frontiers of current knowledge while still retaining the structured environment of a classroom. May fulfill all or part of the senior requirement for the Chemistry major, as detailed in the program description in the YCPS.

CHEM 402a, Fundamentals of Transition Metal Chemistry Patrick Holland

This half-term course covers the structures and properties of coordination compounds, and strategies for the design and analysis of new compounds. Elements of chelating ligands, spectroscopic methods, and magnetism are addressed. Prerequisites: Two terms of organic chemistry, and Chem 252 or equivalent. SC ½ Course cr

CHEM 403b, Fundamentals of Organometallic Chemistry Nilay Hazari

A half-term survey of the main principles of organometallic chemistry that enable students to understand basic concepts in the field. It prepares students for CHEM 404, Applications of Organometallic Chemistry, the second half of this course. Prerequisites: Two terms of organic chemistry and Chem 252 or equivalent experience. SC ½ Course cr

CHEM 404b, Applications of Organometallic Chemistry Nilay Hazari

A half-term survey of the applications of organometallic chemistry that demonstrates to students the range of areas where organometallic reactions are important. It builds on the knowledge learned in CHEM 403, Fundamentals of Organometallic Chemistry. Prerequisites: Two terms of organic chemistry, one of CHEM 252, and CHEM 403 or equivalent experience. SC ½ Course cr

CHEM 405b, Inorganic Reaction Mechanisms James Mayer

This half-term course covers the fundamentals of kinetics and mechanisms used by coordination compounds and transition-metal catalysts, and features analysis of papers from the recent literature. Prerequisites: Two terms of organic chemistry, Chem 252 or equivalent, and CHEM 402 or equivalent. SC ½ Course cr

CHEM 406a, Bioinorganic Spectroscopy Gary Brudvig

This course is an advanced introduction to biological inorganic chemistry with an emphasis on the methods used to characterize the active sites of metalloproteins. The major physical methods used in the determination of molecular structure, bonding and physical properties of metal ions in proteins are introduced. Prerequisite: A general knowledge of biochemistry and familiarity with both inorganic coordination chemistry and physical chemistry. SC ½ Course cr

CHEM 407a, Bioinorganic Mechanisms Gary Brudvig

This course is an advanced introduction to biological inorganic chemistry. An overview of the relevant geometric and electronic structures of metalloprotein active sites are presented and related to each protein's function. The objective is to define and understand the function of metals in biology in terms of structure. Prerequisite: CHEM 406 or permission of instructor. It will be assumed that students have a general knowledge of biochemistry and are familiar with both inorganic coordination chemistry and physical chemistry. SC ½ Course cr

CHEM 416a, Organic Structure and Energetics William Jorgensen

The course covers concepts in physical organic chemistry including molecular structure & bonding, conformational energetics, electronic effects, thermochemistry, ring strain, non-covalent interactions, molecular recognition, and host-guest chemistry. Prerequisites: Two terms of organic chemistry and two terms of physical chemistry or related courses or permission of the instructor. SC ½ Course cr

CHEM 417a, Kinetics and Thermodynamics in Organic Systems Scott Miller

The course generally follows Organic Structure and Energetics. This module covers concepts in physical organic chemistry including acid-base chemistry, advanced issues in stereochemistry, kinetics and thermodynamics, as well as experiments and techniques employed in mechanistic analysis. Issues in catalysis are addressed throughout. Prerequisites: CHEM 416 and two terms of introductory organic chemistry, and two terms of physical chemistry. Permission of the instructor may be sought for potential exceptions. SC ½ Course cr

CHEM 419a, Proteomics and Chemical Glycobiology Stacy Malaker

Chemical biology deals with how chemistry can be applied to manipulate and study biological problems using techniques from organic chemistry, analytical chemistry, biochemistry, molecular biology, biophysical chemistry, and cell biology. This course covers topics related to the structure of proteins and oligosaccharides, protein engineering and labeling, and glycosylated proteins/nucleic acids. These play important roles throughout biochemistry and human health. Prerequisites: Two terms of both General Chemistry I and II (CHEM 161/165 and/or CHEM 163/167) as well as Organic Chemistry (CHEM 174/175 and/or CHEM 220/221). SC ½ Course cr

CHEM 421a, Protein Design & Catalysis Jason Crawford

The lecture component of this course largely focuses on protein function, catalysis, and the chemistry and biology of diverse small molecule products. The course also serves to support students in writing an effective NSF style research proposal in Chemical Biology and communicating its contents to a diverse scientific audience. Prerequisites: Two semesters of undergraduate organic chemistry (CHEM 174/175 and/or CHEM 220/221). A basic understanding of biochemistry and molecular biology is also assumed, but you can “catch up” by carefully and thoroughly reading the course materials and recommended books. SC ½ Course cr

CHEM 424a, Chemical Biology of Drug Discovery David Spiegel

This course explores the design and enablement of medicines derived from a convergence of concepts and techniques from chemistry and biology. Topics include: small molecule drug discovery concepts and tools, drug metabolism, protein therapeutics, hybrid chemical/biologic drugs, and bi-functional molecules. Modern approaches for target discovery and validation are also discussed. The course is not

organized around a textbook. Rather, material covered in lectures will be the focus of the course and supplementary reading will be recommended, mostly from modern research literature. Reading lists will be distributed at the outset of the module.

Prerequisites: Undergraduate level organic chemistry I and II (CHEM 174/175 and/or CHEM 220/221), biochemistry and molecular biology. SC ½ Course cr

CHEM 432a, Synthetic Methods in Organic Chemistry I Jon Ellman

Compound synthesis is essential to the discovery and development of new chemical entities with a desired property whether that be for fundamental study or for a more applied goal such as a new pharmaceutical, agrochemical, or material. In this course we emphasize key transformations and principles to provide a framework for the efficient design and synthesis of organic compounds. Prerequisites: Two terms of organic chemistry and one term of introductory inorganic chemistry, or related course, or permission of the instructor. SC ½ Course cr

CHEM 433a, Synthetic Methods in Organic Chemistry II Jon Ellman

Compound synthesis is essential to the discovery and development of new chemical entities with a desired property whether that be for fundamental study or for a more applied goal such as a new pharmaceutical, agrochemical, or material. In this course we emphasize key transformations and principles to provide a framework for the efficient design and synthesis of organic compounds. This course builds on the knowledge learned in CHEM 432. Prerequisite: CHEM 432 or permission of instructor. SC ½ Course cr

CHEM 466a, Introduction to Quantum Mechanics 1 Tianyu Zhu

A half-term introduction to quantum mechanics, starting with the Schrödinger equation and covering model systems such as particle-in-a-box and harmonic oscillator. The fundamental postulates and theorems of quantum mechanics are also covered. Prerequisite: Physical chemistry, multivariable calculus or equivalent experience, or permission of instructor. SC ½ Course cr

CHEM 467a, Introduction to Quantum Mechanics 2 Tianyu Zhu

Continuation of an introduction to quantum mechanics, starting with angular momentum and the hydrogen atom, and then covering approximate methods such as the variation method and perturbation theory. The concepts of electron spin as well as Hartree-Fock theory and other electronic structure methods for describing molecules are covered. Half-term course. Prerequisite: CHEM 467, or multivariable calculus or equivalent experience. SC ½ Course cr

*** CHEM 472a, Introduction to Statistical Mechanics 1** Victor Batista

A half-term introduction to modern statistical mechanics, starting with fundamental concepts on quantum statistical mechanics to establish a microscopic derivation of statistical thermodynamics. Topics include ensembles, Fermi, Bose and Boltzmann statistics, density matrices, mean field theories, phase transitions, chemical reaction dynamics, time-correlation functions, Monte Carlo simulations and Molecular Dynamics simulations. Prerequisites: Physical chemistry, multivariable calculus or equivalent experience. SC ½ Course cr

*** CHEM 473a, Introduction to Statistical Mechanics 2** Victor Batista

A half-term continuation of the introduction to modern statistical mechanics, with focus on quantum statistical mechanics of liquids, Monte Carlo methods and linear response theory (Chapters 6–8 of the textbook). Classical results are obtained according

to the classical limit of the quantum mechanical description. Topics include the Monte Carlo simulations and Molecular Dynamics simulations for the description of the Ising model, fluids, solvation of solutes, alchemist free energy calculations, kinetics and transport properties. Prerequisites: Physical chemistry, multivariable calculus or equivalent experience. SC ½ Course cr

*** CHEM 480a or b, Introduction to Independent Research in Chemistry** Patrick Holland

After consultation with the DUS, students engage individual experimental and/or theoretical research problems in the laboratories of a selected faculty member within the Chemistry department. At the end of the term, students submit a brief report summarizing goals, methods, and accomplishments. For each term of enrollment, students must complete the CHEM 480 registration form, available in the DUS office, and have it signed by their faculty research mentor. It must be submitted to the Chemistry DUS for final approval no later than the last week of classes in the immediately preceding academic term. Individuals wishing to perform independent research must have demonstrated proficiency in the aspects of chemistry required for the planned project, as ascertained by the supervising faculty member, and must meet basic safety requirements prior to undertaking any activities, including certified completion of the online courses entitled *Laboratory Chemical Training* and *Hazardous Chemical Waste Training* administered by the Office of Environmental Health and Safety (EHS) at <http://ehs.yale.edu/training>. At least ten hours per week of research are required (including time spent on requisite safety training), with the faculty mentor affirming this level of student commitment by midterm. This course may be taken multiple times for Pass/Fail credit, subject to restrictions imposed by Yale College. RP

*** CHEM 490a or b, Independent Research in Chemistry** Jonathan Parr

Senior Chemistry majors engage individual experimental and/or theoretical research problems in the laboratories of a selected faculty member in the Chemistry department or in a closely related field of molecular science. CHEM 490 registration forms, found in the DUS office, must be signed by the student's faculty research mentor and submitted to the Chemistry DUS for final approval no later than the last week of classes in the immediately preceding academic term. Mandatory class meetings address issues of essential laboratory safety and ethics in science, with other class sessions focusing on core topics of broad interest to Chemistry students, including online literary research, oral presentation skills, and effective scientific writing. At least ten hours of research are required per week. Students are assigned letter grades, subject to restrictions imposed by Yale College. In special cases and with DUS approval, juniors may take this course. RP

CHEM 492b, Biochemical Rates and Mechanisms I J Patrick Loria

An advanced treatment of enzymology. Topics include transition state theory and derivation of steady-state and pre-steady-state rate equations. The role of entropy and enthalpy in accelerating chemical reactions is considered, along with modern methods for the study of enzyme chemistry. These topics are supplemented with in-depth analysis of the primary literature. Prerequisites: CHEM 332 or equivalent, two semesters of organic chemistry, Math 115. SC ½ Course cr

CHEM 496b, Computational Chemistry William Jorgensen

An introduction to modern computational quantum chemistry methods. The lectures cover Hartree-Fock theory, density functional theory, geometry optimizations,

thermochemistry, transition states, minimum energy paths, continuum solvation models, electron correlation methods, and modeling excited states. Special emphasis on the hands-on use of computational packages for current applications spanning organic, inorganic, and biochemical reactions. After physical chemistry or with permission of instructor. QR, SC ½ Course cr

Child Study (CHLD)

* **CHLD 125a / EDST 125a / PSYC 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD 128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children—their behavior and development—without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of their philosophy and curriculum. Weekly Observations: Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

* **CHLD 127b / EDST 127b / PSYC 127b, Theory and Practice of Early Childhood Education** Carla Horwitz

The course deals with development and delivery of curricula for young children ages 3–6 and the current context of educational reform and debate. Goals are to deepen insights through critical analysis of educational programs for young children in light of current research and developmental theory and to understand how political context contributes to the practice of education. Regularly scheduled seminar discussions and workshops that engage students with learning materials emphasize the ongoing dynamic process of developing emergent curriculum and focus on methods of creating a responsive, inclusive environment; planning and assessment; appreciating cultural and linguistic diversity; teachers' roles; anti-bias education; working with families; conceptualizing the professional challenges of collaborating on a teaching team within the organization of the school; standards and accountability and the role of policy and advocacy in educational change. The course will use newspaper and magazine articles and other recent media as primary sources in addition to current research and other texts. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom

observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. CHLD 125 is recommended. Permission of instructor is required. Priority given to juniors, seniors, and Ed Study students. WR, SO RP

*** CHLD 128b / EDST 128b / PSYC 128b, Language, Literacy, and Play** Ann Close and Carla Horwitz

The focus of this course will be to demonstrate the complicated role that play has in the development of language and literacy skills. A major part of each topic presentation will be a discussion of the role that play has in the curriculum in enhancing these developmental areas. There is a widespread consensus that play is an essential component of a developmentally appropriate early childhood curriculum. Research indicates that play enhances a child's creativity, intellectual development and social emotional development. Because learning to play, learning language and learning literacy skills are all part of the process of thinking and communication, the course will provide a view which attempts to demonstrate the integration of language, literacy and play in an early childhood education curriculum. Theoretical aspects of each of these developmental areas will be examined first, and it will be that theoretical understanding which will be the basis upon which ideas about curriculum will be explored, experienced and discussed. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. Permission of instructor. Enrollment priority will be given to juniors, seniors, and education study scholars. WR, SO RP

*** CHLD 350b / EDST 350b / PSYC 350b, Autism and Related Disorders** Mariana Torres-Viso, Kelly Powell, and James McPartland

Weekly seminar focusing on autism and related disorders of socialization. A series of lectures on topics in etiology, diagnosis and assessment, treatment and advocacy, and social neuroscience methods; topics cover infancy through adulthood. Supervised experience in the form of placement in a school, residence, or treatment setting for individuals with autism spectrum disorders. Details about admission to the course are explained at the first course meeting. Prerequisite: an introductory psychology course. SO

Chinese (CHNS)

*** CHNS 110a, Elementary Modern Chinese I** Staff

Intended for students with no background in Chinese. An intensive course with emphasis on spoken language and drills. Pronunciation, grammatical analysis, conversation practice, and introduction to reading and writing Chinese characters. L1 RP 1½ Course cr

CHNS 112a, Elementary Modern Chinese for Heritage Speakers Staff

First level of the advanced learner sequence. Intended for students with some aural proficiency but very limited ability in reading and writing Chinese. Training in listening and speaking, with emphasis on reading and writing. Placement confirmed by placement test and by instructor. L1 1½ Course cr

*** CHNS 120b, Elementary Modern Chinese II** Staff

Continuation of CHNS 110. After CHNS 110 or equivalent. L2 RP 1½ Course cr

CHNS 122b, Elementary Modern Chinese for Heritage Speakers Staff

Continuation of CHNS 112. L2 1½ Course cr

*** CHNS 130a, Intermediate Modern Chinese I** Staff

An intermediate course that continues intensive training in listening, speaking, reading, and writing and consolidates achievements from the first year of study. Students improve oral fluency, study more complex grammatical structures, and enlarge both reading and writing vocabulary. After CHNS 120 or equivalent. L3 1½ Course cr

*** CHNS 132a, Intermediate Modern Chinese for Heritage Speakers** Staff

The second level of the advanced learner sequence. Intended for students with intermediate oral proficiency and elementary reading and writing proficiency. Students receive intensive training in listening, speaking, reading, and writing, supplemented by audio and video materials. The objective of the course is to balance these four skills and work toward attaining an advanced level in all of them. Prerequisite: CHNS 122b or equivalent. L3 RP 1½ Course cr

*** CHNS 140b, Intermediate Modern Chinese II** Staff

Continuation of CHNS 130. To be followed by CHNS 150. After CHNS 130 or equivalent. L4 RP 1½ Course cr

*** CHNS 142b, Intermediate Modern Chinese for Heritage Speakers** Staff

Continuation of CHNS 132. After CHNS 132 or equivalent. L4 1½ Course cr

*** CHNS 150a, Advanced Modern Chinese I** Staff

Third level of the standard foundational sequence of modern Chinese, with study in speaking, listening, reading, and writing. Use of audiovisual materials, oral presentations, skits, and longer and more frequent writing assignments to assimilate more sophisticated grammatical structures. Further introduction to a wide variety of written forms and styles. Use of both traditional and simplified forms of Chinese characters. After CHNS 140 or equivalent. L5

*** CHNS 151b, Advanced Modern Chinese II** Staff

Continuation of CHNS 150. After CHNS 150 or equivalent. L5

*** CHNS 152a and CHNS 153b, Advanced Modern Chinese for Heritage Speakers**
Staff

This course is intended for heritage speakers with intermediate high to advanced low speaking and listening skills and with intermediate reading and writing skills. The class follows CHNS 142 in the heritage track. The goal of the course is to help students effectively expand their skills in reading and writing while concurrently addressing the need to improve their listening and oral skills in formal environments. The materials cover a variety of topics relating to Chinese culture, society, and cultural differences, supplemented with authentic video materials. Prerequisite: CHNS 142 or equivalent. L5

*** CHNS 156a and CHNS 157b, Advanced Modern Chinese through Film for Heritage Speakers** Ninghui Liang

This course is designed to consolidate students' grasp of the language through the use of films, TV programs, videos on social media, and authentic written materials. Activities include presentations, group discussions, written assignments, and projects. Open to heritage learners with intermediate to advanced oral proficiency and intermediate-low reading and writing proficiency. After CHNS 142, or equivalent. L5

*** CHNS 158a, Advanced Chinese III through Films and Stories** Staff

Fourth level of the standard foundational sequence of modern Chinese, with study in speaking, listening, reading, and writing. Readings in a wide range of subjects form the basis of discussion and other activities. Students consolidate their skills, especially speaking proficiency, at an advanced level. Materials use both simplified and traditional characters. (Previously CHNS 154.) After CHNS 151 or equivalent. L5

*** CHNS 159b, Advanced Chinese IV through Films and Stories** Staff

Continuation of CHNS 158. (Previously CHNS 155.) After CHNS 158 or equivalent. L5

*** CHNS 162a, Advanced Chinese through History and Culture** Rongzhen Li

This course is intended for both heritage and non heritage learners with advanced proficiency. Students develop sophisticated language skills through working with authentic written materials, images, and videos concerning historical events, historical figures, artists, writers, and philosophers. Activities include working with translation tools, discussions, debates, presentations, oral and written exercises on platforms such as Playposit and Perusall, and collaborative projects. After CHNS 153, or 157, or 159, or equivalent. L5

*** CHNS 164a, Chinese for Reading Contemporary Fiction** Wei Su

Selected readings in Chinese fiction of the 1980s and 1990s for the purpose of developing advanced language skills in reading, speaking, and writing. After CHNS 153, or 157, or 159, or equivalent. L5

*** CHNS 165b, Readings in Modern Chinese Fiction** Wei Su

We read and discuss modern short stories, most written prior to 1949, for the purpose of developing advanced language skills in reading, speaking, and writing. After CHNS 153, or 157, or 159, or equivalent. L5

*** CHNS 166a and CHNS 167b, Chinese for Current Affairs** William Zhou

Advanced language course with a focus on speaking and writing in formal styles. Current affairs are used as a vehicle to help students learn advanced vocabulary, idiomatic expressions, complex sentence structures, news writing styles and formal stylistic register. Materials include texts and videos selected from news media worldwide to improve students' language proficiency for sophisticated communications on a wide range of topics. After CHNS 153, 157, or 159. L5

*** CHNS 168a and CHNS 169b, Chinese for Global Enterprises** Min Chen

Advanced language course that familiarizes students with Chinese business terminology and discourse through discussion of China's economic and management reforms, marketing, economic laws, business culture and customs, and economic relations with other countries. Case studies from international enterprises that have successfully entered the Chinese market. Prerequisite: After CHNS 153, or CHNS 157, or CHNS 159, or equivalent. L5

CHNS 170a, Introduction to Literary Chinese I Pauline Lin

Reading and interpretation of texts in various styles of literary Chinese (*wenyan*), with attention to basic problems of syntax and literary style. Course conducted in English. After CHNS 151, 153, 157, or equivalent. L5

CHNS 171b, Introduction to Literary Chinese II Pauline Lin

Continuation of CHNS 170. After CHNS 170. L5

*** CHNS 172a, Chinese for Scholarly Conversation** Jianhua Shen

This course aims to prepare students for the language requirements of advanced research or employment in a variety of China-related fields. Materials include readings on contemporary social, cultural, and political issues, which are written by prominent scholars in related fields. This level is suitable for students who have had four years of college Chinese or who have taken three years of an accelerated program for heritage speakers. After CHNS 153, 159, 157, or equivalent, or permission of the instructor. L5

CHNS 200a / EALL 200a / EAST 240a / HUMS 270a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

Classical Civilization (CLCV)

*** CLCV 022a / HSAR 022a, Imagining the Invisible in the Roman World** Alexander Ekserdjian

Ancient Mediterranean people were surrounded by images of ‘invisible’ things – the gods, the dead, and even a few ghosts. Seeing the gods themselves ‘in the flesh’ happened only rarely for the Romans, but images of those same divinities were everywhere – at home, in the marketplace, and at colossal scale in temples and sanctuaries. This course analyzes the ways in which Romans imagined these ‘invisible’ beings, excavating their imaginings through texts and objects. The material covered traces ancient imagination of invisible beings from Celtic cauldrons to Roman poets, and marble statues to painted synagogues. By looking at how the ‘invisible’ was represented we may discover much about how these unseen beings were understood, but also something about how Roman art worked as a representational system. Enrollment limited to first-year students. WR, HU

*** CLCV 031a / HIST 024a, The Age of Cleopatra** Joseph Manning

This course introduces students to historical method using a pivotal and fascinating period in Mediterranean history. This course goes far beyond the typical framework, mainly from Roman sources, to examine Egypt in the age of Cleopatra, 50–30 BCE and the much wider world. We examine the reception of Cleopatra through the lens of women’s history. Enrollment is limited to first-year students. WR, HU

*** CLCV 076b / ENGL 076b, Edward Gibbon's Decline and Fall of the Roman Empire** Staff

This course, a discussion-oriented first-year seminar, explores through close readings the 18th-century British historian Edward Gibbon’s magnum opus, *The History of the Decline and Fall of the Roman Empire*, with two main sets of questions in mind: Firstly, what is Gibbon’s picture of the world of the Roman Empire and the processes of historical change, how do account for it, and how accurate is it? And secondly, what is interesting and important about Gibbon’s methodology, language, and rhetoric, how do we understand these elements of his work in his own intellectual and historical context, and what is the influence of his work upon the course of historical writing?

Enrollment limited to first-year students. No knowledge of Roman history is required.
WR, HU

*** CLCV 121a / EALL 150a / EAST 307a / PHIL 100a, Writing Philosophy: Weakness of Will in Ancient China, Greece, and Today** James Brown-Kinsella

“Grant me chastity and strength of will—but not yet!” In this infamous prayer, Augustine wrestles with a perennial problem for human agency: the apparent gap between knowing that we should do something and actually wanting to do it. How wide is the gap? How can we bridge it? How pervasive is the problem? This course introduces first-year students to writing in the discipline of philosophy by tracing the contours of these questions and exploring their answers in ancient China, ancient Greece, and modern analytic philosophy. We begin by considering the traditional account of weakness of will as *akrasia* (i.e., doing what one knows one shouldn’t do) and explaining how such a gap in our agency is or isn’t possible. Next, we consider an alternative account, that of *acedia* (i.e., not doing what one knows one should do), and assess strategies for helping an agent bridge this kind of gap. Finally, we reassess the phenomenon of weakness of will in light of arguments that position it in a broader context, approach it from a new perspective, or try to rewrite our understanding of the phenomenon altogether. WR, HU

CLCV 125a / PHIL 125a, Introduction to Ancient Philosophy Staff

An introduction to ancient philosophy, beginning with the earliest pre-Socratics, concentrating on Plato and Aristotle, and including a brief foray into Hellenistic philosophy. Intended to be taken in conjunction with PHIL 126. WR, HU o Course cr

CLCV 129a / HIST 159a / HUMS 129a / NELC 158a / RLST 158a, Jesus to Muhammad: Ancient Christianity to the Rise of Islam Staff

The history of Christianity and the development of Western culture from Jesus to the early Middle Ages. The creation of orthodoxy and heresy; Christian religious practice; philosophy and theology; politics and society; gender; Christian literature in its various forms, up to and including the early Islamic period. HU o Course cr

CLCV 161a / ARCG 161a / HSAR 247a, Art and Myth in Greek Antiquity Staff

Visual exploration of Greek mythology through the study of ancient Greek art and architecture. Greek gods, heroes, and mythological scenes foundational to Western culture; the complex nature of Greek mythology; how art and architecture rendered myths ever present in ancient Greek daily experience; ways in which visual representations can articulate stories. Use of collections in the Yale University Art Gallery. HU o Course cr

*** CLCV 216a / LITR 239a / MGRK 216a / WGSS 209a, Dionysus in Modernity**
George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

*** CLCV 260a / NELC 169a, Visible Language: The Origins of Writing in Mesopotamia and Ancient Egypt** Klaus Wagensohnner

Exploration of writing in the ancient Near East and the profound effects this new method of communication had on human society. Focus on Egypt and Mesopotamia,

where advanced writing systems first developed and were used for millennia, with consideration of Chinese, Mayan, and Indus Valley writing systems as well. Previously NELC 168. HU

*** CLCV 305b / GMAN 489b / HSAR 489b, Pathos-Figures: Affection-Images in the Visual Arts** Nicola Suthor

Images with high pathos inform our perception of human life and define our stance in the world. The seminar wants to foster a critical awareness of the formative power that pathos figures exert on our moral beliefs concerning human behavior. The course covers the timespan from Antiquity to Modernity in Western culture and deals with historical moments that reflect different attempts to cultivate and temper strong emotions. We discuss the transfer of pathos and how the dissemination of eminent pathos figures of antiquity have shaped the imagery of the Western canon; we tackle with one of the most far-reaching concepts of art history, Aby Warburg's Pathos formula that encourages us to draw in broad strokes connecting lines of affection over centuries and different cultures; we look into the discourse on human suffering in Medieval times and how it has defined the Christian doctrine of the affective image; we have a close look at treatises of the 17th century that worked on theorizing human passions and discuss the Enlightenment perspective that aimed at interiorizing pathos by dint of the discourse of beauty; we discuss the Modern "close-up" and how it unfolds the moment of pure bodily presence as highly affective entity. We ask if we are in need of new pathos images that reflect our current emotional stakes, and how they might look. HU

*** CLCV 351a / PHIL 351a, Ancient Philosophy of Language** Verity Harte and Zoltan Szabo

A seminar on central texts on topics in philosophy of language in the Greco-Roman philosophical tradition. The seminar does not attempt a full survey of the tradition on these topics, but select texts and topics of special interest, including exploring points of comparison and contrast with contemporary discussions in philosophy of language. Topics to be covered include: linguistic categories, the nature of grammar, origins of language, naming, and meaning. 1 prior course in the history of ancient Greco-Roman philosophy and at least 1 additional prior course in philosophy. HU

*** CLCV 494a, Independent Tutorial in Classical Civilization** Andrew Johnston

For students who wish to pursue a specialized subject in classical civilization not otherwise covered in courses. Students are expected to provide a detailed reading list and a clear outline of their project early in the term. The work should result in a term paper or examination. A limited number of these courses may be offered toward the major. Readings in translation. Offered subject to faculty availability.

*** CLCV 498a, Senior Tutorial in Classical Civilization** Jessica Lamont

Tutorial for seniors in Classical Civilization. As a culminating experience in the major, the student completes under the supervision of a faculty member an original research project, intensive language and literature study, or a creative endeavor. To register, the student must submit a written plan of study for approval by the director of undergraduate studies and the faculty instructor. Fulfills the senior requirement for the B.A. degree. Enrollment limited to senior students majoring in Classical Civilization.

Classics (CLSS)

CLSS 498a, Senior Tutorial in Classics Jessica Lamont

Tutorial for seniors in Classics. As a culminating experience in the major, the student completes under the supervision of a faculty member an original research project, intensive language and literature study, or a creative endeavor. To register, the student must submit a written plan of study for approval by the director of undergraduate studies and the faculty instructor. Fulfills the senior requirement for the B.A. degree. Enrollment limited to senior students majoring in Classics.

Cognitive Science (CGSC)

CGSC 110a / PSYC 130a, Introduction to Cognitive Science Brian Scholl

An introduction to the interdisciplinary study of how the mind works. Discussion of tools, theories, and assumptions from psychology, computer science, neuroscience, linguistics, and philosophy. so

CGSC 175a, The Mystery of Sleep Meir Kryger and Christine Won

The role in which sleep and circadian rhythms affect attention, cognition, and memory through multidisciplinary consideration of neurobiology, epidemiology, and humanities. Psychological aspects of sleep; sleep disorders; sleep deprivation; and the history of sleep in philosophy, literature, and art. This course is not open to students previously enrolled in CSPC 350, CSMC 370, or CSYC 390. sc

CGSC 216b / LING 116b / PSYC 116b, Cognitive Science of Language Staff

The study of language from the perspective of cognitive science. Exploration of mental structures that underlie the human ability to learn and process language, drawing on studies of normal and atypical language development and processing, brain imaging, neuropsychology, and computational modeling. Innate linguistic structure vs. determination by experience and culture; the relation between linguistic and nonlinguistic cognition in the domains of decision making, social cognition, and musical cognition; the degree to which language shapes perceptions of color, number, space, and gender. so

CGSC 276a / PHIL 276a, Metaphysics Staff

Examination of some fundamental aspects of reality. Topics include time, persistence, modality, causation, and existence. HU o Course cr

*** CGSC 314a / PSYC 314a, Performance Psychology and Neuroscience** Marvin Chun

Human cognitive and motor performance fluctuates over time and varies across situations. What explains peak performance and how can it be sustained? The variation can be explained by neural mechanisms of attention and executive control; psychological factors like emotion, stress, mindset, and positive thinking; and physiological factors such as sleep and exercise, which affect the brain and mind. so

*** CGSC 375a / LING 375a / PSYC 375a, Linguistic Meaning and Conceptual Structure**

Maria Pinango

The meaning of a word or sentence is something in the human mind that has specific properties: it can be expressed (written/signed/spoken forms); it can be combined with other meanings; its expression is not language dependent; it connects with the world; it serves as a vehicle for inference; and it is hidden from awareness. The course explores these properties in some detail and, in the process, provides

the students with technical vocabulary and analytical tools to further investigate them. The course is thus intended for those students interested in undertaking a research project on the structure of meaning, the nature of lexico-conceptual structure, that is, the structure of concepts which we refer to as “word meanings”, and how they may be combined through linguistic and non-linguistic means. Its ultimate objective is to bridge models of conceptual structure and models of linguistic semantic composition, identify their respective strengths and weaknesses and explore some of the fundamental questions that any theory of linguistic meaning composition must answer. Evidence discussed will emerge from naturalistic, introspectional, and experimental methodologies. Prerequisites: LING 110, CGSC 110, LING 217, or LING 263. SO

*** CGSC 395a / PHIL 395a, Junior Colloquium in Cognitive Science** Isaac Davis
Survey of contemporary issues and current research in cognitive science. By the end of the term, students select a research topic for the senior essay. Enrollment limited to Cognitive Science majors. ½ Course cr

*** CGSC 471a and CGSC 472a, Directed Research in Cognitive Science** Joshua Knobe
Research projects for qualified students. The student must be supervised by a member of the Cognitive Science faculty, who sets the requirements and directs the research. To register, a student must submit a written plan of study to the director of undergraduate studies and the faculty supervisor. The normal minimum requirement is a written report of the completed research, but individual faculty members may set alternative equivalent requirements. Only one term may be offered toward the major, with permission of the director of undergraduate studies; two terms may be offered toward the bachelor's degree.

Comparative Literature (LITR)

*** LITR 001a / AFST 002a, Introduction to African Literature** Helen Yitah
This is a survey course meant to offer a formal introduction to African Literature in its broadest historical and cultural contexts. The aim is for each student to gain a close, personal familiarity with selected representative texts of major forms/genres and of the major writers of various periods, including the traditional raconteurs who daily regale communities with their oral arts; Chinua Achebe, considered the ‘father’ of modern African literature; Ama Ata Aidoo, groundbreaking African woman writer; Nawal El Saadawi, physician, activist, and feminist who writes about women in Islam; Keorapetse Kgositsile, award winning poet and South African Poet Laureate; Patricia Jabbah Wesley whose poetry gives voice to the hundreds of Liberians who were killed during the country's civil war. We begin with oral genres—the earliest and the predominant forms of African literature—including folktales, myths and legends, and oral poetry. We then look at selected writers and their works from around the continent. The texts are placed in the general socio-political and cultural contexts of their production. Enrollment limited to first-year students. HU

*** LITR 130a / HUMS 130a, Fundamentals of Comparison** Ayesha Ramachandran and Marta Figlerowicz
An introduction to the conceptual modes and frameworks for comparative study in the humanities as well as the interdisciplinary and cross-cultural traditions of comparative literature. We investigate how and why cultures come into contact and why we might

want to engage in acts of comparison. Topics covered are historical and theoretical in scope involving questions about: historical connections; influence and reception; morphology (similarities, resemblances); circulation and networks; colonialism and its consequences; identity and diaspora; aesthetics; humanisms. Anchored in case studies that help to understand the core challenges of our discipline, we explore the relation of literary study to anthropology, linguistics, religious studies, history, and cognitive science. Texts include: Leo Africanus's *Description of Africa* with Natalie Zemon Davis's *Trickster Travels*; Goethe's *West-östlicher Divan*, its source texts and imitations; Shakespeare's *Hamlet* alongside Bharadwaj's *Haider* and Bohannon's "Shakespeare in the Bush"; Fenollosa, Pound and modernism's fascination with Chinese poetry; Lu Xun's engagement with Gogol; Césaire, Glissant and the struggle over *créolité*; early modern and postcolonial visions of humanism. HU

*** LITR 140b, How To Compare** Samuel Hodgkin

This course is an exploration of literary comparison from methodological as well as historical perspectives. We compare texts within genres, across genres and media, across periods, and between cultures and languages. We consider questions such as whether all comparisons must assume a common ground, and whether there is always an implicit politics to any comparison. Topics range from theories of translation and ekphrasis to exoticism and untranslatability. Readings include classics by critics such as Aristotle, Ibn Sina, and Kristeva, and writers such as Marie de France, Nezami, and Calvino. It also engages with the literature of our own moment: we will read a newly-translated novel by the Chilean writer Nona Fernández, and the Iranian poet Kayvan Tahmasebian will visit the class for a conversation. We will also discuss films (Parajanov and Barta) and a new Russian computer game. This course fulfills an introductory requirement for students considering one of the majors in the Comparative Literature department, but all are welcome, and the methodologies and questions discussed in the class are useful for any kind of humanistic inquiry. HU

LITR 143b / FILM 240b / HUMS 190b, Cinema in the World Moira Fradinger

Development of ways to engage films from around the globe productively. Close analysis of a dozen complex films, with historical contextualization of their production and cultural functions. Attention to the development of critical skills. Includes weekly screenings, each followed immediately by discussion. HU

*** LITR 168a or b / ENGL 129a or b / HUMS 127a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** LITR 169a or b / ENGL 130a or b / HUMS 132a or b, Epic in the European Literary Tradition** Staff

The epic tradition traced from its foundations in ancient Greece and Rome to the modern novel. The creation of cultural values and identities; exile and homecoming; the heroic in times of war and of peace; the role of the individual within society;

memory and history; politics of gender, race, and religion. Works include Homer's *Odyssey*, Vergil's *Aeneid*, Dante's *Inferno*, Cervantes's *Don Quixote*, and Joyce's *Ulysses*. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** LITR 176b / ENGL 202b / WGSS 171b, Medieval Women Writers and Readers**

Jessica Brantley

This course explores writings by and for women in medieval Britain, with attention to questions of authorship, authority, and audience. Readings include the *Lais* of Marie de France, *Ancrene Wisse*, *The Life of Christina of Markyate*, the *Showings* of Julian of Norwich, *The Book of Margery Kempe*, the Digby *Mary Magdalene* play, and the Paston letters. WR, HU

LITR 183a / HUMS 180a / ITAL 310a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU TR o Course cr

*** LITR 195a / ENGL 205a / HUMS 200a / MUSI 462a, Medieval Songlines** Ardis

Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

*** LITR 200a / HUMS 128a / NELC 128a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Kathryn Slanski

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and "The Song of Songs," medieval works, such as *A Thousand and One Nights*, selections from the *Qur'an*, and *Shah-nama: The Book of Kings*, and modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

*** LITR 210a / RSEE 313a / RUSS 313a / SLAV 313a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the "Khrushchev Thaw" on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: "nonconformism," "dissidence," "mimicry," "rebellion." The course investigates the existential conflict

of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

LITR 214b / FREN 240b / HUMS 201b, The Modern French Novel Alice Kaplan and Maurice Samuels

A survey of major French novels, considering style and story, literary and intellectual movements, and historical contexts. Writers include Balzac, Flaubert, Proust, Camus, and Sartre. Readings in translation. One section conducted in French. HU TR
o Course cr

LITR 218a / GMAN 226a, The Faust Tradition Jan Hagens

The development of the Faust motif through time, from the period of the Renaissance and the Reformation to the twentieth century. Readings from the English adaptation of the original German chapbook and from works by Marlowe, Ben Johnson, Goethe, Wilde, Bulgakov, and Thomas Mann. Screenings of films with a Faustian theme. HU

*** LITR 221a / PORT 380a, Fernando Pessoa** Kenneth David Jackson

Survey of the main facets of Pessoa's works and consideration of the principal theories and interpretations of his complex literary universe. Reading knowledge of Portuguese is essential, however students may supplement his texts with translations in English, Spanish, French, or Italian. WR, HU

*** LITR 239a / CLCV 216a / MGRK 216a / WGSS 209a, Dionysus in Modernity**

George Syrmis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

LITR 242a / ANTH 237a / GMAN 233a / HUMS 225a / PHIL 219a, Karl Marx's Capital
Staff

A careful reading of Karl Marx's classic critique of capitalism, *Capital* volume 1, a work of philosophy, political economy, and critical social theory that has had a significant global readership for over 150 years. Selected readings also from *Capital* volumes 2 and 3. HU o Course cr

*** LITR 244a / FILM 205a / GMAN 205a / HUMS 160a, The Question of Technology in Continental Theory** Staff

In Greek mythology, Niobe is the queen of Thebes and mother of six daughters and six sons. She rebelled against the gods and was severely punished for it: her children were killed and she herself was petrified in eternal mourning. In Walter Benjamin's much-discussed essay "On the Critique of Violence," Niobe's fate is a memorial to a mythical violence that has never been overcome. According to Benjamin, this violence today is linked to an instrumental approach to technology. In the seminar, we discuss media and technology philosophical approaches by Benjamin, Heidegger, Simondon, Haraway, Chude-Sokei, among others, but also texts by Kant, in order to explore the question of how we should understand the entanglement of melancholy, violence and an instrumental understanding of technology. Furthermore, we discuss how this link

between violence, technology and melancholy can be resolved from the perspective of Benjamin's critique of violence. HU

*** LITR 256a / CPLT 657a / PORT 352a / PORT 652a, Clarice Lispector: The Short Stories** Kenneth David Jackson

This course is a seminar on the complete short stories of Clarice Lispector (1920–1977), a master of the genre and one of the major authors of twentieth-century Brazil known for existentialism, mysticism and feminism. WR, HU TR

*** LITR 295a / AFAM 352a / AMST 438a / ER&M 291a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

*** LITR 300a, Introduction to Theory of Literature** Martin Hagglund

An examination of the concepts and assumptions in contemporary views of literature, including theories of meaning, interpretation, and representation. A critical analysis of new criticism, formalism, psychoanalysis, reader response, structuralism, poststructuralism, new historicism, Marxism, and postcolonial, feminist, queer, and cultural studies approaches to literature. HU RP

*** LITR 301a / FILM 360a / RSEE 380a / RUSS 380a, Putin's Russia and Protest Culture** Staff

Survey of Russian literature and culture since the fall of communism. The chaos of the 1990s; the solidification of power in Putin's Russia; the recent rise of protest culture. Sources include literature, film, and performances by art collectives. Readings and discussion in English; texts available in Russian. WR, HU

*** LITR 303a / EALL 288a / EAST 316a / RSEE 316a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse "the cultural logic of late socialism?" What can today's America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

*** LITR 305b / ENGL 483b / HUMS 428b / JDST 343b, Advanced Literary Translation** Robyn Creswell

A sequel to LITR 348 or its equivalent, this course brings together advanced and seriously committed students of literary translation, especially (but not only) those who are doing translation-related senior theses. Students must apply to the class with a specific project in mind, that they have been developing or considering, and that they

will present on a regular basis throughout the semester. Discussion of translations-in-progress are supplemented by short readings that include model works from the world of literary translation, among them introductions and pieces of criticism, as well as reflections by practitioners treating all phases of their art. The class is open to undergraduates and graduate students who have taken at least one translation workshop. By permission of the instructor. Prerequisite: LITR 348.

*** LITR 317a / JDST 326a, Marxist Theory of Literature** Hannan Hever

The role of Marxist thought in understanding literary institutions and texts in the twentieth century. Marx's theory of ideology; Lukacs's theory of literature as the basis for development of Marxist literary theory; the Frankfurt and materialistic schools. Readings include works by Raymond Williams, Catherine Belsey, Walter Benjamin, Pierre Macherey, and Frederic Jameson. HU

LITR 318a / ENGL 191a / HUMS 206a / MMES 215a / NELC 201a, The Arabian Nights, Then and Now Robyn Creswell

The medieval cycle of tales known as The Arabian Nights or The Thousand and One Nights is among the most beloved and influential story collections of world literature. It is an "ocean" of tales that has much to teach us about how stories work, whether they must come to an end, and our apparently bottomless desire to hear them. We will spend the semester in the company of genies and princes, thieves and slaves, mass murderers, detectives, and orientalist. We will also explore the ways in which the stories of the Nights have been adapted by later writers, such as Djebbar, Stevenson, Conan Doyle, and Mahfouz, as well as by filmmakers such Pasolini and—of course—Walt Disney. The course is intended to introduce students to the major tales of the Nights and to the classical Arabic literary tradition more broadly. It also seeks to develop their skills of close reading and analysis, particularly through a consideration of literary and filmic adaptations. HU

LITR 338a / FILM 362a / FREN 384a / ITAL 384a / JDST 289a, Representing the Holocaust Maurice Samuels and Millicent Marcus

The Holocaust as it has been depicted in books and films, and as written and recorded by survivors in different languages including French and Italian. Questions of aesthetics and authority, language and its limits, ethical engagement, metaphors and memory, and narrative adequacy to record historical truth. Interactive discussions about films (*Life Is Beautiful*, *Schindler's List*, *Shoah*), novels, memoirs (Primo Levi, Charlotte Delbo, Art Spiegelman), commentaries, theoretical writings, and testimonies from Yale's Fortunoff Video Archive. WR, HU

*** LITR 342a / GMAN 202 / JDST 356a / MMES 396, Introduction to Jewish Literatures** Hannan Hever

The course will explore Jewish poetics and identities through literary genres like novels, stories, poems, and legends written in Jewish languages such as Hebrew, Yiddish, and Ladino, and also, Jewish literatures written in French, German, Arabic, Russian, and Italian. The course emphasizes the literary and political contexts of the "Jewish Question" by reading texts written by Jews in the Middle East, North Africa, Europe, Israel, and the United States. The course begins with Jeremiah's prophecies, then explores the Mishnaic "Ethics of Our Fathers" and Hebrew poetry written by Medieval Jewish Spanish poets like Judah ha-Levi and Shmuel HaNagid. Among the authors we will discuss are Franz Kafka, Paul Celan, Edmond Jabès, Primo Levi, Philip Roth, and Israeli writers such as S. Y. Agnon, Shimon Ballas, Dalia Ravikovitz, and A.B.

Yehoshua. The poetics of Jewish literatures will be studied alongside religion, ethnicity, class differences, diaspora, and family relationships, as well as gender issues, minorities, and nationalism. HU RP

*** LITR 344a / ENGL 244a / HUMS 340a, The Detective Story: Solving Mysteries from Oedipus to Sherlock** Paul Grimstad

The course looks closely at detective stories, novels and films, with attention to the narrative structure of criminal enigma, logical investigation and denouement (whodunit, howdunit), and considers “genre” more broadly. Starting with the proto-detective story *Oedipus Rex* – in which tragic drama takes the form of a murder mystery – we move on to Edgar Allan Poe’s invention of the genre proper in “The Murders in the Rue Morgue” and “The Purloined Letter.” From there we go to Poe’s “golden age” inheritors Arthur Conan Doyle, G.K. Chesterton, Agatha Christie, and Dorothy Sayers, as well as the adaptation of Doyle’s tales for the BBC series *Sherlock*. We also spend time on American “hard boiled” writers (Dashiell Hammett, *The Maltese Falcon* and John Huston’s 1941 film adaptation of the novel; Chester Himes’ *The Real Cool Killers*); fiction which draws upon the conventions of detective stories without being genre fiction (Nabokov, Borges), non-fiction works which have the structure of a detective story (Freud’s “Wolf Man” case study); neo-noir film (*Chinatown*); works that fuse detective fiction and science-fiction (*Minority Report*) and recent film homage to “golden age” whodunnits (*Knives Out*). Students write essays making interpretive claims and using evidence from works on the syllabus, with emphasis on writing clear prose in support of an original argument. HU

*** LITR 345a / EVST 228a / HIST 459a / HUMS 228a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

*** LITR 348a or b / ENGL 456a or b / HUMS 427a or b / JDST 316a or b, The Practice of Literary Translation** Staff

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

*** LITR 351a / FILM 333a / HUMS 422a, Early Film Theory and Modernity** Francesco Casetti

For a long time, early film theory and criticism have been overlooked and underestimated. However, their recent rediscovery has highlighted their crucial role in framing film as a “modern” invention. While discussing what then was a recent

invention, early film theory and criticism tackled some of the main characteristic of modern life: speed, excitement, contingency, openness, subjectivity, circulation, etc. By doing so, they underscored the parallel between modern experience and filmic representations. On the screen – they claimed – spectators do not only see the world in which they live, but also the effects of the political, industrial, and social revolutions on this world. At the same time, early film theory and criticism developed an ideal of “modern” art and “modern” language, through a systematic exploration of filmic style and iconography. According to them, film was the epitome of a “new art” for “new times.” The course explores the idea of modernity as it developed in the Western world between the end of the 19th and the beginning of the 20th centuries. Despite this limitation, we do not meet a uniform landscape; on the contrary, ideological differences and national identities played a major role in defining the perspectives forged by film theorists and critics. While considering texts from France (Delluc, Epstein), Germany (Arnheim, Kracauer), Middle-Europe (Bálahs, Lukács, Tille), Italy (Papini, Thovez), Soviet Union (Eisenstein, Vertov, Pudovkin), and USA (Lindsay, Freeburg, Münsterberg), the course systematically and critically compares them and their traditions. Every week there is a screening with films representative of the time. When possible, we use original prints. HU

*** LITR 358b / FILM 425b / GMAN 275b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949–1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country’s emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf, Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU

*** LITR 360a / FILM 363a / LAST 360a, Radical Cinemas of Latin America** Staff
Introduction to the radical New Latin American Cinema movement that started in the sixties, with an emphasis on manifestos that conceived the relation between art and politics for social change and with a corpus of films produced in Brazil, Colombia, Cuba, Argentina, Bolivia, Venezuela, Haiti, and Mexico. Examination of films in their historical and aesthetic aspects, and in light of questions concerning national cinema, “militant cinema,” “political cinema,” and “third cinema.” Discussions about the global sixties at large, and about some Latin American texts that were read globally. Conducted in English; knowledge of Spanish and Portuguese helpful but not required. HU o Course cr

*** LITR 364a / ENGL 384a / FILM 461a / THST 416a, British Cinema** Katie Trumpener

Survey of the British film tradition, emphasizing overlap with literature, drama, and art; visual modernism; documentary’s role in defining national identity; “heritage” filmmaking and alternative approaches to tradition; and auteur and actors’ cinema. HU RP

*** LITR 374a / FILM 325a / GMAN 379a, German Cinema 1918–1933** Jan Hagens

The years between 1918 and 1933 are the Golden Age of German film. In its development from Expressionism to Social Realism, this German cinema produced works of great variety, many of them in the international avantgarde. This introductory seminar gives an overview of the silent movies and sound films made during the Weimar Republic and situate them in their artistic, cultural, social, and political context between WWI and WWII, between the Kaiser's German Empire and the Nazis' Third Reich. Further objectives include: familiarizing students with basic categories of film studies and film analysis; showing how these films have shaped the history and the language of film; discussing topic-oriented and methodological issues such as: film genres (horror film, film noir, science fiction, street film, documentary film); set design, camera work, acting styles; narration in film; avantgarde cinema; the advent and use of sound in film; Realism versus Expressionism; film and popular mythology; melodrama; representation of women; modern urban life as spectacle; film and politics. Directors studied include: Grune, Lang, Lubitsch, Murnau, Pabst, Richter, Ruttman, Sagan, von Sternberg, Wiene, et al.

WR, HU

*** LITR 375b / AMST 307b / ER&M 298b / HIST 117b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. WR, HU

*** LITR 377a / AFAM 375a / AMST 465a / FREN 365a / HIST 378a, Haiti in the Age of Revolutions** Marlene Daut

The Haitian Revolution (1791–1804) was an event of monumental world-historical significance. This class studies the collection of slave revolts and military strikes beginning in August of 1791 that resulted in the eventual abolition of slavery in the French colony of Saint-Domingue and its subsequent independence and rebirth in January of 1804 as Haiti, the first independent and slavery-free nation of the American hemisphere. Considering Haiti's war of independence in the broader context of the Age of Revolutions, we cover topics such as enlightenment thought, natural history, the workings and politics of the printing press, and representations of the Haitian Revolution in art, literature, music, and in various kinds of historical writings and archival documents. Students develop an understanding of the relevant scholarship on the Haitian Revolution as they consider the relationship of this important event to the way it was written about both as it unfolded and in its long wake leading up to the present day. WR, HU

LITR 378a / HUMS 167a / NELC 135a, Masterpieces of Arabic Literature Shawkat Toorawa

The Arabic literary tradition spans from the 6th-century through to the modern day. In this course, we focus on the first thousand years (600–1600), and read works, and excerpts from works, regarded as masterpieces of Arabic literature. Our readings include the early poetry of the Arabian peninsula (Imru l-Qays, 'Antarah), the Qur'an, celebrated prose writers, including al-Jahiz, al-Tanukhi, al-Hariri, and al-Tawhidi, and famous poets, including al-Mutanabbi, al-Ma'arri, and Ibn Zaydun. All readings in translation. HU

*** LITR 389a / ENGL 289a / HUMS 388a / PHIL 385a / RLST 380a, The Force of Life** Nancy Levene and James Wood

The point of departure for this course is a line from James Baldwin in *The Fire Next Time*: “To be sensual, I think, is to respect and rejoice in the force of life, of life itself, and to be *present* in all that one does, from the effort of loving to the breaking of bread.” We study four authors—Virginia Woolf, Franz Kafka, Baldwin, and Jacques Derrida—in light of the values Baldwin expresses and their challenges. Our work between philosophy and fiction involves striving to read each text according to the ideas it itself advances, as well as reading for connections and cross-pollinations. WR, HU

*** LITR 395a / ER&M 236a / ITAL 337a / WGSS 364a, Feminism without Women: Modernist and Postcolonial Textual Experiments** Serena Bassi

Antifeminist critics charge the feminist movement with having forgotten “real women” in favor of inaccessible theories rejecting the supposedly incontrovertible fact that there are only two sexes and genders. This seminar turns the charge on its head by exploring a theoretical and literary canon that—by questioning the ontological status of the male/female binary—has transformed feminism into a capacious, radically inclusive, revolutionary 21st-century movement. The texts and the theories that we discuss put pressure on the very category of “woman” as they strive to rethink feminism as a non-identitarian world-making project. The class focuses on two movements that employ art and literature to push back against the idea of “women” as the monolithic subject of feminism: Italian vanguard modernism and Italoophone literary postcolonialism. We discuss modernist and postcolonial novels, poems, essays, and performative art pieces together with classics of feminist, queer and postcolonial theory. We push our own political imagination further by asking ever more sophisticated questions about gender, sexuality, ethnicity, race, and the way these intersecting social formations mediate the way we see, experience, and represent our material and social reality. The course is taught entirely in English. No previous knowledge of Italian language, art, or literature required. Students seeking departmental credit for Italian do their writing and reading in the original language, and attend a discussion session in Italian. HU TR

*** LITR 397a / FREN 241a / GMAN 301a, After the War, Novels after 1945, French and German** Rudiger Campe

How to write, how to narrate after war? In this course we read alternately some of the greatest novels and novellas after 1945 (until ca. 1968) from German speaking countries and from France. This can but does not necessarily mean novels about fascism and democracy, aggression, and resistance (Sartre, Grass). It also means negotiating radical break and reorientation, politically and ideologically (German “Zero Hour”, the absurd, existentialism in France); and the attempt to reinvent literary writing in general

(‘nouveau roman’ in France, Handke and Bernard in Austria). Further authors include Camus, Duras, Robbe-Grillet, Le Clezio, Koeppen, Wolf, Handke, Bachmann. HU

*** LITR 404a / ENGL 341a / EVST 409a / HUMS 377a, Nature Poetry, from the Classics to Climate Change** Jonathan Kramnick

Poetry of the natural world, beginning with classical pastoral and ending with lyric responses to climate change. We consider how poetry attempts to make sense of our interaction with the earth at important moments of change, from pre-industrial agriculture to global capitalism and the Anthropocene. WR, HU

*** LITR 416a / FILM 310a / GMAN 331a / HUMS 281a, Paper: Material and Medium** Austen Hinkley

Paper is one of the most ubiquitous and indispensable media of the modern era. Although we are (still) surrounded by it, paper tends to recede into the background, working best when we do not notice it at all. This course sets out to challenge our understanding of paper as a neutral or passive bearer of inscriptions by foregrounding its material quality. Our focus rests in equal parts on the media history of paper and paper works of art—among them many literary texts—that reflect or take advantage of their medium. Studying materials and histories from the early modern period to the present, we uncover paper’s status as a commodity bound up in a complex web of economic processes, as an instrument of political power, as a gendered and racialized object, and as a material that can be cut, shuffled, and even eaten. Ultimately, we investigate how paper is still central to our lives, even in the age of tablets and PDFs. Readings include Emily Dickinson’s envelope poems, Robert Walser’s “Microscripts,” and M. NourbeSe Philip’s “Zong!” The class makes several visits to the Beinecke Library for hands-on work with paper materials. WR, HU

*** LITR 424a / AFAM 382a / AMST 482a / ENGL 273a / FREN 382a, Zombies, Witches, Gods, and Spirits in Caribbean Literature** Marlene Daut

This course delves into the rich tapestry of Caribbean literature through the lens of the seemingly supernatural, such as zombies, witches, gods, and spirits. Throughout the semester, students critically analyze a diverse range of texts by authors as varied as Edwidge Danticat, René Depestre, Derek Walcott, Alejo Carpentier, Jean Rhys, and Aimé Césaire, and others, to explore how Caribbean authors have employed other worldly elements as powerful metaphors for colonialism and resistance, trauma, and cultural memory.

*** LITR 441b / GMAN 211b / HUMS 314b / PHIL 412b, Marx, Nietzsche, Freud** Austen Hinkley

The course is designed as an introduction to the thought of these three towering figures in the German-language intellectual tradition and to their contributions to our attempts to understand the human mind and society. We read seminal essays as well as (excerpts from) longer works, including Marx’s *Capital*, Nietzsche’s *Genealogy of Morality* and *Thus Spake Zarathustra*, and Freud’s *Interpretation of Dreams*. But we also look at what came before and after these thinkers, considering—among others—Kant, Ludwig Feuerbach, Melanie Klein, Adorno, and Foucault; and we think about the relevance of Marx, Nietzsche, and Freud for the understanding of our own times. HU

*** LITR 446b / FREN 247b, Experimental Literature, Theory, and Manifestoes**

Morgane Cadieu

A survey of the French experimental prose of the twentieth and twenty-first centuries. Corpus includes novels and plays, literary and political manifestoes, and landmark articles on literary theory, structuralism, and poststructuralism. Topics include: inspiration and creativity, the aesthetics of manifestoes and the politics of literature, automatic writing and constrained prose, feminist and queer writings, and urban spaces in avant-garde literary movements. Works by: Bataille, Beauvoir, Beckett, Breton, Perec, Sarraute, Wittig. Theoretical excerpts by: Barthes, Deleuze, Derrida, Foucault, Glissant, Malabou. HU TR

*** LITR 482a / GMAN 288a / HUMS 480a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle. HU

*** LITR 491a, The Senior Essay** Moira Fradinger

An independent writing and research project. The minimum length for an essay is twenty-five pages. Students are urged to arrange a topic and adviser early in the term before the term in which the essay is to be written. Dates and deadlines may be found on the department website.

*** LITR 492a, The Yearlong Senior Essay** Moira Fradinger

An extended research project. Students must petition the curriculum committee for permission to enroll by the last day of classes in the term preceding enrollment in LITR 492. December graduates should consult the director of undergraduate studies for required deadlines. The minimum length for a yearlong senior essay is forty pages. Dates and deadline may be found on the department website.

Computer Science (CPSC)

CPSC S100a / CPSC 100a, Introduction to Computing and Programming Ozan Erat

In-person course. Introduction to the intellectual enterprises of computer science and to the art of programming. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Languages include C, Python, SQL, and JavaScript, plus CSS and HTML. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming. 1 Credit. Session A: May 27–June 28. Tuition: \$5070. QR

*** CPSC 035b / MUSI 035b, Twenty-First Century Electronic and Computer Music Techniques** Scott Petersen

Exploration of twenty-first century electronic and computer music through the diverse subjects and issues at the intersection of technology and new music. How computers have changed and challenged the analysis, composition, production, and appreciation of music over the last fifty years. Knowledge of basic music theory and the ability to read Western musical notation is assumed. Enrollment limited to first-year students. QR

CPSC 100a / CPSC S100a, Introduction to Computing and Programming Ozan Erat

Introduction to the intellectual enterprises of computer science and to the art of programming. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Languages include C, Python, SQL, and JavaScript, plus CSS and HTML. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming. See CS50's website, <https://cs50.yale.edu>, for additional information. No previous programming experience required. Open to students of all levels and majors.

QR o Course cr

CPSC 110a or b, Python Programming for Humanities and Social Sciences Staff

Introduction to computer science and Python programming with domain-specific applications. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, web development, and statistical tools. Students learn to apply computing techniques in the fields of social sciences and humanities by analyzing data. No previous programming experience is required. This course is intended for students of social sciences and humanities majors.

QR o Course cr

CPSC 112b, Introduction to Programming Timothy Barron

Development on the computer of programming skills, problem-solving methods, and selected applications. No previous experience with computers necessary. QR

o Course cr

CPSC 123a or b / PLSC 351a or b / S&DS 123a or b / S&DS 523a or b, YData: An Introduction to Data Science Ethan Meyers

Computational, programming, and statistical skills are no longer optional in our increasingly data-driven world; these skills are essential for opening doors to manifold research and career opportunities. This course aims to dramatically enhance knowledge and capabilities in fundamental ideas and skills in data science, especially computational and programming skills along with inferential thinking. YData is an introduction to data science that emphasizes the development of these skills while providing opportunities for hands-on experience and practice. YData is accessible to students with little or no background in computing, programming, or statistics but is also engaging for more technically oriented students through extensive use of examples and hands-on data analysis. Python 3, a popular and widely used computing language, is the language used in this course. The computing materials will be hosted on a special purpose web server. QR

*** CPSC 150a, Computer Science and the Modern Intellectual Agenda** David Gelernter

Introduction to the basic ideas of computer science (computability, algorithm, virtual machine, symbol processing system), and of several ongoing relationships between computer science and other fields, particularly philosophy of mind. No previous experience with computers necessary. Enrollment limited to twenty-five. WR, HU

CPSC 170b, AI for Future Presidents Brian Scassellati

AI is becoming an essential tool not only for scientists and engineers but also for physicians, judges, artists, and presidents. This course is designed for all students, with no prerequisites, and requires no programming. We look at topics that range from job loss due to automation, how machine learning systems are impacting healthcare, the impact of language models on education, and many other topics that are at the front of the headlines today. Will ChatGPT make essays obsolete? Will robots take my job? How smart will machines become? Students learn some of the basic limits of this technology, understand how to critically analyze public claims made about AI, and understand the societal impact that AI is having.

CPSC 175b, C Programming Language and Linux Jay Lim

We discuss the basics of the software development toolchain using the C programming language in the Linux operating system environment. Topics include an overview of C programming language including pointers, malloc, free, function pointers, recursion, and C macros. We further discuss tools useful for developing complex programs including git, compilers, Linux environment, gdb, and valgrind. Finally, we apply the language and tools to multiple fields of computer science. Prerequisite: familiarity with basic programming. CPSC 100 or CPSC 112 recommended. QR

CPSC 183a, Law, Technology, and Culture Brad Rosen

An exploration of the myriad ways in which law and technology intersect, with a special focus on the role of cyberspace. Topics include digital copyright, free speech, privacy and anonymity, information security, innovation, online communities, the impact of technology on society, and emerging trends. No previous experience with computers or law necessary. SO

*** CPSC 185b, Control, Privacy, and Technology** Brad Rosen

The evolution of various legal doctrines with and around technological development. Topics include criminal law, privacy, search and seizure, digital rights, and the implications of technologically permitted methods of control on the law. Special attention to case law and policy. Prerequisite: CPSC 183. WR, SO

CPSC 200a, Introduction to Information Systems Stephen Slade

The real-world artifacts and implementations that compose the vital computational organisms that populate our world. Hardware and software and the related issues of security, privacy, regulation, and software engineering. Examples stress practical applications of technology, as well as limitations and societal issues. Prerequisite: CPSC 100, 112, or equivalent. QR

CPSC 201a or b, Introduction to Computer Science Stephen Slade

Introduction to the concepts, techniques, and applications of computer science. Topics include computer systems (the design of computers and their languages); theoretical foundations of computing (computability, complexity, algorithm design); and artificial intelligence (the organization of knowledge and its representation for efficient search).

Examples stress the importance of different problem-solving methods. Prerequisite: CPSC 112 or equivalent. QR

CPSC 202a or b, Mathematical Tools for Computer Science Staff

Introduction to formal methods for reasoning and to mathematical techniques basic to computer science. Topics include propositional logic, discrete mathematics, and linear algebra. Emphasis on applications to computer science: recurrences, sorting, graph traversal, Gaussian elimination. QR

CPSC 223a or b, Data Structures and Programming Techniques Staff

Topics include programming in C; data structures (arrays, stacks, queues, lists, trees, heaps, graphs); sorting and searching; storage allocation and management; data abstraction; programming style; testing and debugging; writing efficient programs.

Prerequisite: CPSC 200, 201 or passing an exam based on CPSC 201 content. QR

CPSC 310b, Technology, Power, and Security: Political Challenges of the Computer

Age Joan Feigenbaum and Artur Pericles Lima Monteiro

Twenty-first century societies are faced with both threats and opportunities that combine sophisticated computation with politics and international relations in critical ways. Examples include cyber warfare; cyber espionage; cyber crime; the role of social media in democratic self-governance, authoritarian control, and election “hacking”; cryptocurrencies; and mass surveillance. This course examines the political challenges wrought by massive increases in the power of computational and communication technologies and the potential for citizens and governments to harness those technologies to solve problems. Students may not earn credit for both CPSC 210 and CPSC 310. Prerequisite: CPSC 223 or the equivalent. QR, SO o Course cr

CPSC 323a or b, Introduction to Systems Programming and Computer Organization
Staff

Machine architecture and computer organization, systems programming in a high-level language, issues in operating systems, software engineering, prototyping in scripting languages. Prerequisite: CPSC 223. QR

CPSC 327a or b, Object-Oriented Programming Timothy Barron

Object-oriented programming as a means to designing and writing efficient, reliable, modular, and reusable code. Covers core concepts and features of object-oriented languages (classes, inheritance, composition, encapsulation, polymorphism, and exceptions) as well as the use of object-oriented design patterns (iterator, decorator, strategy, adapter, observer, etc.). This course was previously number CPSC 427.

Prerequisite: CPSC 223. QR

CPSC 334a, Creative Embedded Systems Scott Petersen

Ubiquitous computing is creating new canvases and opportunities for creative ideas. This class explores the use of microprocessors, distributed sensor networks, IoT, and intermedia systems for the purposes of creative expression. The course is delivered in a mixed lecture and lab format that introduces the fundamental concepts and theory behind embedded systems as well as issues particular to their creative employment. The key objective of the course is for students to conceive of and implement creative uses of computation. To this end, skills to be obtained during the course are as follows: (1) appreciate the current efforts and motivation to push the limitations of computation for creative expression, both in new application and new foundational research; (2) weigh factors such as cost, power, processing, memory, I/O capabilities, and networking

capabilities when choosing a set of embedded devices and sensors; (3) contextualize unfamiliar hardware and languages through examples, documentation, and familiar design pattern; and (4) manage communication between multiple languages, devices, and protocols. Additionally, at the end of the course students have a portfolio of their work in the form of writing, code, video, audio, and physical artifacts.

Prerequisite: CPSC 223 or equivalent or by permission of instructor. QR RP

CPSC 338b / EENG 348b, Digital Systems Staff

Development of engineering skills through the design and analysis of digital logic components and circuits. Introduction to gate-level circuit design, beginning with single gates and building up to complex systems. Hands-on experience with circuit design using computer-aided design tools and microcontroller programming.

Recommended preparation: EENG 201. QR

*** CPSC 362b / AMTH 362b / EENG 435b, Decisions and Computations across Networks** A Stephen Morse

For a long time there has been interest in distributed computation and decision making problems of all types. Among these are consensus and flocking problems, the multi-agent rendezvous problem, distributed averaging, gossiping, localization of sensors in a multi-sensor network, distributed algorithms for solving linear equations, distributed management of multi-agent formations, opinion dynamics, and distributed state estimation. The aim of this course is to explain what these problems are and to discuss their solutions. Related concepts from spectral graph theory, rigid graph theory, non-homogeneous Markov chain theory, stability theory, and linear system theory are covered. Although most of the mathematics need is covered in the lectures, students taking this course should have a working understanding of basic linear algebra. The course is open to all students. Prerequisite: linear algebra or instructor permission. SC

CPSC 364a, Introduction to Blockchains, Cryptocurrencies, Smart Contracts, and Decentralized Applications Fan Zhang

This course offers an introduction to blockchain technology and its practical applications. The objective is to provide students with a comprehensive overview of the fundamental concepts and hands-on experience in building on actual blockchains. The course covers the technological foundation of the blockchain stack (consensus layer, ordering layer, execution layer, etc.), the design of representative applications (cryptocurrencies, smart contracts, Decentralized Finance, etc.), and the principles for writing secure smart contracts and ends with an overview of the latest research directions. To provide a hands-on building experience, the course hosts a Catch-the-Flag (CTF) competition where students are asked to hack buggy smart contracts within a controlled environment. The course assumes a background in various fundamental areas of CS, including discrete math, probability, algorithms, and data structures. Required: CPSC 202 and 223 (or equivalent). QR

CPSC 365a or b / ECON 365a or b, Algorithms Staff

Paradigms for algorithmic problem solving: greedy algorithms, divide and conquer, dynamic programming, and network flow. NP completeness and approximation algorithms for NP-complete problems. Algorithms for problems from economics, scheduling, network design and navigation, geometry, biology, and optimization. Provides algorithmic background essential to further study of computer science. Only

one of CPSC 365 or CPSC 366 may be taken for credit. Prerequisites: CPSC 202 or MATH 244, CPSC 223. QR

CPSC 370b, Artificial Intelligence Stephen Slade

How can we enable computers to make rational, intelligent decisions? This course explores fundamental techniques for Artificial Intelligence (AI), covering topics such as search, planning, learning, and reasoning under uncertainty. Through hands-on programming projects, students learn conceptual, algorithmic, and practical considerations for implementing foundational AI algorithms. By the end of this class, students have an understanding of the history and breadth of AI problems and topics, and are prepared to undertake more advanced courses in robotics, computer vision, natural language processing, and machine learning. Prerequisites: CPSC 202 and CPSC 223. Students should also be familiar with basic object-oriented programming concepts in Python.

CPSC 381b, Introduction to Machine Learning Alex Wong

This course focuses on fundamental topics in machine learning. We begin with an overview of different components of machine learning and types of learning paradigms. We introduce a linear function, discuss how one can train a linear function on a given dataset, and utilize it to tackle classification and regression problems. We then consider kernel methods to enable us to solve nonlinear problems. Additionally, we introduce the concept of generalization error and overfitting. We discuss the role of regularization and extend linear regression to ridge regression. We also cover optimization, beginning from gradient descent and extending it to stochastic gradient descent and its momentum variant; the concept of alternating optimization; the curse of dimensionality; and topics on dimensionality reduction. We conclude the course with neural networks: how to build them using the topics discussed, how to optimize them, and how to apply them to solve a range of machine learning tasks. Students should have passed courses in data structures and object-oriented programming (e.g. CPSC 223a or equivalent courses), foundational mathematical tools such as discrete math and linear algebra (e.g. CPSC 202 or equivalent courses), calculus (e.g. MATH 112, MATH 115, MATH 120, or equivalent courses), linear algebra (e.g. MATH 225, or equivalent courses), and artificial intelligence (e.g. CPSC 370/570). A background in statistics is useful but not required. Experience in programming with Python and familiarity with Google Colab and numerical and image processing packages (i.e. NumPy, SciPy) is helpful.

CPSC 413a, Computer System Security Timothy Barron

Overview of the principles and practice behind analyzing, designing, and implementing secure computer systems. Covers problems that have continued to plague computer systems for years as well as recent events and research in this rapidly evolving field of computer science. Learn to think from the perspective of an adversary, to understand systems well enough to see how their flaws could be exploited, and to consequently defend against such exploitation. Offers opportunities for hands-on exploration of attacks and defenses in the contexts of web applications, networks, and system level software. Also discusses ethical considerations and responsibilities associated with security research and practice. Prerequisite: CPSC 323.

CPSC 416a, Lattices and Post-Quantum Cryptography Katerina Sotiraki

This course explores the role of lattices in modern cryptography. In the last decades, novel computational problems, whose hardness is related to lattices, have been

instrumental in cryptography by offering: (a) a basis for “post-quantum” cryptography, (b) cryptographic constructions based on worst-case hard problems, and (c) numerous celebrated cryptographic protocols unattainable from other cryptographic assumptions. This course covers the foundations of lattice-based cryptography from fundamental definitions to advanced cryptographic constructions. More precisely, we introduce the Learning with Error (LWE) and the Short Integer Solutions (SIS) problems and study their unique properties, such as the fact that their average-case hardness is based on the worst-case hardness of lattice problems. Next, we cover lattice constructions of advanced cryptographic primitives, such as fully homomorphic encryption and signature schemes. Finally, we introduce some notions of quantum cryptography and explore the role of lattices in this area. Overall, this course offers insights into the foundations and recent advancements in lattice-based cryptography. Prerequisite: CPSC 467/567 or equivalent and linear algebra

*** CPSC 417a, Advanced Topics in Cryptography: Cryptography and Computation**

Charalampos Papamanthou

Traditional cryptography is mostly concerned with studying the foundations of securing communication via, for example, encryption and message authentication codes. This class studies the applications of cryptography in securing *computation*. Topics include, but are not limited to, fundamental results and the most recent progress in oblivious computation and private information retrieval (PIR), zero-knowledge proofs, secure computation, consensus algorithms, searchable encryption, and lattice-based cryptography. The class focuses both on theory and applications. Prerequisite: CPSC 467 or equivalent. This course assumes prior knowledge of fundamental notions in cryptography and mathematical maturity as well as comfort with programming.

CPSC 420b / EENG 420b, Computer Architecture Abhishek Bhattacharjee

This course offers a treatment of computer architectures for high-performance and power/energy-efficient computer systems. Topics include the foundations of general-purpose computing, including instruction set architectures, pipelines, superscalar and out-of-order execution, speculation, support for precise exceptions, and simultaneous multi-threading. We also cover domain-specific hardware (e.g., graphics processing units) and ongoing industry efforts to elevate them to the status of first-class computing units. In tandem, we cover topics relevant to both general-purpose and domain-specific computing, including memory hierarchies, address translation and virtual memory, on-chip networks, machine learning techniques for resource management, and coherence techniques. If time permits, we study the basics of emerging non-classical computing paradigms like neuromorphic computing. Overall, this course offers insights on how the computing industry is combating the waning of traditional technology scaling via acceleration and heterogeneity. Prerequisites: CPSC 323, 223, and 202. This is a programming-intensive course, so comfort with large programming projects is essential.

*** CPSC 421a, Compilers and Interpreters** Jay Lim

Compiler organization and implementation: lexical analysis, formal syntax specification, parsing techniques, execution environment, storage management, code generation and optimization, procedure linkage and address binding. The effect of language-design decisions on compiler construction. Prerequisite: CPSC 323. QR

CPSC 426a, Building Distributed Systems Y. Richard Yang

Ubiquitous services such as Google, Facebook, and Amazon run on the back of massive distributed systems. This course covers the fundamental principles, abstractions, and mechanisms that inform the design of such systems, as well as the practical details of real-world implementations. Technical topics covered include properties such as consistency, availability, durability, isolation, and failure atomicity as well as protocols such as RPC, consensus, consistent hashing, and distributed transactions. The final project involves implementing a real-world distributed service. Prerequisite: CPSC 323. QR

CPSC 427a, C++ Programming for Stability, Security, and Speed Michael Fischer

Computer programming involves both abstraction and practice. Lower-level programming courses focus on learning how to correctly implement algorithms for carrying out a task. This course treats a computer program as an artifact with additional attributes of practical importance including execution efficiency, clarity and readability, redundancy, safety in the face of unexpected or malicious environments, and longevity (the ability to evolve over time as bugs are discovered and requirements change). This course is taught using modern C++. Prerequisite: CPSC 223.

CPSC 429a, Principles of Computer System Design Lin Zhong

Humans are stupid; computers are limited. Yet a collaboration of humans and computers has led to ever more powerful and complex computer systems. This course examines the limitations of humans and computers in this endeavor and how they shape the design, implementation, and evaluation of computer systems. It surveys the empirical knowledge reported by scholars and practitioners that overcome such limitations. The lectures, reading assignments, and classroom discussions travel through psychology and philosophy and revisit important results from theoretical computer science with a goal of elucidating the rationales behind the best practices in computer systems research and development. Prerequisite: CPSC 323 or equivalent. Students should have the ability to write significant system programs in at least one systems programming language (e.g., C, C++, and Rust).

CPSC 431a / MUSI 428a, Computer Music: Algorithmic and Heuristic Composition

Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on high-level representations of music, algorithmic and heuristic composition, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. Prerequisites: CPSC 202 and 223. QR

CPSC 437a, Database Systems Avi Silberschatz

Introduction to database systems. Data modeling. The relational model and the SQL query language. Relational database design, integrity constraints, functional dependencies, and normal forms. Object-oriented databases. Database data structures: files, B-trees, hash indexes. Prerequisite: CPSC 223. QR

CPSC 439a, Software Engineering Timos Antonopoulos

Introduction to fundamental concepts in software engineering and to the development and maintenance of large, robust software systems. The process of collecting requirements and writing specifications; project planning and system design; methods for increasing software reliability, including delta debugging and automatic test-case

generation; and type systems, static analysis, and model checking. Students build software in teams. Prerequisite: CPSC 323. QR RP

CPSC 446a, Data and Information Visualization Holly Rushmeier

Visualization is a powerful tool for understanding data and concepts. This course provides an introduction to the concepts needed to build new visualization systems, rather than to use existing visualization software. Major topics are abstracting visualization tasks, using visual channels, spatial arrangements of data, navigation in visualization systems, using multiple views, and filtering and aggregating data. Case studies to be considered include a wide range of visualization types and applications in humanities, engineering, science, and social science. Prerequisite: CPSC 223.

CPSC 447a, Introduction to Quantum Computing Yongshan Ding

This course introduces the fundamental concepts in the theory and practice of quantum computation. Topics include information processing, quantum programming, quantum compilation, quantum algorithms, and error correction. The objective of the course is to engage students in applying fresh thinking to what computers can do. We establish an understanding of how quantum computers store and process data, and discover how they differ from conventional digital computers. We anticipate this course will be of interest to students working in computer science, electrical engineering, physics, or mathematics. Prerequisites: CPSC 201 and CPSC 202. Basic familiarity with discrete probability and linear algebra is recommended. Prior experience in quantum computing is useful but not required. SC

CPSC 448a / EENG 426a / ENAS 876a, Silicon Compilation Rajit Manohar

An upper-level course on compiling computations into digital circuits using asynchronous design techniques. Emphasis is placed on the synthesis of circuits that are robust to uncertainties in gate and wire delays by the process of program transformations. Topics include circuits as concurrent programs, delay-insensitive design techniques, synthesis of circuits from programs, timing analysis and performance optimization, pipelining, and case studies of complex asynchronous designs. Prerequisites: EENG 201 and introductory programming, or permission of instructor.

CPSC 450a, Sustainable Computing Robert Soule

This course covers topics at the intersection of technology and sustainability. We read primary sources on a range of challenges spanning technical considerations, policy, and ethics. Some of the topics include: definitions of sustainability, global perspectives on sustainable computing, measurements and monitoring, energy grid, green data centers, green networks, green storage, edge computing, green software, regulation, policy and standards, and life-cycle analysis. Students are evaluated based on reading reviews, class participation, and a semester-long project on a topic of their choice in sustainable computing. Prerequisite: CPSC 223

CPSC 454a, Software Analysis and Verification Ruzica Piskac

Introduction to concepts, tools, and techniques used in the formal verification of software. State-of-the-art tools used for program verification; detailed insights into algorithms and paradigms on which those tools are based, including model checking, abstract interpretation, decision procedures, and SMT solvers. Prerequisites: CPSC 202 and 323 or equivalents. QR RP

CPSC 455a / ECON 425a, Algorithmic Game Theory Yang Cai

A mathematically rigorous investigation of the interplay of economic theory and computer science, with an emphasis on the relationship of incentive-compatibility and algorithmic efficiency. Our main focus is on algorithmic tools in mechanism design, algorithms and complexity theory for learning and computing Nash and market equilibria, and the price of anarchy. Case studies in web search auctions, wireless spectrum auctions, matching markets, network routing, and social networks.

Prerequisite: CPSC 365 or permission of the instructor. Familiarity with basic microeconomic theory is helpful but not required. QR

*** CPSC 459a, Building Interactive Machines** Marynel Vazquez

This advanced course brings together methods from machine learning, computer vision, robotics, and human-computer interaction to enable interactive machines to perceive and act in a variety of environments. Part of the course examines approaches for perception with different sensing devices and algorithms; the other part focuses on methods for decision making and applied machine learning for control. Understanding of probability, differential calculus, linear algebra, and planning (in artificial intelligence) is expected for this course. Programming assignments require proficiency in Python and high-level familiarity with C++. Prerequisites: CPSC 201, CPSC 202, and CPSC 470 (or 570), or permission of the instructor. QR

*** CPSC 464a, Algorithms and their Societal Implications** Nisheeth Vishnoi

Today's society comprises humans living in an interconnected world that is intertwined with a variety of sensing, communicating, and computing devices. Human-generated data is being recorded at unprecedented rates and scales, and powerful AI and ML algorithms, which are capable of learning from such data, are increasingly controlling various aspects of modern society. These data-driven decision-making algorithms have a tremendous potential to change our lives for the better, but, via the ability to mimic and nudge human behavior, they also have the potential to be discriminatory, reinforce societal prejudices, violate privacy, polarize opinions, and influence democratic processes. Thus, designing effective tools to govern modern society which reinforce its cherished values such as equity, justice, democracy, health, privacy, etc. has become paramount and requires a foundational understanding of how humans, data, and algorithms interact. This course is for students who would like to understand and address some of the key challenges and emerging topics at the aforementioned interplay between computation and society. On the one hand, we study human decision-making processes and view them through the lens of computation, and on the other hand we study and address the limitations of artificial decision-making algorithms when deployed in various societal contexts. The focus is on developing solutions through a combination of foundational work such as coming up with the right definitions, modeling, algorithms, and empirical evaluation. The current focus is on bias and privacy, with additional topics including robustness, polarization, and democratic representation. Solid mathematical and programming background is necessary to enroll in this course. CPSC 365 and S&DS 251 are recommended.

CPSC 468a, Computational Complexity Dylan McKay

Introduction to the theory of computational complexity. Basic complexity classes, including polynomial time, nondeterministic polynomial time, probabilistic polynomial time, polynomial space, logarithmic space, and nondeterministic logarithmic space. The

roles of reductions, completeness, randomness, and interaction in the formal study of computation. Prerequisite: CPSC 365 or 366, or with permission of instructor. QR

*** CPSC 473a, Intelligent Robotics Laboratory** Brian Scassellati

Students work in small teams to construct novel research projects using one of a variety of robot architectures. Project topics may include human-robot interaction, adaptive intelligent behavior, active perception, humanoid robotics, and socially assistive robotics. Enrollment limited to twenty. After CPSC 472. QR

CPSC 474a, Computational Intelligence for Games James Glenn

Introduction to techniques used for creating computer players for games, particularly board games. Topics include combinatorial and classical game theory, stochastic search methods, applications of neural networks, and procedural content generation. Prerequisites: CPSC 202 and CPSC 223. QR

CPSC 475a / BENG 475a / EENG 475a, Computational Vision and Biological Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and physiology students. Prerequisites: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

CPSC 478a, Computer Graphics Theodore Kim

Introduction to the basic concepts of two- and three-dimensional computer graphics. Topics include affine and projective transformations, clipping and windowing, visual perception, scene modeling and animation, algorithms for visible surface determination, reflection models, illumination algorithms, and color theory. Prerequisite: CPSC 202 and 223. QR

CPSC 483a, Deep Learning on Graph-Structured Data Rex Ying

Graph structure emerges in many important domain applications, including but not limited to computer vision, natural sciences, social networks, languages, and knowledge graphs. This course offers an introduction to deep learning algorithms applied to such graph-structured data. The first part of the course is an introduction to representation learning for graphs and covers common techniques in the field, including distributed node embeddings, graph neural networks, deep graph generative models, and non-Euclidean embeddings. The first part also touches upon topics of real-world significance, including auto-ML and explainability for graph learning. The second part of the course covers important applications of graph machine learning. We learn ways to model data as graphs and apply graph learning techniques to problems in domains including online recommender systems, knowledge graphs, biological networks, physical simulations, and graph mining. The course covers many deep techniques (graph neural networks, graph deep generative models) catered to graph structures. We will cover basic deep learning tutorials in this course. Prerequisites: CPSC 201, CPSC 223, and either CPSC 365 or CPSC 366. Knowledge of graphs as a data structure and understanding of basic graph algorithms are essential for applying machine learning to graph-structured data. Familiarity with Python and important libraries such as Numpy and Pandas are helpful. CPSC 452 and CPSC 453 are highly recommended prior because they cover the foundations of deep neural networks.

Experience in machine-learning courses such as CPSC 481, and graph theory courses such as CPSC 462 are welcomed as well. QR

*** CPSC 490a, Senior Project** Sohee Park

Individual research intended to fulfill the senior requirement. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project.

Computer Science and Economics (CSEC)

CSEC 491a, Senior Project Philipp Strack

This one-term independent-project course explicitly combines both techniques and subject matter from computer science and economics. A project proposal must be approved by the DUS and project adviser by the end of the third week of the term in which the student is enrolled.

Computing and the Arts (CPAR)

Czech (CZEC)

CZEC 110a, Elementary Czech I Staff

This course aims to develop basic proficiency in understanding, reading, speaking and writing the Czech language. Through work with a textbook, workbook, audio files and a broad range of authentic printed and online Czech language materials, students should develop mastery of the most essential vocabulary and grammatical structures necessary for basic communication in Czech and for laying a solid foundation for further study of the language. L1 RP 1½ Course cr

CZEC 120b, Elementary Czech II Staff

Continuation of CZEC 110. This course aims to expand basic proficiency in understanding, reading, speaking, and writing the Czech language. The course works through a selection of dialogues, texts, and exercises to develop mastery of the most essential idiomatic vocabulary and grammatical structures necessary for basic communication in Czech and for laying a solid foundation for further study of the language. Prerequisite: CZEC 110 or equivalent. L2 RP 1½ Course cr

CZEC 130a, Intermediate Czech I Staff

This course aims to develop intermediate proficiency in understanding, reading, speaking, and writing the Czech language. Through work with a textbook, workbook, audio files, and a broad range of authentic printed and online Czech language materials, students build their active vocabulary and improve their control of Czech grammar and syntax so they can communicate effectively on a broad range of general topics. Prerequisite: CZEC 120, or equivalent. L3 RP 1½ Course cr

CZEC 140b, Intermediate Czech II Staff

This course aims to expand basic proficiency in understanding, reading, speaking, and writing the Czech language. The course works through a selection of dialogues, texts, and exercises to develop mastery of the most essential idiomatic vocabulary and grammatical structures necessary for basic communication in Czech and for laying a solid foundation for further study of the language. Prerequisite: CZEC 130 or equivalent. L4 RP 1½ Course cr

The DeVane Lecture Course (DEVN)

See Yale Course Search for DEVN 200, *Can It Happen Again? Yale, Slavery, the Civil War, and Their Legacies*, taught by Professor David Blight.

Directed Studies (DRST)

Dutch (DUTC)

* DUTC 110a, Elementary Dutch I Staff

The basic grammar of Dutch. Intensive practice in listening, speaking, reading, and writing in everyday contexts. Introduction to the society and culture of the Netherlands and Flanders (Belgium). Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

* DUTC 120b, Elementary Dutch II Staff

Continuation of DUTC 110, with a focus on improving the four language skills. Further study of Dutch grammar and vocabulary through a variety of media, including television and radio. The society, culture, and habits of Dutch-speaking peoples in the Netherlands and Belgium. Prerequisite: DUTC 110 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L2 RP 1½ Course cr

* DUTC 130a, Intermediate Dutch I Staff

Continued development of reading, writing, and speaking proficiency in Dutch. Students review and improve grammar skills, expand their vocabulary, read newspaper articles, and watch and listen to Dutch newscasts. Prerequisite: DUTC 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

DUTC 140b, Intermediate Dutch II Staff

Use of authentic Dutch texts to expand proficiency in the language and familiarity with the culture. Focus on Dutch cultural themes that reflect students' interests and fields of study. Readings include a novel and news articles on current events. Prerequisite: DUTC 130. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

* DUTC 150a, Advanced Dutch Staff

Continuation of DUTC 140. Focus on improvement of grammatical knowledge; proficiency in reading, writing, and speaking Dutch; and cultural insight and knowledge of Amsterdam and the Netherlands. Prerequisite: DUTC 140 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L5

*** DUTC 160b, Advanced Dutch II** Staff

Continuation of DUTC 150. Focus on improvement of grammatical knowledge; proficiency in reading, writing, and speaking Dutch; and cultural insight and knowledge of Amsterdam and the Netherlands. Prerequisite: DUTC 150 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should email minjin.hashbat@yale.edu for more information. L5

Earth and Planetary Sciences (EPS)

EPS 100a, Natural Disasters Maureen Long

Natural events and their impact on humanity and the built environment. Earthquakes, volcanoes, tsunamis, landslides, coastal flooding, tornadoes, hurricanes, and meteoritic impacts. Hazard mitigation strategies. Consequences of global warming. SC

*** EPS 102b, Understanding Climate Change Solutions** Matthew Eisaman

This seminar explores the scientific, technological, economic, and social aspects of potential solutions to global climate change. We briefly survey the full range of possible solutions, including emissions reduction, mitigation, and adaptation but focus on understanding mitigation approaches such as carbon dioxide removal at a deeper level. We explore the scientific underpinnings, technological and societal challenges, economics, potential risks and co-benefits, and commercialization pathways of various climate change mitigation solutions. In addition, we quantify the enormous scale required to meaningfully address climate change and place this effort into historical context. SC

*** EPS 105b / APHY 100b / ENAS 100b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC RP

EPS 110a, Dynamic Earth David Evans

An introduction to the Earth as a planetary system, from its atmosphere to its core; and how the constantly changing surface environment controls both the foundation and fate of industrial society. Topics include planetary structure; plate tectonics, earthquakes and volcanoes; minerals, rocks and soils; evolution of landscapes; hydrology and floods; coasts and oceans; climate and weather; Earth history and biological evolution; humanity's economic dependence on natural resources; and human influences on the natural environment. SC

EPS 111Lb, Dynamic Earth Laboratory and Field Methods David Evans

Practical exercises in the laboratory and in the field to complement EPS 110 or 115. Identification of minerals and rocks; construction of geologic maps and cross sections to determine Earth-system processes and histories. Includes a field trip to the northern Appalachians during the October recess. To be taken after or concurrently with EPS 110, or after EPS 115. SC ½ Course cr

*** EPS 125b / E&EB 125b, History of Life** Derek Briggs

Examination of fossil and geologic evidence pertaining to the origin, evolution, and history of life on Earth. Emphasis on major events in the history of life, on what the

fossil record reveals about the evolutionary process, on the diversity of ancient and living organisms, and on the evolutionary impact of Earth's changing environment. SC

EPS 126Lb, Laboratory for the History of Life Derek Briggs

A survey of the diversification of life using suites of fossils and related modern organisms drawn from critical evolutionary stages. Emphasis on direct observation and description of specimens, the solution of problems posed by the instructor, and the generation and testing of hypotheses by the students. To be taken concurrently with or following EPS 125. SC ½ Course cr

EPS 140b, Atmosphere, Ocean, and Climate Change Juan Lora

Physical processes that control Earth's atmosphere, ocean, and climate. Quantitative methods for constructing energy and water budgets. Topics include clouds, rain, severe storms, regional climate, the ozone layer, air pollution, ocean currents and productivity, the seasons, El Niño, the history of Earth's climate, global warming, energy, and water resources. QR, SC

EPS 210b, The Geology of North America through its National Parks Alan Rooney

The *Geology of North America* (a.k.a. Parks & Plates) serves as a bridge between the introductory level courses and the more focused upper-level classes taught in the G&G department. While drawing on a traditional tectonics curriculum this course also integrates geomorphology, landscape evolution, and current environmental issues to investigate how geologic processes have shaped and continue to alter the world around us. This course is for those students interested in pursuing their major in the Geology and Geophysics department. Furthermore, with the integrated geology and environmental focus we hope that this course provides a fundamental scientific knowledge to engage students interested in pursuing the intersection of environmental policy, science, and natural resources. In addition to providing an essential scientific background to students regardless of their path, this course aims to teach skills in scientific literacy and introduce students to different career paths within the Earth sciences via interactions with professionals working in the National Parks System, at national laboratories, and in environmental/conservation law. Prerequisites: EPS 110 and/or permission of instructor. SC

*** EPS 212b, Global Tectonics** Mark Brandon

The course provides an overview of the theory of plate tectonics, which accounts for the long-term evolution of the rigid exterior of the earth, and the formation and distribution of oceans, continents, mountain belts, volcanoes, and earthquakes at the earth's surface. The course emphasizes the interdisciplinary approaches used to study the interactions between the mantle, crust, hydrosphere, atmosphere, and biosphere. EPS 110 Dynamic Earth is recommended (but not required) as a prerequisite. SC

*** EPS 216b, Global Warming: Climate Physics** John Wettlaufer

Lectures on the basics of global warming and presentations and discussions of some of the classic papers that combined have led to our current understanding of global warming. The knowns and the unknowns of global warming; the paper trail of cutting-edge climate science through time, from the late 1800s to the present. Recommended preparation: basic calculus and physics. SC

EPS 220b, Mineralogy Jay Ague

Study of the structures, chemistry, and physical properties of minerals, including common rock-forming minerals found in sedimentary, metamorphic, and igneous

rocks, as well as rare and valuable minerals such as precious metals and gemstones. Recommended preparation: introductory chemistry. SC

*** EPS 222b, Origin of Everything** David Bercovici

Study of major scientific origin hypotheses, including the origin of the universe, galaxies, the solar system and planets, continents, oceans, atmospheres, magnetic fields, and mono- and multicellular life. Climatic and geographical perspectives on the origin of civilizations and human history. SC

EPS 255b / EVST 265b, Environmental Geomicrobiology Ruth Blake

Microbial diversity in natural geologic habitats and the role of microorganisms in major biogeochemical cycles. Introduction to prokaryote physiology and metabolic diversity; enrichment culture and molecular methods in geomicrobiology. Prerequisite: college-level chemistry. SC

*** EPS 261a / EVST 261a, Minerals and Human Health** Ruth Blake

Study of the interrelationships between Earth materials and processes and personal and public health. The transposition from the environment of the chemical elements essential for life. Prerequisite: one year of college-level chemistry or with permission of instructor; EPS 110 recommended. SC

EPS 274a, Fossil Fuels and World Energy Michael Oristaglio

The origins, geologic settings, exploration, distribution, and extraction of coal, oil, and natural gas as finite Earth resources. The role of fossil fuels in the world's energy systems; environmental impacts of fossil fuels, including climate change; the transition to low-carbon energy sources. Prerequisites: high school chemistry, mathematics, and Earth science. Recommended preparation: G&G 110 or 205. SC

*** EPS 275b, Renewable Energy** Michael Oristaglio

Introduction to renewable energy, including physical principles, existing and emerging technologies, and interaction with the environment. Energy demand; transmission and storage; generation by hydroelectric, wind, solar, biofuel, and geothermal sources, as well as waves and tidal generation. Includes field trips to conventional, hydroelectric, and wind power facilities in Connecticut. Prerequisites: high school physics, chemistry, and mathematics; college-level science, engineering, and mathematics recommended. SC

EPS 310a, Isotope Geochemistry Alan Rooney and Jordan Wostbrock

An overview of the fundamental principles of stable and radiogenic isotope geochemistry. Emphasis is placed on applications of such systems to the evolution of the planet and life on Earth. Specific topics include marine geochemistry, geochronology, and biogeochemistry. Prerequisites: CHEM 115, MATH 120, and PHYS 171 or equivalents, or with permission of instructor. QR, SC

EPS 312a, Structural Geology Mark Brandon

An introduction to the origin and structure of the lithosphere and continental and oceanic crust. Topics include what controls the solid versus fluid behavior of rocks during deformation and what controls the character and motion of tectonic plates. Laboratory exercises and field trips. QR, SC

EPS 325a, Vertebrate Paleontology Jacques Gauthier

Phylogeny and evolution of the major clades of vertebrates from Cambrian to Recent, as inferred mainly from the fossilized remains of the musculoskeletal system (cranial,

axial, and appendicular skeletons). Special attention given to the evolution of vertebrate feeding, locomotor, and sensory systems. Prerequisite: E&EB 225, or with permission of instructor. SC 1½ Course cr

EPS 335a, Physical Oceanography Alexey Fedorov

An introduction to ocean dynamics and physical processes controlling large-scale ocean circulation, the Gulf Stream, wind-driven waves, tsunamis, tides, coastal upwelling, and other phenomena. Modern observational, theoretical, and numerical techniques used to study the ocean. The ocean's role in climate and global climate change. Prerequisites: PHYS 181 and MATH 120 or equivalents, or with permission of instructor. QR, SC

EPS 350a, Rock Formation in Mountain Belts Jay Ague

The fundamental principles governing the formation of metamorphic and igneous rocks during mountain building. Topics include processes of heat and mass transfer in orogenic belts, generation of igneous rocks in continental and subduction settings, ultrahigh pressure and ultrahigh temperature metamorphism, spatial and temporal patterns of petrologic processes throughout geologic time, and pressure-temperature-time paths of metamorphic and igneous rocks. Prerequisites: EPS 220 and introductory college-level calculus and chemistry, or with permission of instructor. SC 0 Course cr

EPS 355a, Extraordinary Glimpses of Past Life Derek Briggs

Study of exceptionally well-preserved fossil deposits (*lagerstaetten*) that contain nonmineralized animal skeletons and casts of the soft parts of organisms. Examples such as the Burgess Shale and Solnhofen limestones, what they can reveal about the history and evolution of life, ancient lifestyles and environments, and preservational processes. SC

*** EPS 362b / ARCG 362b / EVST 362b, Observing Earth from Space** Xuhui Lee

A practical introduction to satellite image analysis of Earth's surface. Topics include the spectrum of electromagnetic radiation, satellite-borne radiometers, data transmission and storage, computer image analysis, the merging of satellite imagery with GIS and applications to weather and climate, oceanography, surficial geology, ecology and epidemiology, forestry, agriculture, archaeology, and watershed management. Prerequisites: college-level physics or chemistry, two courses in geology and natural science of the environment or equivalents, and computer literacy. QR, SC 0 Course cr

EPS 375b, Evolution of Lizards Jacques Gauthier

Comprehensive review of the phylogeny, morphology, biogeography, behavior, fossil record, and evolution of lizards (aka Squamata), the most diverse clade (11,182 species) of land egg-laying vertebrates. Prerequisites: BIOL 104, EPS 125, EPS 270, or permission of the instructor. SC 1½ Course cr

EPS 450a, Deformation of Earth Materials Shun-ichiro Karato

Basic physics and chemistry of Earth materials, with emphasis on kinetic and transport properties. Geochemical and geophysical processes in Earth's crust and mantle and their influence on the dynamics and evolution of this planet. Topics include plastic flow, diffusion, electrical conductivity, and chemical reaction. Prerequisites: CHEM 115, MATH 120, and PHYS 181, or equivalents. QR, SC

*** EPS 487a or b, Individual Study in Earth and Planetary Sciences** Pincelli Hull

Individual study for qualified undergraduates under faculty supervision. To register for this course, each student must submit a written plan of study, approved by the

adviser, to the director of undergraduate studies. May be taken more than once for credit. ½ Course cr

*** EPS 488a and EPS 489b, Research in Earth and Planetary Sciences** Pincelli Hull
Individual study for qualified juniors and seniors under faculty supervision. To register for this course, each student must submit a written plan of study, approved by the adviser, to the director of undergraduate studies.

*** EPS 490a or b and EPS 491a or b, Research and Senior Thesis** Pincelli Hull
Two terms of independent library, laboratory, field, or modeling-based research under faculty supervision. To register for this course, each student must submit a written plan of study, approved by a faculty adviser, to the director of undergraduate studies by the start of the senior year. The plan requires approval of the full EPS faculty.

*** EPS 492a or b, The Senior Essay** Pincelli Hull
One term of independent library, laboratory, field, or modeling-based research under faculty supervision. To register for this course, each student must submit a written plan of study, approved by a faculty adviser, to the director of undergraduate studies at the beginning of the term in which the essay is to be written.

East Asian Languages and Literatures (EALL)

*** EALL 025a / RUSS 025a, Russian and Chinese Science Fiction** Jinyi Chu
What can we learn about Russian and Chinese cultures through their fantasies? How do Russian and Chinese writers and filmmakers respond to the global issues of animal ethics, artificial intelligence, space immigration, surveillance, gender and sexuality? How are Russian and Chinese visions of the future different from and similar to the western ones? This course explores these questions by examining twentieth and twenty-first-century Russian and Chinese science fictions in their cultural, historical, and philosophical contexts. All readings and discussion in English. Sci-fi authors and translators will be invited to give guest lectures. Enrollment limited to first-year students. HU

*** EALL 150a / CLCV 121a / EAST 307a / PHIL 100a, Writing Philosophy: Weakness of Will in Ancient China, Greece, and Today** James Brown-Kinsella
“Grant me chastity and strength of will—but not yet!” In this infamous prayer, Augustine wrestles with a perennial problem for human agency: the apparent gap between knowing that we should do something and actually wanting to do it. How wide is the gap? How can we bridge it? How pervasive is the problem? This course introduces first-year students to writing in the discipline of philosophy by tracing the contours of these questions and exploring their answers in ancient China, ancient Greece, and modern analytic philosophy. We begin by considering the traditional account of weakness of will as *akrasia* (i.e., doing what one knows one shouldn’t do) and explaining how such a gap in our agency is or isn’t possible. Next, we consider an alternative account, that of *acedia* (i.e., not doing what one knows one should do), and assess strategies for helping an agent bridge this kind of gap. Finally, we reassess the phenomenon of weakness of will in light of arguments that position it in a broader context, approach it from a new perspective, or try to rewrite our understanding of the phenomenon altogether. WR, HU

EALL 200a / CHNS 200a / EAST 240a / HUMS 270a, The Chinese Tradition Staff
An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close

study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

*** EALL 221a / RLST 486a, Introduction to Chinese Buddhist Literature** Eric Greene

This class is an introduction to Chinese Buddhist literature. Although written in classical Chinese, Buddhist texts in China were written in a particular idiom that was much influenced by the Indian languages and which can be difficult to understand without special training. This class introduces students who already have some reading ability in literary Chinese to this idiom and the tools and background knowledge needed to read and understand Chinese Buddhist literature. We read a series of selections of some of the most influential Chinese Buddhist texts from various genres including canonical scriptures, apocryphal scriptures, monastic law, doctrinal treatises, and hagiography. Secondary readings introduce the basic ideas of Indian and Chinese Buddhist thought to the extent necessary for understanding our readings. Prerequisite: CHNS 171 (Literary Chinese II) or equivalent, or permission of the instructor. Students of Japanese or Korean literature who can read basic *kanbun* or *gugyeol* are also welcome to enroll; no knowledge of modern, spoken Chinese is required. HU

*** EALL 225b / EAST 429b, A Culinary History of China** Staff

Food is a central aspect of a culture, and culinary traditions often become tokens of identity. There are complex historical and social factors behind culinary choices. The Chili peppers now widely used in Chinese cooking were introduced in the region only in the 16th century. What socio-economic changes made this new spice so prevalent in Chinese cuisine so quickly? This seminar uses food as a lens to study major developments in Chinese history. We will think of food particularly in three ways; as a material actor, whose presence or absence affected historical events; as a metaphor, used by intellectuals to discuss proper government and other political topics; as a cultural mediator to shape identities in the social imaginary. HU TR

*** EALL 234a / EAST 410a, Japanese Detective Fiction** Luciana Sanga

This class offers an overview of modern Japanese literature with a focus on detective fiction. Through detective fiction we can examine key concepts in literature such as narrative voice, point of view, genre, modernism and postmodernism, and learn about debates in Japanese literature, the distinction between highbrow and popular fiction, and the relation between Japanese literature and translated fiction. Detective fiction also allows for the exploration of key issues in Japanese history and society such as consumerism, colonialism, class, gender, and sexuality. Readings include a wide range of texts by canonical and popular writers, as well as theoretical texts on genre and detective fiction. All texts are available in English and no prior knowledge of Japanese or Japan is needed. HU

*** EALL 238b / EAST 394b / RLST 327b, Buddhist Monastic Experience** Hwansoo Kim

Is monastic life relevant in contemporary society, where religion is increasingly considered less significant in our secular lives? Can we find valuable aspects of a monastic lifestyle that can be integrated into our daily lives? If so, what are these aspects, and how can we incorporate them? This seminar represents a collaborative effort to gain insight into one of the major monastic traditions: Buddhist monasticism.

Throughout this seminar, we delve into various facets of Buddhist monastic life, examining its origins, historical development, monastic identity, rules and regulations, practices, and the dynamics between monastics and the laity. We also explore the tensions that often arise between the ideals of monasticism and the realities it faces in today's world. As part of this exploration, we embark on an eight-week monastic life project, during which students create their own set of daily rules (precepts), adhere to these rules, engage in meditation and other relevant practices, and establish a regular communal gathering with fellow students. HU

*** EALL 269a, Topics in Modern Korean Literature** Kyunghee Eo

In this course, students read key works of Korean literature in English translation from the early twentieth century to the present day. The specific course topic varies by semester. Primary sources include long-form novels, short stories, poetry, and nonfiction writing by representative authors, as well as literary scholarship on themes and historical context relevant to the materials. The readings in this course are arranged in roughly chronological order, requiring us to examine Korea's colonial modernization process in the first half of the twentieth century, the authoritarian regimes of South Korea from 1948 to 87, and South Korea's integration into the neoliberal world order after democratization. Supplementary audio-visual materials such as artwork, video clips, and music may be presented to students in class. All class materials are in English translation, and no previous knowledge of Korean language is required. HU

*** EALL 271b / FILM 448b, Japanese Cinema after 1960** Aaron Gerow

The development of Japanese cinema after the breakdown of the studio system, through the revival of the late 1990s, and to the present. No knowledge of Japanese required.

HU TR

*** EALL 277b / EAST 424b / MUSI 148b, Music In Flux: Blendings, Exchanges, and Cultural Significances** Staff

This course examines how music is transmitted by various factors and how its styles and meanings can change in a new context. Through various scholarly approaches, this class aims to enhance your understanding of the mobility of music and its meanings. We will examine the processes and conditions in which music is exchanged and blended and consider how such "mashups" function as cultural indicators and symbols for emergent and migrant communities. We will also examine the impact of technology on musical globalization, localization, and glocalization. In doing so, this class explores issues of identity, representation, authenticity, tradition, nationalism, and transnationalism. By examining music in- or as-culture, students will understand some of the political, cultural, and social aspects of music, as well as the contextual meanings of musical practices. The class will utilize audio/video sources, incorporate discussions based on academic articles and chapters, and require student analysis that connects music to its context. While this class focuses mainly on music from East Asian countries, we will also examine case studies from others around the world. No background in music or prior knowledge of East Asia is required. HU

*** EALL 280a / EAST 260a / FILM 307a, East Asian Martial Arts Film** Staff

The martial arts film has not only been a central genre for many East Asian cinemas, it has been the cinematic form that has most defined those cinemas for others. Domestically, martial arts films have served to promote the nation, while on the international arena, they have been one of the primary conduits of transnational cinematic interaction, as kung-fu or samurai films have influenced films inside and

outside East Asia, from *The Matrix* to *Kill Bill*. Martial arts cinema has become a crucial means for thinking through such issues as nation, ethnicity, history, East vs. West, the body, gender, sexuality, stardom, industry, spirituality, philosophy, and mediality, from modernity to postmodernity. It is thus not surprising that martial arts films have also attracted some of the world's best filmmakers, ranging from Kurosawa Akira to Wong Kar Wai. This course focuses on films from Japan, China, Hong Kong, Taiwan, and South Korea—as well as on works from other countries influenced by them—covering such martial arts genres such as the samurai film, kung-fu, karate, wuxia, and related historical epics. It provides a historical survey of each nation and genre, while connecting them to other genres, countries, and media. HU TR o Course cr

*** EALL 288a / EAST 316a / LITR 303a / RSEE 316a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today's America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU

*** EALL 300a / EAST 340a, Sinological Methods** Pauline Lin

A research course in Chinese studies, designed for students with background in modern and literary Chinese. Explore and evaluate the wealth of primary sources and research tools available in China and in the West. For native speakers of Chinese, introduction to the secondary literature in English and instruction in writing professionally in English on topics about China. Topics include Chinese bibliographies; bibliophiles' notes; specialized dictionaries; maps and geographical gazetteers; textual editions, variations and reliability of texts; genealogies and biographical sources; archaeological and visual materials; and major Chinese encyclopedias, compendia, and databases. Prerequisite: CHNS 171 or equivalent. Formerly CHNS 202. HU

*** EALL 319b, The Vernacular Short Story in Early Modern China** Tina Lu

Introduction to the literary genre *huaben*, or the vernacular short story. Seventeenth century texts, written in a version of spoken Chinese, provide an unparalleled view of life in early modern China. Discussions of book culture, commercial publication, and the social role of the vernacular. ability to read modern Chinese (L5). HU

*** EALL 351a, Advanced Readings in Modern Chinese Literature** Jing Tsu

An introduction to literary criticism and history using texts in the original language. Fiction and nonfiction written in Chinese in different parts of the world, with a focus on the period from the nineteenth century to the present. Readings in Chinese; texts in both simplified and traditional characters. After CHNS 163, 164, 165, or equivalent. HU

*** EALL 470a or b and EALL 471a or b, Independent Tutorial** Staff

For students with advanced Chinese, Japanese, or Korean language skills who wish to engage in concentrated reading and research on literary works in a manner not otherwise offered in courses. The work must be supervised by a specialist and must terminate in a term paper or its equivalent. Ordinarily only one term may be offered toward the major or for credit toward the degree. Permission to enroll requires submission of a detailed project proposal by the end of the first week of classes and its approval by the director of undergraduate studies.

*** EALL 491a or b, Senior Essay** Staff

Preparation of a one-term senior essay under faculty supervision.

*** EALL 492a or b and EALL 493a or b, Yearlong Senior Essay** Staff

Preparation of a two-term senior essay under faculty supervision. Credit for EALL 492 only on completion of EALL 493.

East Asian Studies (EAST)

*** EAST 016b / HSAR 016b, Chinese Painting and Culture** Quincy Ngan

This course focuses on important works of Chinese painting and major painters from the fourth century CE to the twentieth century. Through close readings of the pictorial contents and production contexts of such works of art, this course investigates the works' formats, meanings, and innovations from social, historical, and art-historical perspectives. In this course, students become familiar with the traditional Chinese world and acquire the knowledge necessary to be an informed viewer of Chinese painting. Discussions of religion, folkloric beliefs, literature, relationships between men and women, the worship of mountains, the laments of scholars, and the tastes of emperors and wealthy merchants also allow students to understand the cultural roots of contemporary China. Enrollment limited to first-year students. HU

EAST 119a / HSAR 210a, Asian Art and Culture Staff

This introductory course explores the art of India, China, Japan, and Korea from prehistory to the present. We consider major works and monuments from all four regions. Themes include the representation of nature and the body, the intersection of art with spirituality and politics, and everything from elite to consumer culture. All students welcome, including those who have no previous experience with either art history or the study of Asian art. This class makes frequent visits to Yale University Art Gallery. HU o Course cr

EAST 220a / HIST 321a, China from Present to Past Staff

Underlying causes of current issues facing China traced back to their origins in the premodern period. Topics include economic development, corruption, environmental crises, gender, and Pacific island disputes. Selected primary-source readings in English, images, videos, and Web resources. Preference given to first years and sophomores. WR, HU o Course cr

EAST 240a / CHNS 200a / EALL 200a / HUMS 270a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL

200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU o Course cr

*** EAST 260a / EALL 280a / FILM 307a, East Asian Martial Arts Film** Staff

The martial arts film has not only been a central genre for many East Asian cinemas, it has been the cinematic form that has most defined those cinemas for others. Domestically, martial arts films have served to promote the nation, while on the international arena, they have been one of the primary conduits of transnational cinematic interaction, as kung-fu or samurai films have influenced films inside and outside East Asia, from *The Matrix* to *Kill Bill*. Martial arts cinema has become a crucial means for thinking through such issues as nation, ethnicity, history, East vs. West, the body, gender, sexuality, stardom, industry, spirituality, philosophy, and mediality, from modernity to postmodernity. It is thus not surprising that martial arts films have also attracted some of the world's best filmmakers, ranging from Kurosawa Akira to Wong Kar Wai. This course focuses on films from Japan, China, Hong Kong, Taiwan, and South Korea—as well as on works from other countries influenced by them—covering such martial arts genres such as the samurai film, kung-fu, karate, wuxia, and related historical epics. It provides a historical survey of each nation and genre, while connecting them to other genres, countries, and media. HU o Course cr

*** EAST 307a / CLCV 121a / EALL 150a / PHIL 100a, Writing Philosophy: Weakness of Will in Ancient China, Greece, and Today** James Brown-Kinsella

“Grant me chastity and strength of will—but not yet!” In this infamous prayer, Augustine wrestles with a perennial problem for human agency: the apparent gap between knowing that we should do something and actually wanting to do it. How wide is the gap? How can we bridge it? How pervasive is the problem? This course introduces first-year students to writing in the discipline of philosophy by tracing the contours of these questions and exploring their answers in ancient China, ancient Greece, and modern analytic philosophy. We begin by considering the traditional account of weakness of will as *akrasia* (i.e., doing what one knows one shouldn't do) and explaining how such a gap in our agency is or isn't possible. Next, we consider an alternative account, that of *acedia* (i.e., not doing what one knows one should do), and assess strategies for helping an agent bridge this kind of gap. Finally, we reassess the phenomenon of weakness of will in light of arguments that position it in a broader context, approach it from a new perspective, or try to rewrite our understanding of the phenomenon altogether. WR, HU

EAST 308b / HIST 304b, The History of Modern China, 1911–2025 Staff

An introduction to modern Chinese history spanning from the fall of the Qing Empire to the present. Examines the factors that led to the end of China's dynastic system, the political and social divisions that emerged after the Qing Dynasty's collapse, and the various alternative visions for China's future that have arisen from the late nineteenth century onward. Focuses on aspects of political, economic, and social history. HU o Course cr

EAST 310a / GLBL 309a / PLSC 357a, The Rise of China Staff

Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy. SO o Course cr

*** EAST 313a / ANTH 213a, Contemporary Japan and the Ghosts of Modernity**

Yukiko Koga

This course introduces students to contemporary Japan, examining how its defeat in the Second World War and loss of empire in 1945 continue to shape Japanese culture and society. Looking especially at the sphere of cultural production, it focuses on the question of what it means to be modern as expressed through the tension between resurgent neonationalism and the aspiration to internationalize. The course charts how the legacy of Japan's imperial failure plays a significant role in its search for renewal and identity since 1945. How, it asks, does the experience of catastrophic failure—and failure to account for that failure—play into continued aspirations for modernity today? How does Japanese society wrestle with modernity's two faces: its promise for progress and its history of catastrophic violence? The course follows the trajectory of Japan's postwar nation-state development after the dissolution of empire, from its resurrection out of the ashes after defeat, to its identity as a US ally and economic superpower during the Cold War, to decades of recession since the 1990s and the search for new relations with its neighbors and new reckonings with its own imperial violence and postwar inactions against the background of rising neonationalism. HU, SO

*** EAST 316a / EALL 288a / LITR 303a / RSEE 316a / RUSS 316a, Socialist '80s:****Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today's America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

*** EAST 324a / ANTH 324a / ANTH 824a, Politics of Memory** Yukiko Koga

This course explores the role of memory as a social, cultural, and political force in contemporary society. How societies remember difficult pasts has become a contested site for negotiating the present. Through the lens of memory, we examine complex roles that our relationships to difficult pasts play in navigating issues we face today. This course explores this politics of memory that takes place in the realm of popular culture and public space. The class asks such questions as: How do you represent difficult and contested pasts? What does it mean to enable long-silenced victims' voices to be heard? What are the consequences of re-narrating the past by highlighting past injuries and trauma? Does memory work heal or open wounds of a society and a nation? Through examples drawn from the Holocaust, the atomic bombing in Hiroshima, the Vietnam War, genocide in Indonesia and massacres in Lebanon, to debates on confederacy statues, slavery, and lynching in the US, this course approaches these questions through an anthropological exploration of concepts such as memory, trauma, mourning, silence, voice, testimony, and victimhood. HU, SO

*** EAST 326b / HIST 326Jb, Yale and Japan** Daniel Botsman

Exploration of Yale's rich historical connections to Japan. Focus on use of the University's museum and library collections to learn about various aspects of the Japanese past, from ancient times to the post-World War II era. Knowledge of Japanese helpful but not required. WR, HU

*** EAST 340a / EALL 300a, Sinological Methods** Pauline Lin

A research course in Chinese studies, designed for students with background in modern and literary Chinese. Explore and evaluate the wealth of primary sources and research tools available in China and in the West. For native speakers of Chinese, introduction to the secondary literature in English and instruction in writing professionally in English on topics about China. Topics include Chinese bibliographies; bibliophiles' notes; specialized dictionaries; maps and geographical gazetteers; textual editions, variations and reliability of texts; genealogies and biographical sources; archaeological and visual materials; and major Chinese encyclopedias, compendia, and databases. Prerequisite: CHNS 171 or equivalent. Formerly CHNS 202. HU

*** EAST 346a / ANTH 342a, Cultures and Markets in Asia** Helen Siu

Historical and contemporary movements of people, goods, and cultural meanings that have defined Asia as a region. Reexamination of state-centered conceptualizations of Asia and of established boundaries in regional studies. The intersections of transregional institutions and local societies and their effects on trading empires, religious traditions, colonial encounters, and cultural fusion. Finance flows that connect East Asia and the Indian Ocean to the Middle East and Africa. The cultures of capital and market in the neoliberal and postsocialist world. SO

*** EAST 390a / RLST 102a, Atheism and Buddhism** Hwansoo Kim

A critical examination of atheism and religions (Buddhism), with a focus on intellectual, religious, philosophical, and scientific debates about God, the origin of the universe, morality, evolution, neuroscience, happiness, enlightenment, the afterlife, and karma. Readings selected from philosophical, scientific, and religious writings. Authors include some of the following: Charles Darwin, Bertrand Russell, Christopher Hitchens, Richard Dawkins, Deepak Chopra, Sam Harris, Owen Flanagan, Stephen Batchelor, and the Dalai Lama. HU

*** EAST 394b / EALL 238b / RLST 327b, Buddhist Monastic Experience** Hwansoo Kim

Is monastic life relevant in contemporary society, where religion is increasingly considered less significant in our secular lives? Can we find valuable aspects of a monastic lifestyle that can be integrated into our daily lives? If so, what are these aspects, and how can we incorporate them? This seminar represents a collaborative effort to gain insight into one of the major monastic traditions: Buddhist monasticism. Throughout this seminar, we delve into various facets of Buddhist monastic life, examining its origins, historical development, monastic identity, rules and regulations, practices, and the dynamics between monastics and the laity. We also explore the tensions that often arise between the ideals of monasticism and the realities it faces in today's world. As part of this exploration, we embark on an eight-week monastic life project, during which students create their own set of daily rules (precepts), adhere to these rules, engage in meditation and other relevant practices, and establish a regular communal gathering with fellow students. HU

*** EAST 407b / HIST 312b, Modern China's Borderlands** Staff

News headlines and geopolitical debates alike focus on China's policies towards Taiwan, Tibet, Xinjiang, and other areas on its periphery. But how did these areas come to be regarded as borderlands in the first place? Why does the government of the People's Republic of China see these areas as core to its national interests? How does PRC policy continue or break away from the precedents set by the Qing Empire and the Republic of China? This seminar course explores these questions. Throughout the semester, students engage with a variety of primary and secondary sources as they produce a major research paper on a related topic of their choosing. HU

*** EAST 410a / EALL 234a, Japanese Detective Fiction** Luciana Sanga

This class offers an overview of modern Japanese literature with a focus on detective fiction. Through detective fiction we can examine key concepts in literature such as narrative voice, point of view, genre, modernism and postmodernism, and learn about debates in Japanese literature, the distinction between highbrow and popular fiction, and the relation between Japanese literature and translated fiction. Detective fiction also allows for the exploration of key issues in Japanese history and society such as consumerism, colonialism, class, gender, and sexuality. Readings include a wide range of texts by canonical and popular writers, as well as theoretical texts on genre and detective fiction. All texts are available in English and no prior knowledge of Japanese or Japan is needed. HU

*** EAST 417b / ANTH 414b, Hubs, Mobilities, and World Cities** Helen Siu

Analysis of urban life in historical and contemporary societies. Topics include capitalist and postmodern transformations; class, gender, ethnicity, and migration; and global landscapes of power and citizenship. SO RP o Course cr

*** EAST 420a / RLST 229a, Buddhist Ethics** Meghan Howard

This course explores ethical action in a range of Buddhist traditions, with an emphasis on Mahayana Buddhism in India and Tibet. Rather than starting with the categories of Western philosophy, we seek to develop an account that emerges from Buddhist sources. We begin by establishing a working model of karmic acts—describing the status of agents and patients, the mechanics of karma, and the cosmological and soteriological contexts for action. We then examine the paradigmatic ethical act of giving as embodied by two great virtuous exemplars: the Buddha (archetypal renunciate) and Vessantara (archetypal layman). From there, we turn to case studies of ethical cultivation and negotiation in three realms of Buddhist practice: the Vinaya precepts governing monastic life, the altruism and skillful means of bodhisattvas, and the antinomian ethics of Buddhist tantra. The course concludes with a reflection on the intersection of aesthetics and morality in Buddhist thought. HU

*** EAST 421a / ANTH 421a, Introduction to Remote Ethnography: The Xinjiang Crisis**
Staff

Methods such as participant observation, interviews, surveys, and ethnography are based on the assumption of access to a field. This course looks at whether and how one can understand a society if access is restricted and dangerous for local participants. We study the cluster of concepts known as “remote ethnography”—studying on-the-ground conditions from a distance—through the case of Xinjiang, China. It looks critically at methods used by journalists, social scientists, governments, corporations and others in situations where access is not possible, including open-source research, close reading of official texts, social media analysis, digital survey techniques, remote

imaging, and diaspora interviews. In particular, we ask if these can be done without detailed knowledge of local context, culture and history, and study how these sources relate to recent ethnographic knowledge about people's lives in rural southern Xinjiang. Students become familiar with the main concepts of remote ethnography and acquire basic tools for their own research. By the end of the semester, they also prepare to critically assess the methods used by anthropologists, social scientists, journalists, and others in studying closed societies. HU

*** EAST 423b / HIST 385b, Tibet in the Modern World—A Twentieth-Century History**
Staff

This course delves into Tibet's modern history, covering the late nineteenth century to the present. It situates Tibet's history within the emerging ideological and political landscape shaped by the globalizing force of colonial modernity. By examining pivotal moments in twentieth-century Tibetan history, this course discusses the gradual transformation of the Tibetan world as it encountered new ideas, institutions, and practices from the modern West, often mediated through modern China and colonial and post-colonial India. Emphasizing that the present state of Tibet's future was not predetermined, the course delves into the diverse visions for Tibet's destiny that emerged at the beginning of the twentieth century. By exploring these overlooked and unrealized possibilities, it underscores the contingent and contested nature of Tibet's modern history. As such, this course may particularly interest students exploring themes of modernity, nationalism, colonialism, and exile. Through the incorporation of primary sources, students engage directly with first-hand accounts and historical materials, fostering a more intimate understanding of modern Tibetan history. HU

*** EAST 424b / EALL 277b / MUSI 148b, Music In Flux: Blendings, Exchanges, and Cultural Significances** Staff

This course examines how music is transmitted by various factors and how its styles and meanings can change in a new context. Through various scholarly approaches, this class aims to enhance your understanding of the mobility of music and its meanings. We will examine the processes and conditions in which music is exchanged and blended and consider how such “mashups” function as cultural indicators and symbols for emergent and migrant communities. We will also examine the impact of technology on musical globalization, localization, and glocalization. In doing so, this class explores issues of identity, representation, authenticity, tradition, nationalism, and transnationalism. By examining music in- or as-culture, students will understand some of the political, cultural, and social aspects of music, as well as the contextual meanings of musical practices. The class will utilize audio/video sources, incorporate discussions based on academic articles and chapters, and require student analysis that connects music to its context. While this class focuses mainly on music from East Asian countries, we will also examine case studies from others around the world. No background in music or prior knowledge of East Asia is required. HU

*** EAST 428a / ANTH 425a / ARCG 425a, Archaeology of Protohistoric Japan** Staff

Where and when are the origins of Japanese culture? In this seminar we will examine the archaeology of the Japanese archipelago from the introduction of paddy rice agriculture through the end of the 8th century with an eye toward this question. Examining excavated materials and early textual accounts, we will confront myths—both ancient and modern—of Japanese origins, and interrogate the framing of these time periods. Students will explore the interplay between event and process;

and between local developments and outside influence through topics including the arrival of immigrant populations and rice agriculture, political and trade relationships within the archipelago as well as on the Asian continent, and the emergence of political "statehood." SO TR

*** EAST 429b / EALL 225b, A Culinary History of China** Staff

Food is a central aspect of a culture, and culinary traditions often become tokens of identity. There are complex historical and social factors behind culinary choices. The Chili peppers now widely used in Chinese cooking were introduced in the region only in the 16th century. What socio-economic changes made this new spice so prevalent in Chinese cuisine so quickly? This seminar uses food as a lens to study major developments in Chinese history. We will think of food particularly in three ways; as a material actor, whose presence or absence affected historical events; as a metaphor, used by intellectuals to discuss proper government and other political topics; as a cultural mediator to shape identities in the social imaginary. HU TR

*** EAST 431a / RLST 175a, North Korea and Religion** Hwansoo Kim

Ever since the establishment of the Democratic People's Republic of Korea (DPRK) in 1948 and the Korean War (1950–1953), North Korea has been depicted by the media as a reclusive, oppressive, and military country, its leaders as the worst dictators, and its people as brainwashed, tortured, and starving to death. The still ongoing Cold War discourse, intensified by the North Korea's recent secret nuclear weapons program, furthers these negative images, and outsiders have passively internalized these images. However, these simplistic characterizations prevent one from gaining a balanced understanding of and insight into North Korea and its people on the ground. Topics other than political, military, and security issues are rarely given attention. On the whole, even though North Korea's land area is larger than South Korea and its population of 25 million accounts for a third of all Koreans, North Korea has been neglected in the scholarly discussion of Korean culture. This class tries to make sense of North Korea in a more comprehensive way by integrating the political and economic with social, cultural, and religious dimensions. In order to accomplish this objective, students examine leadership, religious (especially cultic) aspects of the North Korean Juche ideology, the daily lives of its citizens, religious traditions, the Korean War, nuclear development and missiles, North Korean defectors and refugees, human rights, Christian missionary organizations, and unification, among others. Throughout, the course places North Korean issues in the East Asian and global context. The course draws upon recent scholarly books, articles, journals, interviews with North Korean defectors, travelogues, media publications, and visual materials. SO

*** EAST 469b / HSAR 469b, Contemporary Art and Culture in China** Quincy Ngan

This course is an introduction to the art and culture of contemporary China, covering the period from 1960s to the present day. It focuses on art objects, performances, propaganda, and exhibitions produced by the government, the business sector, curators, and avant-garde artists in Mainland China. We also look at China's Olympic stadiums, the Three Gorges Dam, and skyscrapers (including those in Hong Kong and Taiwan). Class meetings discuss the required readings and investigate artworks, films, and events that speak to China's political ideologies, society, and economy, as well as its role in globalization and international conflicts. To establish a cross-cultural interpretation, this class also explores how Euro-American artists and filmmakers used their arts to express their views on contemporary China.

*** EAST 470a or b, Independent Study** Valerie Hansen

For students with advanced Chinese, Japanese, or Korean language skills who wish to pursue a close study of the East Asia region, not otherwise covered by departmental offerings. May be used for research, a special project, or a substantial research paper under faculty supervision. A term paper or its equivalent and regular meetings with an adviser are required. Ordinarily only one term may be offered toward the major or for credit toward the degree. Permission to enroll requires submission of a detailed project proposal, signed by the adviser, by the end of the first week of classes and its approval by the director of undergraduate studies.

EAST 480a or b, One-Term Senior Essay Valerie Hansen

Preparation of a one-term senior essay under the guidance of a faculty adviser. Students must receive the prior agreement of the director of undergraduate studies and of the faculty member who will serve as the senior essay adviser. Students must arrange to meet with that adviser on a regular basis throughout the term.

*** EAST 491a and EAST 492b, Senior Research Project** Valerie Hansen

Two-term directed research project under the supervision of a ladder faculty member. Students should write essays using materials in East Asian languages when possible. Essays should be based on primary material, whether in an East Asian language or English. Summary of secondary material is not acceptable. Credit for EAST 491 only on completion of EAST 492. ½ Course cr per term

Ecology & Evolutionary Biology (E&EB)

*** E&EB 035a, The Ecology of Food** Linda Puth

Food and ecology are inextricably linked, both in producing domesticated food through agriculture and livestock and in harvesting wild plants and animals. Furthermore, the production and consumption of food have downstream consequences through energy consumption, food waste, trophic interactions, and the transportation of food around the globe. These topics link to many of the fundamental concepts of ecology, including population biology, the niche, trophic interactions, nitrogen cycling, and the effects on biodiversity. In this class, we explore these topics intensively through a combination of lectures, readings, and interactive field trips to on/near campus ecosystems, including the Marsh Botanical Gardens, the Yale Sustainable Farm, a nearby forest and salt marsh, and an orchard. Each week, we meet twice for 50 minutes for a combination of lecture and discussion and for 110 minutes for field trips, discussions, and guest lectures. Enrollment limited to first-year students. SC

*** E&EB 106a / HLTH 155a / MCDB 106a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron

Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

E&EB 115a, Conservation Biology Linda Puth

An introduction to ecological and evolutionary principles underpinning efforts to conserve Earth's biodiversity. Efforts to halt the rapid increase in disappearance of both plants and animals. Discussion of sociological and economic issues. SC

*** E&EB 125b / EPS 125b, History of Life** Derek Briggs

Examination of fossil and geologic evidence pertaining to the origin, evolution, and history of life on Earth. Emphasis on major events in the history of life, on what the fossil record reveals about the evolutionary process, on the diversity of ancient and living organisms, and on the evolutionary impact of Earth's changing environment. SC

E&EB 145b, Plants and People Linda Puth

The interaction of plants and people throughout history explored from biological, historical, anthropological, and artistic perspectives. Basic botany; plants in the context of agriculture; plants as instruments of trade and societal change; plants as inspiration; plants in the environment. Includes field trips to the greenhouses at Yale Marsh Botanical Garden, the Yale Peabody Museum and Herbarium, the Yale Farm, and the Yale Art Gallery. SC

E&EB 220a / EVST 223a, General Ecology Staff

The theory and practice of ecology, including the ecology of individuals, population dynamics and regulation, community structure, ecosystem function, and ecological interactions at broad spatial and temporal scales. Topics such as climate change, fisheries management, and infectious diseases are placed in an ecological context. Prerequisite: MATH 112 or equivalent. SC o Course cr

E&EB 225b, Evolutionary Biology Paul Turner and Jennifer Coughlan

An overview of evolutionary biology as the discipline uniting all of the life sciences. Reading and discussion of scientific papers to explore the dynamic aspects of evolutionary biology. Principles of population genetics, paleontology, and systematics; application of evolutionary thinking in disciplines such as developmental biology, ecology, microbiology, molecular biology, and human medicine. SC o Course cr

E&EB 242b, Behavioral Ecology Vanessa Ezenwa

An introduction to the study of animal behavior from an evolutionary and ecological perspective. Topics include decision-making, group living and cooperation, sexual selection and mating behavior, signaling and communication. In addition to lectures, in-class discussions, and activities, students engage in the material by design and implement their own research projects. Prerequisite: BIOL 104, or permission of instructor. SC o Course cr

E&EB 246a, Plant Diversity and Evolution Erika Edwards

This course has several, interrelated objectives. First, it serves as an introduction to the science of phylogenetics, providing an overview of both the theory and methodology involved in constructing phylogenetic trees, and how to use trees to study character and organismal evolution. For our second objective, we put this new framework to immediate use by using phylogeny to explore and illustrate 400 million years of land plant evolution, with emphasis on the diversity of flowering plants. The course examines major trends in plant evolution from functional, ecological, and biogeographical perspectives. Students acquire a basic understanding of 1) phylogenetic approaches to comparative biology, 2) plant anatomy and morphology, 3) evolutionary relationships among the major land plant clades (with emphasis on the flowering

plants), and 4) major evolutionary trends that have significantly shaped the diversity of plant life that we see today. The third and most important objective is to instill in students the ability to look at any biological problem through the lens of “phylogeny-colored glasses”- a powerful way to examine the complexity of life that surrounds (and includes!) us. SC

E&EB 247La, Laboratory for Plant Diversity and Evolution Erika Edwards

Hands-on experience with the plant groups examined in the accompanying lectures. Local field trips. To be taken concurrently with E&EB 246. Prerequisite: BIOL 104 SC
½ Course cr

E&EB 262a, The Biology of Sharks and Their Relatives Joshua Moyer

An integrative course that examines the biology of sharks and other cartilaginous fishes (Class Chondrichthyes) from a variety of perspectives. Students learn about the taxonomy and systematics, paleontology, functional anatomy, behavior, physiology, ecology, and cultural significance of sharks. Coursework includes answers to discussion prompts, guided review of scientific literature, and in-class exams that allow students to demonstrate their understanding of chondrichthyan biology and sharks’ unique place in the vertebrate tree of life. To be taken with E&EB 263L. SC

E&EB 263La, The Biology of Sharks and Their Relatives Laboratory Joshua Moyer

This is a hands-on, specimen-based overview of the fossil record, comparative anatomy, functional morphology, and biodiversity of sharks and their relatives, the skates, rays, and ratfish. Students examine and dissect fresh and preserved specimens and use the fossil remains of extinct sharks to investigate the evolution of cartilaginous fishes. This course should be taken concurrently with E&EB 262, The Biology of Sharks and Their Relatives. SC ½ Course cr

*** E&EB 272b, Ornithology** Richard Prum

An overview of avian biology and evolution, including the structure, function, behavior, and diversity of birds. The evolutionary origin of birds, avian phylogeny, anatomy, physiology, neurobiology, breeding systems, and biogeography. Enrollment limited to 50. SC

*** E&EB 273Lb, Laboratory for Ornithology** Richard Prum

Laboratory and field studies of avian morphology, diversity, phylogeny, classification, identification, and behavior. Enrollment limited to 12. SC ½ Course cr

*** E&EB 275b / EVST 400b, Biological Oceanography** Mary Beth Decker

Exploration of oceanic ecosystems and how these environments function as coupled physical/biological systems. Ocean currents and other physical processes determine where nutrients are available to support primary production and where organisms from plankton to top predators occur. Includes discussion of anthropogenic impacts, such as the effects of fishing and climate change on marine ecosystems. Enrollment limited to 35. SC

E&EB 290b, Comparative Developmental Anatomy of Vertebrates Staff

A survey of the development, structure, and evolution of major vertebrate groups. Topics include the micro-anatomy of major organ systems, the developmental underpinnings of the vertebrate body plan, and the development, structure, and evolution of the major organ systems such as the locomotory system, sensory organs, digestive tract, reproductive tract, and nervous system. SC

E&EB 291Lb, Comparative Anatomy of Vertebrates Laboratory Staff

Microscopic examination of histological and embryological preparations. Dissection of selected vertebrate species including shark, bony fish, frog, lizard, and rat. To be taken with E&EB 290. SC ½ Course cr

E&EB 295a, Life in Motion: Ecological and Evolutionary Physiology Martha Munoz
Physiology is the study of the functions that organisms perform and how they use those functions to interact with the environment. To survive, grow, and reproduce, all organisms must acquire energy and avoid conditions that exceed their physiological limits. These interactions all involve motion—ions traveling across membranes, muscle fibers twitching, respiration, and locomotion, to name a few. In this course, we tackle physiological processes from both “bottom up” and “top down” approaches, with integration among these dimensions, to extract general physiological rules of life. Then, we link our discoveries to the broader context of ongoing global change, and consider whether and how organisms can physiologically respond to contemporary selective pressures. While the course focuses heavily on animal physiology, plants, fungi, and microbes are also featured. Prerequisites: BIOL 101, 102, 103, 104, and CHEM 161, or permission of the instructor. SC

*** E&EB 335a / HLTH 250a, Evolution and Medicine** Brandon Ogbunu

Introduction to the ways in which evolutionary science informs medical research and clinical practice. Diseases of civilization and their relation to humans’ evolutionary past; the evolution of human defense mechanisms; antibiotic resistance and virulence in pathogens; cancer as an evolutionary process. Students view course lectures on line; class time focuses on discussion of lecture topics and research papers. Prerequisite: BIOL 101–104. WR, SC

E&EB 340a, Microbial Ecology Martina Dal Bello

When thinking about microbes what comes to mind are usually diseases and unpleasant smells from the fridge or the basement. Nevertheless, microbes and the communities they form are key contributors to our wellbeing and the functioning of the planet. This course provides an introduction to microbial ecology, with an emphasis on how microbial systems differ from their macroscopic counterparts, including defining a microbial species; sampling/experimenting with microbes; principles of microbial growth, metabolism, and death; species interactions and community assembly in different environments; microbial community functions; elements of microbial evolution. BIOL 101, BIOL 102, BIOL 103, & BIOL 104. General Ecology E&EB 220 and MCDB 290 are encouraged but not required.

E&EB 354a, Phylogenetic Biology Casey Dunn

Phylogenetic Biology is the study of the evolutionary relationships between organisms, and the use of evolutionary relationships to understand other aspects of organism biology. This course surveys phylogenetic methods, providing a detailed picture of the statistical, mathematical, and computational tools for building phylogenies and using them to study evolution. We also examine the application of these tools to particular problems in the literature and emerging areas of study. Prerequisites: E&EB 225 and an organismal course. SC

*** E&EB 362b, Tropical Field Biology** Linda Puth

Firsthand experience of a region can inspire great insights and understanding of ecology and evolutionary biology. This course immerses students in the communities

and ecosystems of a single tropical region each year, but locations rotate among a small group of sites. We spend the first half of the semester learning about the geology, history, biomes and organisms of the region. The spring 2021 class will travel to 1–2 tropical forest research stations in Costa Rica. Prerequisites: E&EB 220, E&EB 225, and permission of the instructor. SC

E&EB 464b / ANTH 464b / ARCG 464b, Human Osteology Eric Sargis

A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions. SC, SO o Course cr

*** E&EB 469a or b, Tutorial** Marta Wells

Individual or small-group study for qualified students who wish to investigate an area of ecology or evolutionary biology not presently covered by regular courses. A student must be sponsored by a faculty member who sets requirements and meets weekly with the student. One or more written examinations and/or a term paper are required. To register, the student must submit a written plan of study approved by the faculty instructor to the director of undergraduate studies. Students are encouraged to apply during the term preceding the tutorial. Proposals must be submitted no later than the first day of the second week of the term in which the student enrolls in the tutorial. The final paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. In special cases, with approval of the director of undergraduate studies, this course may be elected for more than one term, but only one term may be counted as an elective toward the requirements of the major. Normally, faculty sponsors must be members of the EEB department.

*** E&EB 470a or b, Senior Tutorial** Marta Wells

Tutorial for seniors in the B.A. degree program who elect a term of independent study to complete the senior requirement. A thesis, fifteen to twenty pages in length, is required. A student must be sponsored by a faculty member who sets requirements and meets weekly with the student. To register, the student must submit a written plan of study approved by the faculty instructor to the director of undergraduate studies. Students are encouraged to apply during the term preceding the tutorial. Proposals must be submitted no later than the first day of the second week of the term in which the student enrolls in the tutorial. The final paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. Normally, faculty sponsors must be members of the EEB department. Enrollment limited to seniors. Fulfills the senior requirement for the B.A. degree.

*** E&EB 474a or b, Research** Marta Wells

One term of original research in an area relevant to ecology or evolutionary biology. This may involve, for example, laboratory work, fieldwork, or mathematical or computer modeling. Students may also work in areas related to environmental biology such as policy, economics, or ethics. The research project may not be a review of relevant literature but must be original. In all cases students must have a faculty sponsor who oversees the research and is responsible for the rigor of the project. Students are expected to spend ten hours per week on their research projects. Using the form available from the office of undergraduate studies or from the Canvas, students must submit a research proposal that has been approved by the faculty sponsor to the

director of undergraduate studies, preferably during the term preceding the research. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment.

*** E&EB 475a and E&EB 476b, Senior Research** Marta Wells

One term of original research in an area relevant to ecology or evolutionary biology. This may involve, for example, laboratory work, fieldwork, or mathematical or computer modeling. Students may also work in areas related to environmental biology such as policy, economics, or ethics. The research project may not be a review of relevant literature but must be original. In all cases students must have a faculty sponsor who oversees the research and is responsible for the rigor of the project. Students are expected to spend ten hours per week on their research projects. Using the form available from the office of undergraduate studies or from the Canvas, students must submit a research proposal that has been approved by the faculty sponsor to the director of undergraduate studies, preferably during the term preceding the research. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of classes in the term of enrollment. Fulfills the senior requirement for the B.S. degree. Enrollment limited to seniors.

*** E&EB 495a and E&EB 496b, Intensive Senior Research** Marta Wells

One term of intensive original research during the senior year under the sponsorship of a Yale faculty member. Similar to other research courses except that a more substantial portion of a student's time and effort should be spent on the research project (a minimum average of twenty hours per week). A research proposal approved by the sponsoring faculty member must be submitted to the director of undergraduate studies; forms are available from the office of undergraduate studies. For research in the fall term, approval is encouraged during the spring term of the junior year. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. One term of intensive research fulfills a portion of the senior requirement for the B.S. degree. 2 Course cr per term

Economics (ECON)

*** ECON 002b, Social Issues in America** Rebecca Toseland

This seminar investigates how data and economics can be used to understand and solve some of the most pressing contemporary social issues in the United States. Topics include equality of opportunity, education, health, climate change, criminal justice, and discrimination. In the context of these topics, the course provides an introduction to some basic economic concepts and data analysis techniques. No prior knowledge of economics or statistics is assumed. Enrollment limited to first-year students. so

*** ECON 108a, Quantitative Foundations of Microeconomics** Tolga Koker

Introductory microeconomics with a special emphasis on quantitative methods and examples. Intended for students with limited or no experience with calculus. Enrollment limited. May not be taken after ECON 110 or 115. QR, SO

*** ECON 110a or b, An Introduction to Microeconomic Analysis** Staff

Similar to ECON 115, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. May not be taken after ECON 108 or 115. QR, SO

*** ECON 111a, An Introduction to Macroeconomic Analysis** Marnix Amand

Similar to ECON 116, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. May not be taken after ECON 116. Prerequisite: ECON 108, 110, or 115. SO

ECON 115a, Introductory Microeconomics Staff

An introduction to the basic tools of microeconomics to provide a rigorous framework for understanding how individuals, firms, markets, and governments allocate scarce resources. The design and evaluation of public policy. May not be taken after ECON 108 or 110. QR, SO o Course cr

ECON 116a, Introductory Macroeconomics Staff

This course is an introduction to macroeconomics. We begin by asking why some countries produce so much more output than others. We investigate the role of savings and investment, research and development, and the economic institutions that determine them. We then ask what determines output, unemployment, inflation, and interest rates over time, why they fluctuate over time, and how policymakers affect them. May not be taken after ECON 111. Prerequisite: ECON 108, 110, or 115. SO o Course cr

ECON 117a or b, Introduction to Data Analysis and Econometrics Staff

Introduction to data analysis from the beginning of the econometrics sequence; exposure to modern empirical economics; and development of credible economic analysis. This course emphasizes working directly and early with data, through such economic examples as studies of environmental/natural resource economics, intergenerational mobility, discrimination, and finance. Topics include: probability, statistics, and sampling; selection, causation and causal inference; regression and model specification; and machine learning and big data. Prerequisites: ECON 108, 110, 115, or equivalent and familiarity with single variable calculus. Students who have taken ECON 131 may not receive major credit for this course. QR, SO o Course cr

ECON 121a, Intermediate Microeconomics Staff

The theory of resource allocation and its applications. Topics include the theory of choice, consumer and firm behavior, production, price determination in different market structures, welfare, and market failure. After introductory microeconomics and completion of Math 112 or higher. Elementary techniques from multivariate calculus are introduced and applied, but prior knowledge is not assumed. May not be taken after ECON 125. QR, SO o Course cr

ECON 122a, Intermediate Macroeconomics Staff

Contemporary theories of employment, finance, money, business fluctuations, and economic growth. Their implications for monetary and fiscal policy. Emphasis on empirical studies, financial and monetary crises, and recent policies and problems. After two terms of introductory economics and completion of the Math 112 or higher. QR, SO o Course cr

ECON 123a, Intermediate Data Analysis and Econometrics Costas Meghir

Comprehensive and theoretical examination of econometrics, with further exploration of topics covered in ECON 117. A term research project addresses a research question chosen by the student, and involves the application of learned methods to a relevant data set. Prerequisites: ECON 108, 110, 115, or equivalent; ECON 117; and familiarity with single variable calculus. QR, SO o Course cr

ECON 125a, Microeconomic Theory Ryota Iijima

Similar to ECON 121 but with a more intensive treatment of consumer and producer theory, and covering additional topics including choice under uncertainty, game theory, contracting under hidden actions or hidden information, externalities and public goods, and general equilibrium theory. Recommended for students considering graduate study in economics. After introductory economics, and MATH 118 or 120 or equivalent. May not be taken after ECON 121. QR, SO o Course cr

*** ECON 126b, Macroeconomic Theory** Joel Flynn

Similar to ECON 122 but with a more intensive treatment of the mathematical foundations of macroeconomic modeling, and with rigorous study of additional topics. Recommended for students considering graduate study in economics. After two terms of introductory economics, and MATH 118 or 120 or equivalent. QR, SO o Course cr

ECON 135a, Introduction to Probability and Statistics Yusuke Narita

Foundations of mathematical statistics: probability theory, distribution theory, parameter estimation, hypothesis testing, regression, and computer programming. Recommended for students considering graduate study in economics. Prerequisites: Introductory microeconomics and MATH 118 or MATH 120 and MATH 222; or MATH 120 and MATH 225. QR, SO o Course cr

ECON 136b, Econometrics Ed Vytlačil

Continuation of ECON 135 with a focus on econometric theory and practice: problems that arise from the specification, estimation, and interpretation of models of economic behavior. Topics include classical regression and simultaneous equations models; panel data; and limited dependent variables. Recommended for students considering graduate study in economics. Prerequisites: After ECON 135 or STAT 241 and 242. May not be taken concurrently with STAT 242. QR, SO o Course cr

ECON 159a / GLBL 159a, Game Theory Benjamin Polak

An introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, and signaling are applied to games played in class and to examples drawn from economics, politics, the movies, and elsewhere. After introductory microeconomics. No prior knowledge of game theory assumed. QR, SO o Course cr

ECON 160b / GLBL 383b, Games and Information Benjamin Polak and Jidong Zhou

This is designed to be a "second" game theory course. We build on the learnings from introductory game theory courses like ECON 159/GLBL 159, MGT 822 or the SOM core. The course aims to introduce important ideas and tools from game theory, and use them to answer questions in social sciences, law, and business. For instance, how does information get sold and used to persuade? How do we think about the efficiency and equity of allocations? How do sellers decide the best format for an auction to sell

a good? Does requiring unanimous verdicts guarantee that the innocent will not be convicted? What causes bank runs? When do we see price wars? The underlying ideas will include games of incomplete information, mechanism design, common knowledge and high-order reasoning, and repeated games. Prerequisite: Any introductory game theory course, e.g., ECON/GLBL 159, MGT 822 or Game Theory in the SOM Core. SO RP o Course cr

ECON 170a, Health Economics and Public Policy Howard Forman

Application of economic principles to the study of the U.S. health care system. Emphasis on basic principles about the structure of the U.S. system, current problems, proposed solutions, and the context of health policy making and politics. After introductory microeconomics. SO

ECON 171b / AFAM 146b / EDST 271b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K–12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

ECON 182a / HIST 135a, American Economic History Staff

The growth of the American economy since 1790, both as a unique historical record and as an illustration of factors in the process of economic development. The American experience viewed in the context of its European background and patterns of industrialization overseas. After introductory microeconomics. WR, SO o Course cr

*** ECON 209a / EP&E 313a, Economic Analysis of Law** Robin Landis

This course is intended to provide an introduction to the economic analysis of law. We examine the economic rationale(s) underlying various legal doctrines of both common law and statutory law, as well as the economic consequences of different legal doctrines. Previous coursework in economics, while helpful, is not a prerequisite for the course. SO

ECON 210b / EDST 201b, Economics of Education Daniela Morar

Application of basic economic concepts and empirical methods to the analysis of education. Topics include the economic return to secondary and postsecondary education, the quality of elementary and secondary education, the market for teachers, inequality in education attainment, and school choice. Prerequisites: ECON 108, 110, or 115. A prior course in statistics or econometrics is helpful but not required. SO

ECON 251a, Financial Economics Staff

Introduction to the economic analysis of investment decisions and financial markets. Topics include time discounting, portfolio choice, equilibrium pricing, arbitrage, market efficiency, equity valuation, fixed-income securities, derivative pricing, and financial intermediation. Prerequisite: Introductory microeconomics. QR, SO o Course cr

ECON 265a, History of Economic Thought Staff

The objective of this course is to give an overview of how economic analysis has developed, and an introduction to the varied ways in which some of the great economists of the past have gone about studying how the economy functions. We discuss the relevance of their theories to public policy and the role of the state, and consider the roles of pre-analytic vision, improvements in analytical technique, and external events (such as the Great Depression or Global Financial Crisis) in the development of economic analysis. Prerequisites: ECON 115 and ECON 116. SO

ECON 326b, Fundamentals of Economic Development Kaivan Munshi

The objective of this course is to examine some of the fundamental forces that shape the process of economic development. This course is divided into three sections: (i) Market Failure: with an analysis of credit, labor, and insurance markets in developing countries. (ii) Social Response: how community networks emerge in response to market failure. We study the positive and negative consequences of this community involvement for growth and development; in the short-run and the long-run. We also provide economic foundations for the emergence of social norms and identity, as well as the dynamic inefficiencies that they can generate with economic development. (iii) Biological Response: how biological adaptation to economic conditions in the pre-modern economy can have negative consequences for nutritional status and health in developing economies. Apart from providing a particular perspective on development, an additional objective of this course demonstrates the use of economic theory in informing empirical research. Prerequisites: Intermediate Microeconomics, Introductory Econometrics and Data Analysis. Students are expected to be familiar with calculus, basic microeconomics, and basic econometrics. SO

ECON 339b, Advanced Competition Economics and Policy Fiona Scott Morton

Limits that antitrust laws, as applied and interpreted by agencies, courts, and competitors, place on firm behavior. Economic theories underlying antitrust enforcement. Whether legal rules restricting competitive behavior increase social welfare and how they affect managerial choices. The evidence and reasoning advanced in key antitrust cases; how outcomes may affect social welfare and firm strategies. Goals and procedures of US and EU antitrust agencies. SO

ECON 350a, Mathematical Economics: General Equilibrium Theory John

Geanakoplos

An introduction to general equilibrium theory and its application to finance and the theory of money. Recommended for students considering graduate study in economics, or a career in quantitative finance. Prerequisites: After MATH 118 or 120, and intermediate microeconomics. QR, SO o Course cr

ECON 361b, Corporate Finance Christopher Clayton

Financial management from inside the corporation or operating entity. Topics include capital budgeting and valuation, optimal capital structure, initial public offerings, mergers, and corporate restructuring. Cases and problem sets provide applications. Prerequisites: intermediate microeconomics and econometrics. o Course cr

ECON 363a, The Global Financial Crisis Andrew Metrick and Timothy Geithner

Comprehensive survey of the causes, events, policy responses, and aftermath of the global financial crisis of 2007–09. Study of the dynamics of financial crises in a modern

economy. Prerequisite: Successful completion of a course in introductory economics. SO

ECON 365a or b / CPSC 365a or b, Algorithms Staff

Paradigms for algorithmic problem solving: greedy algorithms, divide and conquer, dynamic programming, and network flow. NP completeness and approximation algorithms for NP-complete problems. Algorithms for problems from economics, scheduling, network design and navigation, geometry, biology, and optimization. Provides algorithmic background essential to further study of computer science. Only one of CPSC 365 or CPSC 366 may be taken for credit. Prerequisites: CPSC 202 or MATH 244, CPSC 223. QR

ECON 375b / GLBL 219b, Monetary Policy William English

Introduction to modern macroeconomic models and how to use the models to examine some of the key issues that have faced monetary policymakers during and after the global financial crisis of 2008–2009. Prerequisites: Intermediate level macroeconomics (ECON 122 or 126) and introductory econometrics. WR, SO o Course cr

*** ECON 407a / GLBL 310a, International Finance** Ana Fielier

A study of the implications of increasing integration of the world economy, through international trade, multinational production, and financial markets. Topics include foreign exchange markets, capital flows, trade and current account imbalances, coordination of monetary and fiscal policy in a global economy, financial crises and their links to sovereign debt crises and currency devaluations. Prerequisite: intermediate macroeconomics or equivalent. SO o Course cr

ECON 409b, Firms, Markets, and Competition Philip Haile

Analysis of imperfectly competitive markets, focusing on the interactions among firm behavior, market structure, and market outcomes. Topics include oligopoly, collusion, predation, firm entry, advertising, and price discrimination as well as public policy implications of market behavior. After intermediate microeconomics or equivalent. QR, SO

*** ECON 411b, Economics of Uncertainty and Information** Soenje Reiche

Individual and collective choice in the presence of uncertainty and asymmetric information. Implications of such decision making for economic phenomena. Basic analytical tools for studying decisions under uncertainty. Asset markets, adverse selection, screening, signaling, moral hazard, incomplete contracts, bilateral trade with asymmetric information, and mechanism design. Prerequisites: intermediate microeconomics and econometrics. SO o Course cr

*** ECON 412a, International Environmental Economics** Samuel Kortum

Introduction to international and environmental economics and to research that combines the two fields. Methods for designing and analyzing environmental policy when economic activity and pollution cross political borders. Effects of market openness on the environment and on environmental regulation; international economics and climate change. Prerequisites: intermediate microeconomics and econometrics. SO

ECON 419a, Financial Time Series Econometrics Xi Chen

This is an advanced course covers basic univariate and multivariate models and methods used to analyze financial and economic time series data and panel time series data. Topics include: classic linear models; serial dependence, autocorrelation in error

variances (ARCH, GARCH); methods that allow for nonlinearity, tail dependence, comovements, conditional value at risk, fat-tails, nonstationarity; vector autoregressive models; factor models; Markov switching, latent factors, measurement errors, stochastic volatility; empirical asset pricing models. The aim of the course is to help students write their senior essays and start their own research in economics and finance. Prerequisites: ECON 117 and 123, or ECON 135 and 136. SO

ECON 424a / GLBL 308a, Central Banking William English

Introduction to the different roles and responsibilities of modern central banks, including the operation of payments systems, monetary policy, supervision and regulation, and financial stability. Discussion of different ways to structure central banks to best manage their responsibilities. Prerequisites: Intermediate Microeconomics, Intermediate Macroeconomics, and Introductory Econometrics. SO
o Course cr

ECON 425a / CPSC 455a, Algorithmic Game Theory Yang Cai

A mathematically rigorous investigation of the interplay of economic theory and computer science, with an emphasis on the relationship of incentive-compatibility and algorithmic efficiency. Our main focus is on algorithmic tools in mechanism design, algorithms and complexity theory for learning and computing Nash and market equilibria, and the price of anarchy. Case studies in Web search auctions, wireless spectrum auctions, matching markets, and network routing, and social networks. Prerequisite: CPSC 365 or permission of the instructor. Familiarity with basic microeconomic theory is helpful but not required. QR

*** ECON 426a / EP&E 286a, Discrimination in Law, Theory, and Practice** Gerald Jaynes

How law and economic theory define and conceptualize economic discrimination; whether economic models adequately describe behaviors of discriminators as documented in court cases and government hearings; the extent to which economic theory and econometric techniques aid our understanding of actual marketplace discrimination. This course was formerly listed as ECON 475. Prerequisites: introductory microeconomics and at least one additional course in Economics, African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies.

ECON 431a / AMTH 431a / S&DS 431a, Optimization and Computation Zhuoran Yang

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

ECON 433a, The Economics of Space Costas Arkolakis

The aim of this course is to analyze the ways that geography determines economic outcomes. We discuss and analyze data on regional economic activity and how

economic shocks propagate in space. We pair those data with simple models where geography plays a crucial role in the determination of economic activity and discuss how changes in this geography lead some regions to grow and economic outcomes to diverge. Various policies that affect the spatial allocation of economic activity, such as infrastructure investment, local taxes, and transfers, are analyzed. Prerequisites: MATH 118, 120, or permission of instructor. SO o Course cr

*** ECON 434a, Labor Economics: Inequality and Social Mobility** Orazio Attanasio

The objective of this advanced course is to study various aspects of inequality and social mobility and to understand their trends over time and their drivers. Although we briefly study some international comparisons, the focus of the course is inequality in the US and, to a less extent, the UK. We consider inequalities among different countries only tangentially. Prerequisites: ECON 121 and Econometrics. SO

ECON 436b, Personal Finance James Choi

How much should I be saving at age 35? How much of my portfolio should be invested in stocks at age 50? Which mortgage should I choose, and when should I refinance it? How much can I afford to spend per year in retirement? This course covers prescriptive models of personal saving, asset allocation, borrowing, and spending. The course is designed to answer questions facing anybody who manages their own money or is a manager in an organization that is trying to help clients manage their money. Prerequisites: Intermediate microeconomics and one semester of econometrics. Students should be comfortable with informal mathematical and statistical reasoning and problem-solving. SO

ECON 438a, Applied Econometrics: Politics, Sports, Microeconomics Ray Fair

This course has an applied econometrics focus. Topics include voting behavior, betting markets, and various issues in sports. The aim of the course is to help students prepare original empirical research using econometric tools and to read empirical papers in economics and other social sciences. Students write three empirical papers. The first can be an extension of an existing article, where some of the results are duplicated and then extended. The second is similar to the first with no example provided. The third is an original paper within the range of topics covered in the course, where data are collected and analyzed using relevant econometric techniques. Prerequisites: Two econometrics or statistics courses, one of which has to be ECON 117. Ideally, ECON 123 should also have been taken, but it is not an absolute requirement. ECON 135 and ECON 136 are substitutes for ECON 117 and ECON 123. Special permission from the instructor is needed if ECON 117 or ECON 136 has not been taken. Also required is introductory microeconomics. SO

*** ECON 444a, Market Inefficiencies and the Limits of Arbitrage** Michael J Pascutti

The role of hedge funds in the United States financial markets and hedge fund behavior; understanding what hedge funds do, why they exist, and how they are different from other investment vehicles. Study of investment strategies that provide opportunity and risk for investors and study of academic papers analyzing (risky) arbitrage strategies. Prerequisite: intermediate microeconomics and econometrics. SO o Course cr

*** ECON 445b, The U.S. Banking System** Michael J Pascutti

The special functions of banks in the U.S. economy. The benefits but fragile nature of the banking system. Prerequisites: intermediate macroeconomics, microeconomics, and econometrics. so

*** ECON 449a / EP&E 244a / PLSC 374a, The Economic Analysis of Conflict** Gerard Padro

In this course we apply microeconomic techniques, theoretical and empirical, to the analysis of internal violent conflict, including civil wars, terrorism and insurgencies, its causes and consequences. Topics include forced migration, ethnic conflict, long-term consequences of war and individual choices to participate in violence. Readings comprise frontier research papers and students will learn to critically engage with cutting-edge research designs. Prerequisites: Intermediate econometrics so

*** ECON 450b, Investment Analysis** Alex Hetherington and Chivetta Amelia

This seminar seeks to introduce the world of investment management to students, across a range of investment strategies from public stocks to private equity and real estate. The instructors, both senior members of the Yale Investment Office, the department that manages the University's \$41 billion endowment, guide class discussion in response to assigned reading and guest speaker visits. The distinguished guest speakers, including world-renowned hedge fund managers, venture capital luminaries and Yale's chief investment manager Matthew Mendelsohn '07 are at the heart of the course. These speakers join the seminar for a discussion of how their firms approach the investment landscape and how they seek to achieve market-beating returns. Students are asked to engage with and analyze the speaker's investment strategy and to think about the strategy from the perspective of an institutional investor like Yale. Registration requires instructor permission. so

*** ECON 454a, Topics in Economic Inequality** Ingvild Almas

The course covers topics in economic inequality including attitudes towards inequality and support for redistribution, gender, household formation, and decision making, and the measurement of inequality across individuals and groups of individuals. We start by discussing some possible justifications for economic inequality, drawing on research in economics as well as philosophy. We then turn to discuss the evidence of what people prefer and believe about inequality, including their possible justifications for economic inequality. We discuss the views and beliefs of general populations across the globe. We further aim to relate these views and beliefs to political support for redistribution and welfare policies more generally. Gender inequalities in earnings may have historical roots and may persist because of contemporary norms supporting that men should be the breadwinners in the family. We discuss the prevalence of such norms. We also discuss possible gender differences in willingness to compete, willingness to take risks, and preferences for job-life versus family life. We then turn to a discussion of discrimination in the labor market using global data as empirical evidence. Household formation may affect gender inequalities and gender inequalities may affect household formation. We discuss models of the marriage market and some empirical evidence. We further discuss the efficiency of welfare policies targeting families, and how the focus on whether gender targeting is beneficial or not. Intermediate Micro (Econ 121) and Econometrics (117) or equivalent. Based on these pre-requisites, working knowledge of calculus, as well as some statistics, including basic knowledge about statistical hypotheses testing and more are beneficial. so

*** ECON 455a, Economic Models of New Technology** Evangelia Chalioti

Analysis of firms' incentives to innovate, focusing on the effects of market power on the intensity of innovative activity. Topics include strategic investment in innovation, patent races, the diffusion of knowledge, intellectual property (IP) protection systems, IP licensing, research joint ventures, litigation, venture capital, and conflicts between IP rights and antitrust regulation. Prerequisite: Intermediate Microeconomics or equivalent: Econ 121 or Econ 125 SO

*** ECON 456a, Private Equity Investing** Michael Schmertzler

A case-oriented study of principal issues and investment types found in substantial private equity portfolios. Discussion of enterprise valuation, value creation, business economics, negotiation, and legal structure, based on primary source materials and original cases. Prerequisite: ECON 251 or ECON 252 or ECON 255. SO

*** ECON 463b / BENG 403b, The Economics and Science of Medicine** Gregory Raskin and Yashodhara Dash

This multidisciplinary class is an exploration of the background of today's bestselling medicines, their huge commercial impact, and the companies that created them. It focuses on the most compelling aspects of drug development and company formation in the context of topical issues like cancer treatment, gene editing, stem cell therapy, the opioid epidemic, and drug pricing controversies. Prerequisite: Introductory or intermediate microeconomics, introductory or intermediate Biology, Molecular Biology, Chemistry or Biomedical Engineering. SO

*** ECON 467a / GLBL 307a, Economic Evolution of the Latin American and Caribbean Countries** Ernesto Zedillo

Economic evolution and prospects of the Latin American and Caribbean (LAC) countries. Topics include the period from independence to the 1930s; import substitution and industrialization to the early 1980s; the debt crisis and the "lost decade"; reform and disappointment in the late 1980s and the 1990s; exploration of selected episodes in particular countries; and speculations about the future. Prerequisites: intermediate microeconomics and macroeconomics. SO

*** ECON 468b, Institutions and Incentives in Economic Development** Mark Rosenzweig

Assessment of alternative policies and programs designed to promote economic development; examination of fundamental problems of underdeveloped areas and consideration of how and whether such programs resolve them. The roles of indigenous institutions in low-income countries in alleviating problems of underdevelopment. Prerequisites: intermediate microeconomics and econometrics. SO

*** ECON 471b / EP&E 297b, Topics in Cooperative Game Theory** Pradeep Dubey

The theory and applications of cooperative games. Topics include matching, bargaining, cost allocation, market games, voting games, and games on networks. Prerequisite: intermediate microeconomics.

*** ECON 472a, Economics of Artificial Intelligence and Innovation** Evangelia Chalioti

This course studies the economics of innovation and the effects of artificial intelligence on different industries. Topics include economics of the intellectual property (IP) protection system; strategic choices in innovation and competition; patent races; measurement and big data; the sharing and digitalized economy; collective intelligence

and decisions; online auctions; venture capital; legal and social infrastructure.

Prerequisites: Intermediate Microeconomics or equivalent: Econ 121 or Econ 125 SO

*** ECON 478b, The Economics of Internet Markets** Charles Hodgson

Study of online markets with a focus on ongoing policy debates. Students learn about the workings of online markets by studying economic models of platform markets, consumer search, and advertising auctions. Students apply these frameworks to discussions about the regulation of the internet, including net neutrality, privacy, online media bias, and the monopoly power of “big tech.” Readings draw from theoretical and empirical academic studies as well as the popular press. Prerequisites: Intermediate microeconomics and econometrics. SO

*** ECON 491a and ECON 492b, The Senior Essay** Staff

Senior essays are an opportunity for students to engage in independent, original economic research. Essays are not reviews of the literature, rather each should be an examination of a hypothesis using the tools of economics. In particular, the essay must contain original research and/or analysis. They can be theoretical, empirical or computational. The senior essays that receive As and are awarded prizes are typically those that use economics tools (and, where appropriate, data) to offer fresh insights on questions. Students enrolling in this one-term course need to find an advisor. There are no page requirements or formatting requirements. Generally, essays run about 30 pages. Advice regarding bibliographies, graphs, etc. should be given by your advisor. For further information, including relevant dates and deadlines, please see economics.yale.edu/undergraduate/senior-essay.

*** ECON 498a and ECON 499b, Directed Reading** Giovanni Maggi

Junior and senior economics majors desiring a directed reading course in special topics in economics not covered in other graduate or undergraduate courses may elect this course, not more than once, with written permission of the director of undergraduate studies and of the instructor. The instructor meets with the student regularly, typically for an hour a week, and the student writes a paper or a series of short essays. Junior and senior majors may take this course for a letter grade, but it does not meet the requirement for a department seminar. The application form may be found here: <https://economics.yale.edu/undergraduate/forms-documents>

Education Studies (EDST)

*** EDST 065a / HUMS 065a, Education and the Life Worth Living** Matthew Croasmun

Consideration of education and what it has to do with real life—not just any life, but a life worth living. Engagement with three visions of different traditions of imagining the good life and of imagining education: Confucianism, Christianity, and Modernism. Students will be asked to challenge the fundamental question of the good life and to put that question at the heart of their college education. Enrollment limited to first-year students. HU

*** EDST 107b / MB&B 107b / PHYS 107b, Being Human in STEM** Andrew Miranker

A collaboratively designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant

peer-reviewed literature and popular-press articles. OpEd writing project and design and implementation of an intervention project focusing on improving belonging in Yale STEM communities. SO

EDST 110a / AMST 115a / SOCY 112a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO
o Course cr

*** EDST 125a / CHLD 125a / PSYC 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD 128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children—their behavior and development—without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of their philosophy and curriculum. Weekly Observations: Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

*** EDST 127b / CHLD 127b / PSYC 127b, Theory and Practice of Early Childhood Education** Carla Horwitz

The course deals with development and delivery of curricula for young children ages 3–6 and the current context of educational reform and debate. Goals are to deepen insights through critical analysis of educational programs for young children in light of current research and developmental theory and to understand how political context contributes to the practice of education. Regularly scheduled seminar discussions and workshops that engage students with learning materials emphasize the ongoing dynamic process of developing emergent curriculum and focus on methods of creating a responsive, inclusive environment; planning and assessment; appreciating cultural and linguistic diversity; teachers' roles; anti-bias education; working with families; conceptualizing the professional challenges of collaborating on a teaching team within the organization of the school; standards and accountability and the role of policy and advocacy in educational change. The course will use newspaper and magazine articles and other recent media as primary sources in addition to current research and

other texts. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. CHLD 125 is recommended. Permission of instructor is required. Priority given to juniors, seniors, and Ed Study students. WR, SO RP

*** EDST 128b / CHLD 128b / PSYC 128b, Language, Literacy, and Play** Ann Close and Carla Horwitz

The focus of this course will be to demonstrate the complicated role that play has in the development of language and literacy skills. A major part of each topic presentation will be a discussion of the role that play has in the curriculum in enhancing these developmental areas. There is a widespread consensus that play is an essential component of a developmentally appropriate early childhood curriculum. Research indicates that play enhances a child's creativity, intellectual development and social emotional development. Because learning to play, learning language and learning literacy skills are all part of the process of thinking and communication, **the course will provide a view which attempts to demonstrate the integration of language, literacy and play in an early childhood education curriculum.** Theoretical aspects of each of these developmental areas will be examined first, and it will be that theoretical understanding which will be the basis upon which ideas about curriculum will be explored, experienced and discussed. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. Permission of instructor. Enrollment priority will be given to juniors, seniors, and education study scholars. WR, SO RP

EDST 140a / PSYC 140a, Developmental Psychology Julia Leonard

An introduction to research and theory on the development of perception, action, emotion, personality, language, and cognition from a cognitive science perspective. Focus on birth to adolescence in humans and other species. Prerequisite: PSYC 110. SO

EDST 144a / ER&M 211a / EVST 144a / SOCY 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO o Course cr

EDST 160a / PSYC 150a, Social Psychology Maria Gendron

Theories, methodology, and applications of social psychology. Core topics include the self, social cognition/social perception, attitudes and persuasion, group processes, conformity, human conflict and aggression, prejudice, prosocial behavior, and emotion. SO

EDST 201b / ECON 210b, Economics of Education Daniela Morar

Application of basic economic concepts and empirical methods to the analysis of education. Topics include the economic return to secondary and postsecondary education, the quality of elementary and secondary education, the market for teachers,

inequality in education attainment, and school choice. Prerequisites: ECON 108, 110, or 115. A prior course in statistics or econometrics is helpful but not required. SO

*** EDST 205b, Principles of Effective Teaching in the Secondary Classroom** Melissa Scheve

Children across America spend roughly 12,000 hours in school from kindergarten through grade 12. How those instructional hours are spent dramatically impacts students' academic and personal well-being. Many studies have demonstrated that teacher quality matters to students' long-term outcomes including graduation and job placement. In this course, we delve into the essential principles of being an effective teacher, focusing specifically on the U.S. secondary classroom. Building community, designing culturally sustaining curriculum, teaching inclusively, and assessing students authentically are a handful of the principles we explore together through articles about teacher practice, video examples of classroom practice, and students opportunity to enact some of these practices during class. Each student is paired with a current secondary public school teacher across America to engage in a case study of effective teaching throughout the seminar. By the end of this course, you learn some core principles of effective teaching, gain an understanding of the complexities of enacting effective teaching practices given educational inequities, conduct a case study about effective teaching, and practice some aspects of secondary teaching. EDST 110 is recommended. Preference given to Education Studies Scholars and juniors and seniors interested in post-graduate careers in teaching. SO

*** EDST 209b / AFAM 239b / AMST 461b / ER&M 292b / WGSS 202b, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

*** EDST 225b, Child Care, Society, and Public Policy** Jessica Sager and Janna Wagner
Exploration of societal decisions about where children under the age of five spend their days. Topics include where young children belong; how to regulate, pay for, and support child care arrangements; consideration of gender, race, and family finances; and the profound impact of these decisions on the well-being of children, families, and the economy. Assignments draw heavily on student insights and reflections. Preference in enrollment will go to students who have taken EDST 110, with Education Studies Scholars receiving priority. SO

*** EDST 230b, American Education and the Law** William Garfinkel

Interactions between American elementary and secondary school education and the American legal system, with a focus on historical and contemporary case law. The relationship between schooling and the state; constitutional, statutory, and regulatory law governing the rights and responsibilities of educators, students, and parents; equal educational opportunity. Recommended preparation: EDST 110. Preference to Education Studies Scholars. SO

*** EDST 232a / PLSC 232a, US Federal Education Policy** Eleanor Schiff

Though education policy is typically viewed as a state and local issue, the federal government has taken a significant role in shaping policy since the end of World War II. The centralization of education policy has corresponded with changing views in society for what constitutes an equitable educational opportunity. This class is divided into three topics: 1) the federal role in education broadly (K–12) and the accountability movement in K–12: from the No Child Left Behind Act to the Common Core State Standards (and cross-national comparisons to US schools), 2) federal role in higher education, and 3) the education industry (teachers unions and think tanks). EDST 110 recommended. SO

*** EDST 235a / WGSS 239a, Education and the Culture Wars** Talya Zemach-Bersin
Examination of the historical development and politics of the “culture wars” with a focus on how battles over the “soul of America” have focused on the American education system. Conflict over “American values” issues like abortion, gay marriage, and religion are compounded by legal battles over federal funding and school choice. Study of interdisciplinary readings from law, politics, history, and cultural studies. Preference for enrollment will be given to Education Studies Scholars.

EDST 237a / LING 217a / PSYC 317a, Language and Mind Maria Pinango
The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

*** EDST 261b, Colloquium: Readings in Education Studies** Talya Zemach-Bersin
This colloquium, required for all newly admitted YES Scholars, supplements the curriculum by introducing scholars to a range of topics, methods and approaches to education studies, acquainting them with the expertise and contributions of faculty teaching in the YES program and their fellow students, and providing them with opportunities for leadership, reflection, and collaboration. While building a cohort community, students will read key texts in the field of education studies and participate in research methods trainings. Assignments include weekly readings, an ongoing class blog, leading class convenings, research methods training, and collaborative final projects. Prerequisites: EDST 110 and acceptance into the Education Studies MAP.

*** EDST 263a / AFAM 261a / AMST 263a, Place, Race, and Memory in Schools** Errol Saunders

As places, schools both shape and are profoundly shaped by the built environment and the breathed, braved, and believed everyday experiences of the people that interact with them. That everyday environment is just as grounded in the past as it is in the present. Teachers, administrators, students, and parents are impacted by the racialized narratives about the past that groups and individuals take up to explain the bygone, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Given the weight that narratives of social mobility in the United States place upon education, there is profound interest in the roles that schools play in perpetuating racial disparities

in American society and the opportunities that education writ large might provide for remedying them. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

*** EDST 270b / AMST 447b / ER&M 367b, Contemporary Native American K–12 and Postsecondary Educational Policy** Mira Debs

This course will explore current Native American educational policy issues, programming, funding, and success. Native American representation in policy conversations is often incomplete, complicated, or relegated to an asterisk resulting in a lack of resources, awareness, and visibility in educational policy. This course examines the challenges and issues related to Native education; however, the impetus of this course centers on the resiliency, strength, and imagination of Native American students and communities to redefine and achieve success in a complex and often unfamiliar educational environment. EDST 110 recommended SO

EDST 271b / AFAM 146b / ECON 171b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K–12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

*** EDST 274b, College in Prison** Zelda Roland

The history, present, and future of higher education in prison seen through the perspective of practitioners, students, alumni, faculty, theorists, and higher ed policymakers. Topics include: prison education and abolition; liberal arts in prison; the history of higher education in the U.S.; the 1994 Pell grant ban for incarcerated students and the coming restoration of Pell access; citizenship and education; town-gown relationships, reparations, and higher education; the idea of criminality and the idea of studenthood; and the history of the Yale student body. EDST 110 recommended.

*** EDST 281a / HIST 404a / HUMS 303a / PLSC 281a, What is the University?**

Mordechai Levy-Eichel

The University is one of the most influential – and underexamined – kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service

of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

*** EDST 282b / PLSC 417b, Comparative International Education** Mira Debs

Around the world, education is one of the central institutions of society, developing the next generation of citizens, workers and individuals. How do countries balance these competing priorities? In which ways do countries converge on policies, or develop novel approaches to education? Through the course, students learn the a) impact of colonialism on contemporary education systems, b) the competing tensions of the demands of citizen and worker and c) how a variety of educational policies are impacted around the world and their impact on diverse populations of students. EDST 110 Foundations in Education Studies recommended. WR, SO

*** EDST 285b, Educational Design: The Form and Function of Schooling and Learning** Richard Lemons

This course explores the physical, chronological, structural, and curricular design of schools and classrooms that impact the educational community and the development of students. Using organizational theory and design thinking, students learn how to help schools better align to the learning needs of students. This course is especially ideal for students interested in founding their own schools or educational organizations. Prerequisite: EDST 110 is recommended. SO

*** EDST 290a, Leadership, Change, and Improvement in Education** Richard Lemons

Analysis of the most significant challenges faced by the United States educational system, drawing upon research from a range of academic disciplines to understand how schools and districts operate and why certain educational challenges persist, sometimes over multiple generations of students. Students will study successful educational improvement efforts to better understand the political and organizational strategies necessary to improve student experiences and outcomes at scale, as well as the leadership practices necessary to successfully implement and sustain such strategies. Preference given to Education Studies Scholars or others who have taken EDST 110. SO

*** EDST 350b / CHLD 350b / PSYC 350b, Autism and Related Disorders** Mariana Torres-Viso, Kelly Powell, and James McPartland

Weekly seminar focusing on autism and related disorders of socialization. A series of lectures on topics in etiology, diagnosis and assessment, treatment and advocacy, and social neuroscience methods; topics cover infancy through adulthood. Supervised experience in the form of placement in a school, residence, or treatment setting for individuals with autism spectrum disorders. Details about admission to the course are explained at the first course meeting. Prerequisite: an introductory psychology course. SO

*** EDST 361a / THST 361a, Production Seminar: Theater in Education** Nathan Roberts and Deborah Margolin

Centering on the creation of a new production of Aurand Harris's *Arkansaw Bear*, this studio course will explore foundational Theatre in Education (TIE) theories and methods to bring performance and enrichment materials to New Haven area school children. Open to all majors, with opportunities for students to engage as performers (actors, acrobats, musicians) and designers, and to explore dramaturgy and production logistics through a small-scale educational tour, in conversation with regional leaders in the field. HU

*** EDST 400a, Senior Capstone (Fall)** Talya Zemach-Bersin

The first course in the yearlong sequence, followed by EDST 410/EDST 490 preparing students for a thesis-equivalent capstone project and overview of education studies methodologies and practical research design. Prerequisites: EDST 110 and two Education Studies electives. Enrollment limited to senior Education Studies Scholars.

*** EDST 410b, Senior Capstone (Spring)** Talya Zemach-Bersin

The second course in the yearlong Education Studies Scholars capstone sequence where students conduct a rigorous project on a topic of their choice in education research, policy, and/or practice. Enrollment limited to senior Education Studies Scholars.

Egyptian (EGYP)

EGYP 110a, Introduction to Classical Hieroglyphic Egyptian I John Darnell

Introduction to the language of ancient pharaonic Egypt (Middle Egyptian) and its hieroglyphic writing system, with short historical, literary, and religious texts. Grammatical analysis with exercises in reading, translation, and composition. L1

EGYP 120b, Introduction to Classical Hieroglyphic Egyptian II John Darnell

Continuation of EGYP 110. Prerequisite: EGYP 110. L2 RP

*** EGYP 131a, Intermediate Egyptian I: Literary Texts** John Darnell

This course engages in close reading of Middle Egyptian literary texts in hieroglyphic transcription, along with an introduction to the hieratic (cursive) Egyptian script of the original sources. Primary sources include the Middle Kingdom stories, principally those known by the modern titles “The Story of Sinuhe” and “The Tale of the Eloquent Peasant.” Assigned secondary literature includes reviews of grammatical topics in Middle Egyptian and analyses of the cultural, religious, and historical context of the literary texts. We also read portions of texts from other genres – historical, administrative, etc. – that serve to illuminate concepts and practices appearing in the literary compositions. Prerequisite: EGYP 120 or permission of instructor. L3

*** EGYP 137a / RLST 423a, Gnostic Texts in Coptic** Staff

Reading, translation, and analysis of Gnostic and Valentinian literature from Nag Hammadi, in several dialects of Coptic. Prerequisite: EGYP 127 or equivalent. Counts as L4 if taken after EGYP 147 or equivalent. L3

*** EGYP 141b, Intermediate Egyptian: Historical Texts** Staff

Close reading of Middle Egyptian historical texts in original hieroglyphic and hieratic script. Initial survey of ancient Egyptian historiography and grammatical forms peculiar to this genre of text. Prerequisite: EGYP 120. Counts as L4 if taken after EGYP 131. L3 RP

*** EGYPT 147b / RLST 422b, Egyptian Monastic Literature in Coptic** Stephen Davis
Readings in the early Egyptian classics of Christian asceticism in Sahidic Coptic, including the desert Fathers and Shenute. Prerequisite: EGYPT 127 or equivalent. Counts as L4 if taken after EGYPT 137 or equivalent. L3

*** EGYPT 159a, Abydene Texts** John Darnell
Abydene Texts engages in close reading of a selection of the many texts deriving from and describing the ancient city of Abydos. The course provides an overview of material ranging in date from the Protodynastic through the Ramesside Periods, covering over two millennia of ancient Egyptian history. This class is intended for students who have completed at least one L3/4 course; if you have not met this prerequisite, please contact me as soon as possible. This course fulfills the L5 requirement. This class is intended for students who have completed at least one L3/4 course; if you have not met this prerequisite, please contact me as soon as possible. This course fulfills the L5 requirement. L5 RP

Electrical Engineering (EENG)

EENG 200a, Introduction to Electronics Staff

Introduction to the basic principles of analog and digital electronics. Analysis, design, and synthesis of electronic circuits and systems. Topics include current and voltage laws that govern electronic circuit behavior, node and loop methods for solving circuit problems, DC and AC circuit elements, frequency response, nonlinear circuits, semiconductor devices, and small-signal amplifiers. A lab session approximately every other week. After or concurrently with MATH 115 or equivalent. QR, WR, SC
o Course cr

EENG 201b, Introduction to Computer Engineering Priya Panda

Introduction to the theoretical principles underlying the design and programming of simple processors that can perform algorithmic computational tasks. Topics include data representation in digital form, combinational logic design and Boolean algebra, sequential logic design and finite state machines, and basic computer architecture principles. Hands-on laboratory involving the active design, construction, and programming of a simple processor. QR

EENG 202a, Introduction to Communications and Control Anna Gilbert

Introduction to systems that sense, process, control, and communicate. Topics include information theory and coding (compression, channel coding); network systems (network architecture, routing, wireless networks); signals and systems (linear systems, Fourier techniques, bandlimited sampling); estimation and learning (hypothesis testing, regression, classification); and end-to-end application examples (security, communication systems). MATLAB programming assignments illustrate concepts. Students should have basic familiarity with counting (combinatorics), probability and statistics (independence between events, conditional probability, expectation of random variables, uniform distribution). Prerequisite: MATH 115. AP Stats preferred. QR

EENG 203b, Circuits and Systems Design Hong Tang

Introduction to design in a laboratory setting. A wide variety of practical systems are designed and implemented to exemplify the basic principles of systems theory. Systems include audio filters and equalizers, electrical and electromechanical feedback systems,

radio transmitters and receivers, and circuits for sampling and reconstructing music.

Prerequisite: EENG 200 QR, SC RP

*** EENG 235a, Special Projects** Rajit Manohar and Fengnian Xia

Faculty-supervised individual or small-group projects with emphasis on laboratory experience, engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. These courses may be taken at any time during the student's career. Enrollment requires permission of both the instructor and the director of undergraduate studies, and submission to the latter of a one- to two-page prospectus signed by the instructor. The prospectus is due in the departmental office one day prior to the date that the student's course schedule is due. ½ Course cr

EENG 310b, Signals and Systems Staff

Signal and system theory, having its roots at a great extent on classical and modern harmonic analysis, has played an instrumental role in the development of several transformative technologies during the 20th and 21st centuries. Two such examples are communication systems (analog, digital, wired, wireless), and compressive sensing and sparse approximations. This core course provides a comprehensive first exposition to signal and system theory, and mainly covers the following content: definitions/classifications/modeling of signals and systems in continuous and discrete-time; linear system theory (impulse response, frequency response, linear difference/differential equations); convolutions (continuous and discrete); Fourier series; Fourier transform (continuous and discrete-time); Laplace transform and Z-transform. Prior knowledge of advanced calculus of one variable and some elementary real analysis will be very useful (something like MATH 115), although it is not required strictly. QR

EENG 320a / APHY 320a, Semiconductor Devices Hong Tang

An introduction to the physics of semiconductors and semiconductor devices. Topics include crystal structure; energy bands in solids; charge carriers with their statistics and dynamics; junctions, p-n diodes, and LEDs; bipolar and field-effect transistors; and device fabrication. Additional lab one afternoon per week. Prepares for EENG 325 and 401. Recommended preparation: EENG 200. PHYS 180 and 181 or permission of instructor QR, SC

EENG 325a, Microelectronic Circuits Fengnian Xia

Models for active devices; single-ended and differential amplifiers; current sources and active loads; operational amplifiers; feedback; design of analog circuits for particular functions and specifications, in actual applications wherever possible, using design-oriented methods. Includes a team-oriented design project for real-world applications, such as a high-power stereo amplifier design. Electronics Workbench is used as a tool in computer-aided design. Additional lab one afternoon per week. Prerequisite: EENG 200. QR

EENG 348b / CPSC 338b, Digital Systems Staff

Development of engineering skills through the design and analysis of digital logic components and circuits. Introduction to gate-level circuit design, beginning with single gates and building up to complex systems. Hands-on experience with circuit design using computer-aided design tools and microcontroller programming.

Recommended preparation: EENG 201. QR

EENG 400a, Electronic Materials Mengxia Liu

Survey and review of fundamental material issues pertinent to modern microelectronic and optoelectronic technology. Topics include band theory, electronic transport, surface kinetics, diffusion, defects in crystals, thin film elasticity, crystal growth, and heteroepitaxy. Formerly EENG 408. Prerequisite: EENG 320 or permission of instructor. QR, SC

EENG 402b / APHY 418b, Advanced Electron Devices Mengxia Liu

The science and technology of semiconductor electron devices. Topics include compound semiconductor material properties and growth techniques; heterojunction, quantum well and superlattice devices; quantum transport; graphene and other 2D material systems. Formerly EENG 418. Prerequisite: EENG 320 or equivalent. QR, SC

EENG 406b, Photovoltaic Energy Fengnian Xia

Survey of photovoltaic energy devices, systems, and applications, including review of optical and electrical properties of semiconductors. Topics include solar radiation, solar cell design, performance analysis, solar cell materials, device processing, photovoltaic systems, and economic analysis. Prerequisite: EENG 320 or permission of instructor. QR, SC

EENG 420b / CPSC 420b, Computer Architecture Abhishek Bhattacharjee

This course offers a treatment of computer architectures for high-performance and power/energy-efficient computer systems. Topics include the foundations of general-purpose computing, including instruction set architectures, pipelines, superscalar and out-of-order execution, speculation, support for precise exceptions, and simultaneous multi-threading. We also cover domain-specific hardware (e.g., graphics processing units), and ongoing industry efforts to elevate them to the status of first-class computing units. In tandem, we cover topics relevant to both general-purpose and domain-specific computing, including memory hierarchies, address translation and virtual memory, on-chip networks, machine learning techniques for resource management, and coherence techniques. If time permits, we will study the basics of emerging non-classical computing paradigms like neuromorphic computing. Overall, this course offers insights on how the computing industry is combating the waning of traditional technology scaling via acceleration and heterogeneity. Prerequisites: CPSC 323, 223, and 202. This is a programming-intensive course, so comfort with large programming projects is essential.

*** EENG 424b, Computer Hardware Security** Jakub Szefer

Computer hardware security is one of the most important and challenging areas in computer engineering. Securing computers is essential to safeguarding personal information, intellectual property, and the national infrastructure at large. While technology is constantly changing, the fundamental problems of securing computers remain the same. With each new technology, similar problems of information leakage and different types of covert- and side- channel attacks emerge. This course provides an in-depth examination of computers and their hardware-based security issues. The operation of the hardware, from transistors to processor microarchitectures, has intimate impact on the security of the whole system. Often, software or algorithms executing on a computer have no control over, or detailed access to, the underlying hardware. Yet, the operation of the hardware and different types of side-effects, such as changing timing, changing power consumption, EM emanations, or different types of crosstalk effects lead to information leakage. To understand the hardware-

based security issues, and how to prevent them, the course focuses on classical microprocessors, accelerators such as Field Programmable Gate Arrays, as well as emerging technologies such as Quantum Computers. For the different types of computers, the course teaches students about the various hardware security issues, and students are able to experiment and perform hands-on exercises to demonstrate different types of information leaks. Students also learn about latest research through reading and presenting research papers in-class. Prerequisite: EENG 348 or CPSC 323 or with instructor's approval. QR

EENG 426a / CPSC 448a / ENAS 876a, Silicon Compilation Rajit Manohar

An upper-level course on compiling computations into digital circuits using asynchronous design techniques. Emphasis is placed on the synthesis of circuits that are robust to uncertainties in gate and wire delays by the process of program transformations. Topics include circuits as concurrent programs, delay-insensitive design techniques, synthesis of circuits from programs, timing analysis and performance optimization, pipelining, and case studies of complex asynchronous designs. Prerequisite: EENG 201 and introductory programming, or permission of instructor.

EENG 428a, Cloud Computing with FPGAs Jakub Szefer

This course is an intermediate to advanced level course focusing on digital design and use of Field Programmable Gate Arrays (FPGAs). The course centers around the new cloud computing paradigm of using FPGAs that are hosted remotely by cloud providers and accessed remotely by users. The theoretical aspects of the course focus on digital system modeling and design using the Verilog Hardware Description Language (Verilog HDL). In the course, students learn about logic synthesis, behavioral modeling, module hierarchies, combinatorial and sequential primitives, and implementing and testing the designs in simulation and real FPGAs. Students learn about topics ranging from high-level ideas about cloud computing to low-level details of interfacing servers to FPGAs, PCIe protocol, AXI protocol, and other common communication protocols between hardware modules or between the FPGAs and the host computer, including Serial, SPI, and I2C. Students also learn about and use FPGA tools from Xilinx, but course also touches on tools available from Intel (formerly Altera) as well as open-source tools. The practical aspects of the course include semester-long projects leveraging commercial or in-lab remote FPGAs, based on the project selected by students. Prerequisites: EENG 201 and 348 or permission of the instructor. Students should be familiar with digital design basics and have some experience with Hardware Description Languages such as Verilog or VHDL. QR

EENG 431a, Foundations of Data Science Amin Karbasi

Recent advances in data science have enabled us to make tremendous progress in various fields including robotics, machine learning, computer vision, medicine, etc. This course provides an easy, yet rigorous, introduction to the mathematical and algorithmic foundations of data science. We cover key ideas that have led to such progress from statistics to optimization. The course is organized around three themes: What is learning? What algorithms can we use to learn? How can we optimize resources for efficient learning? Prerequisites: MATH 120, MATH 222, CPSC 365, and STAT 241. SC

*** EENG 432a / AMTH 342a, Linear Systems** A Stephen Morse

Introduction to finite-dimensional, continuous, and discrete-time linear dynamical systems. Exploration of the basic properties and mathematical structure of the

linear systems used for modeling dynamical processes in robotics, signal and image processing, economics, statistics, environmental and biomedical engineering, and control theory. Prerequisite: MATH 222 or permission of instructor. QR

EENG 434b / MATH 251b / S&DS 351b, Stochastic Processes Ilias Zadik

Introduction to the study of random processes including linear prediction and Kalman filtering, Poisson counting process and renewal processes, Markov chains, branching processes, birth-death processes, Markov random fields, martingales, and random walks. Applications chosen from communications, networking, image reconstruction, Bayesian statistics, finance, probabilistic analysis of algorithms, and genetics and evolution. Prerequisite: S&DS 241 or equivalent. QR

*** EENG 435b / AMTH 362b / CPSC 362b, Decisions and Computations across**

Networks A Stephen Morse

For a long time there has been interest in distributed computation and decision making problems of all types. Among these are consensus and flocking problems, the multi-agent rendezvous problem, distributed averaging, gossiping, localization of sensors in a multi-sensor network, distributed algorithms for solving linear equations, distributed management of multi-agent formations, opinion dynamics, and distributed state estimation. The aim of this course is to explain what these problems are and to discuss their solutions. Related concepts from spectral graph theory, rigid graph theory, non-homogeneous Markov chain theory, stability theory, and linear system theory are covered. Although most of the mathematics need is covered in the lectures, students taking this course should have a working understanding of basic linear algebra. The course is open to all students. Prerequisite: Linear algebra or instructor permission. SC

EENG 439a, Neural Networks and Learning Systems Priya Panda

Neural networks (NNs) have become all-pervasive giving us self-driving cars, Siri Voice assistants, Alexa, and much more. While deep NNs deliver state-of-the-art accuracy on many artificial intelligence tasks, it comes at the cost of high computational complexity. Accordingly, designing efficient hardware architectures for deep neural networks is an important step towards enabling the wide deployment of NNs, particularly in low-power computing platforms, such as, mobiles, embedded Internet of Things (IoT) and drones. This course aims to provide a thorough overview on deep learning techniques, while highlighting the key trends and advances toward efficient processing of deep learning in hardware systems, considering algorithm-hardware co-design techniques. Prerequisites: MATH 222 or CPSC 202, EENG 201, and knowledge of Python programming.

EENG 442b / MENG 405b, Introduction to Embedded Robotic Systems Ahalya

Prabhakar

This project-based course gives students an introduction to concepts useful for a robotics engineer working with practical embedded systems, as well as experience with a variety of sensors and software tools needed for working with robots. Students are provided an overview of the different components of robotic systems, including planning, estimation, and control. Topics such as kinematics, dynamics (for robotics), frame transforms, twists, and wrenches will be introduced in the course. In addition, students learn how to use the Robot Operating System (ROS 2) to connect concepts and components relevant to robotic systems. Furthermore, they learn how to write software and simulations to interface sensors and actuators, and to integrate different

components in a system, including planning, estimation, and control. By the end of the course, students complete a project using a real robot. Experience with mechatronics (MENG 390) and a basic understanding in dynamics is required. Coding experience required, specifically have a basic understanding of Python and C++.

EENG 445a / BENG 445a, Biomedical Image Processing and Analysis Lawrence Staib and James Duncan

This course is an introduction to biomedical image processing and analysis, covering image processing basics and techniques for image enhancement, feature extraction, compression, segmentation, registration and motion analysis including traditional and machine learning techniques. Student learn the fundamentals behind image processing and analysis methods and algorithms with an emphasis on biomedical applications. Prerequisite: BENG 352 or EENG 310 or permission of instructors. Recommended preparation: familiarity with probability theory.

EENG 450a, Applied Digital Signal Processing Roman Kuc

An analysis, by computer, of processing requirements. Relevant probability and estimation theories applied to measurements corrupted by noise. Point estimates and system identification from random processes. MATLAB simulations verify the analysis. Prerequisite: EENG 310 or permission of instructor. QR

*** EENG 452a, Internet Engineering** Leandros Tassioulas

Introduction to basic Internet protocols and architectures. Topics include packet-switch and multi-access networks, routing, flow control, congestion control, Internet protocols (IP, TCP, BGP), the client-server model, IP addressing and the domain name system, wireless access networks, and mobile communications. Prerequisite: a college-level course in mathematics, engineering, or computer science, or with permission of instructor. QR

EENG 454b / AMTH 364b / S&DS 364b, Information Theory Staff

Foundations of information theory in communications, statistical inference, statistical mechanics, probability, and algorithmic complexity. Quantities of information and their properties: entropy, conditional entropy, divergence, redundancy, mutual information, channel capacity. Basic theorems of data compression, data summarization, and channel coding. Applications in statistics and finance. After STAT 241. QR

*** EENG 455b, Network Algorithms and Stochastic Optimization** Leandros Tassioulas

This course focuses on resource allocation models as well as associated algorithms and design and optimization methodologies that capture the intricacies of complex networking systems in communications computing as well as transportation, manufacturing, and energy systems. Max-weight scheduling, back-pressure routing, wireless opportunistic scheduling, time-varying topology network control, and energy-efficient management are sample topics to be considered, in addition to Lyapunov stability and optimization, stochastic ordering, and notions of fairness in network resource consumption. QR

*** EENG 468a, Advanced Special Projects** Rajit Manohar and Fengnian Xia

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. This course may only be taken once and at any appropriate time during the student's career;

it does not fulfill the senior requirement. Enrollment requires permission of both the instructor and the DUS, and submission to the latter of a one- to two-page prospectus approved by the instructor. The prospectus is due to the DUS one day prior to the date that the student's course schedule is due.

*** EENG 471a, Senior Advanced Special Projects** Rajit Manohar and Fengnian Xia
Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. This course is only open to seniors and is one of the courses that fulfills the senior requirement. Enrollment requires permission of both the instructor and the DUS, and submission to the latter of a one- to two-page prospectus approved by the instructor. The prospectus is due to the DUS one day prior to the date that the student's course schedule is due.

EENG 475a / BENG 475a / CPSC 475a, Computational Vision and Biological Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and physiology students. Prerequisite: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

*** EENG 481b, Advanced ABET Projects** Roman Kuc

Study of the process of designing an electrical device that meets performance specifications, including project initiation and management, part specification, teamwork, design evolution according to real-world constraints, testing, ethics, and communication skills. Design project consists of electronic sensor, computer hardware, and signal analysis components developed by multidisciplinary teams. Prerequisites: EENG 310, 320, 325, and 348. RP

Energy Studies (ENRG)

*** ENRG 300a or b, Multidisciplinary Topics in World Energy** Michael Oristaglio

This course studies how the 21st-century energy transition away from fossil fuels towards sustainable (sustainable, low-carbon) energy sources is proceeding in key countries and regions around the world such as U.S., Germany, China, India, and Sub-Saharan Africa. The approach is multidisciplinary, encompassing geographical, technological, economic, social and geopolitical incentives and barriers to progress. Enrollment in the Energy Studies MAP is required. so

*** ENRG 320b / ENVE 320b / MENG 320b, Energy, Engines, and Climate** Staff

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are

currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the “big picture” on how to tackle future energy needs. The course is designed for juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

*** ENRG 400b, Senior Capstone Seminar** Michael Oristaglio

This course serves as the capstone seminar for the Energy Studies Multidisciplinary Academic Program (MAP). Capstone projects in Energy Studies are undertaken in the senior year and can comprise an independent study project or an extension of a summer internship, senior essay or senior project in the major. To register for this course, students must submit a project proposal to the Director of Energy Studies no later than the end of registration period in the term in which the course is to be taken. In addition to individual study, the seminar meets regularly during the term. Prerequisite: Enrollment in, and expected completion of, the course requirements for Energy Studies.

Engineering & Applied Science (ENAS)

*** ENAS 050a or b / APHY 050a or b / PHYS 050a or b, Science of Modern Technology and Public Policy** Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale immunization, and DNA made to order. Enrollment limited to first-year students. SC

*** ENAS 100b / APHY 100b / EPS 105b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC RP

*** ENAS 118a, Introduction to Engineering, Innovation, and Design** Lawrence Wilen

An introduction to engineering, innovation, and design process. Principles of material selection, stoichiometry, modeling, data acquisition, sensors, rapid prototyping, and elementary microcontroller programming. Types of engineering and the roles engineers play in a wide range of organizations. Lectures are interspersed with practical exercises. Students work in small teams on an engineering/innovation project at the end of the term. Priority to first-year students. RP

*** ENAS 120b / CENG 120b / ENVE 120b, Introduction to Environmental Engineering** John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental

technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently), or permission of instructor. QR, SC

ENAS 130a or b, Introduction to Computing for Engineers and Scientists Beth Anne Bennett

An introduction to the use of the C and C++ programming languages and the software packages Mathematica and MATLAB to solve a variety of problems encountered in mathematics, the natural sciences, and engineering. General problem-solving techniques, object-oriented programming, elementary numerical methods, data analysis, and graphical display of computational results. Prerequisite: MATH 115 or equivalent. Recommended preparation: previous programming experience. QR

ENAS 151a or b / APHY 151a or b / PHYS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

ENAS 194a or b / APHY 194a or b, Ordinary and Partial Differential Equations with Applications Staff

Basic theory of ordinary and partial differential equations useful in applications. First- and second-order equations, separation of variables, power series solutions, Fourier series, Laplace transforms. Prerequisites: ENAS 151 or MATH 120 or equivalent, and knowledge of matrix-based operations. QR

ENAS 217a, Disruptive Technologies and Responsible Innovation Staff

This course gives students insights into disruptive technologies and the mechanisms of driving responsible innovation. It helps demystify current-day innovations that are having a profound impact on the world—how they work and how they came to be. And it helps them understand how concepts take shape and get driven into the market. What makes an idea great? How do leaders develop robust solutions, mitigate risks, and extract value? This class covers concepts and frameworks and explores case studies of various disruptive technologies, establishing the technical underpinnings and discussing their societal implications. This course is appropriate for any students interested in exploring timely technology-related themes shaping society and the world. There are no prerequisites. SC

ENAS 360b / ENVE 360b, Green Engineering and Sustainable Design Julie Zimmerman

Study of green engineering, focusing on key approaches to advancing sustainability through engineering design. Topics include current design, manufacturing, and disposal processes; toxicity and benign alternatives; policy implications; pollution prevention and source reduction; separations and disassembly; material and energy efficiencies and flows; systems analysis; biomimicry; and life cycle design, management, and analysis. Prerequisites: CHEM 161, 165 or 163, 167 (or CHEM 112, 113, or 114, 115), or permission of instructor.

*** ENAS 403a, Funding It: Innovation, Entrepreneurship, and Venture Capital** Jorge Torres

A survey of the origins, practice, and business models of venture capital with application to engineering science. Consideration of three major areas: the history and

purpose of venture capital; the practical details of venture investing; and advanced topics on business models, technology ecosystems, and ethics. Particular exposure to principles of entrepreneurship, including intellectual property strategy, market validation, customer discovery, positioning, and capital formation. Separate application required at: <https://bit.ly/ENAS403>

*** ENAS 415a / BENG 415a, Practical Applications of Bioimaging and Biosensing**

Daniel Coman, Ansel Hillmer, and Evelyn Lake

Detecting, measuring, and quantifying the structural and functional properties of tissue is of critical importance in both biomedical research and medicine. This course focuses on the practicalities of generating quantitative results from raw bioimaging and biosensing data to complement other courses focus on the theoretical foundations which enable the collection of these data. Participants in the course work with real, cutting-edge data collected here at Yale. They become familiar with an array of current software tools, denoising and processing techniques, and quantitative analysis methods that are used in the pursuit of extracting meaningful information from imaging data. The subject matter of this course ranges from bioenergetics, metabolic pathways, molecular processes, brain receptor kinetics, protein expression and interactions to wide spread functional networks, long-range connectivity, and organ-level brain organization. The course provides a unique hands-on experience with processing and analyzing *in vitro* and *in vivo* bioimaging and biosensing data that is relevant to current research topics. The specific imaging modes which are covered include *in vivo* magnetic resonance spectroscopy (MRS) and spectroscopic imaging (MRSI), functional, structural, and molecular imaging (MRI), wide-field fluorescent optical imaging, and positron emission tomography (PET). The course provides the necessary background in biochemistry, bioenergetics, and biophysics for students to motivate the image manipulations which they learn to perform. Prerequisites: Math through first order differential equations, PHYS 180/181, CHEM 161, BIOL 101/102, BENG 249 or other experience with scientific software like MATLAB®, BENG 350, and BENG 410 (both of which can be taken at the same time as this course) SC o Course cr

ENAS 440b / MENG 440b, Applied Numerical Methods for Algebraic Systems, Eigensystems, and Function Approximation Beth Anne Bennett

The derivation, analysis, and implementation of various numerical methods. Topics include root-finding methods, numerical solution of systems of linear and nonlinear equations, eigenvalue/eigenvector approximation, polynomial-based interpolation, and numerical integration. Additional topics such as computational cost, error analysis, and convergence are studied in several contexts throughout the course. Prerequisites: MATH 115, and 222 or 225, or equivalents; ENAS 130 or some experience with Matlab, C++, or Fortran programming. QR

*** ENAS 450a / APHY 450a / MENG 450a, Advanced Synchrotron Techniques and Electron Spectroscopy of Materials** Charles Ahn

Introduction to concepts of advanced x-ray and electron-based techniques used for understanding the electronic, structural, and chemical behavior of materials. Students learn from world-leading experts on fundamentals and practical applications of various diffraction, spectroscopy, and microscopy methods. Course highlights the use of synchrotrons in practical experiments. Prerequisites: physics and quantum mechanics/physical chemistry courses for physical science and engineering majors, or by permission of instructor. QR, SC

ENAS 475a / MENG 475a, Fluid Mechanics of Natural Phenomena Amir Pahlavan

This course draws inspiration from nature and focuses on utilizing the fundamental concepts of fluid mechanics and soft matter physics to explain these phenomena. We study a broad range of problems related to i) nutrient transport in plants, slime molds, and fungi and the adaptation of their networks in dynamic environments, ii) collective behavior and chemotaxis of swimming microorganisms, and iii) pattern formation in nature, e.g. icicles, mud cracks, salt polygons, dendritic crystals, and Turing patterns. We also discuss how our understanding of these problems could be used to develop sustainable solutions for the society, e.g. designing synthetic trees to convert CO₂ to oxygen, developing micro/nano robots for biomedical applications, and utilizing pattern formation and self-assembly to make new materials. Prerequisite: MENG 361.

English Language and Literature (ENGL)

*** ENGL 006a / AFAM 017a, Black Nature: African American Nature Writing**

Jonathan Howard

What stories do we tell about nature? How are the stories we are *able* to tell about nature informed by race? And how do these stories shape our understanding of what it means to be human? In contrast to a largely white tradition of nature writing that assumes a superior position outside of Nature, this course undertakes a broad survey of African American nature writing. Over the course of the semester, we read broadly across several genres of African American literature, including: slave narrative, fiction, poetry, drama and memoir. In this way, we center the unique environmental perspectives of those, who, once considered no more than livestock, *were* the nature over which their white masters ruled. Indeed, as those who were drowned in the ocean during the trans-Atlantic slave trade, forced to cultivate the soil on slave plantations, and hung from trees across the Jim Crow South, black Americans are bound up and entangled in nature in incredibly complex and precarious ways. Perhaps for this very reason, however, we may ultimately come to find in these black nature stories the resources for reclaiming a proper relationship to the Earth, and for imagining a sustainable human life in nature, rather than apart from it. Enrollment limited to first-year students. HU

*** ENGL 015a / AFAM 016a / AFST 015a, South African Writing after Apartheid**

Stephanie Newell

An introduction to creative writing published in South Africa from the end of Apartheid in 1994 to the present. Close readings of contemporary fiction with additional material drawn from popular culture, including films, magazines, and music. Enrollment limited to first-year students. WR, HU

*** ENGL 029b / AMST 029b / HUMS 032b, Henry Thoreau** Michael Warner

Henry Thoreau played a critical role in the development of environmentalism, American prose, civil rights, and the politics of protest. We read his writing in depth, and with care, understanding it both in its historical context and in its relation to present concerns of democracy and climate change. We read his published writing and parts of the journal, as well as biographical and contextual material. The class makes a field trip to Walden Pond and Concord, learning about climate change at Walden as revealed by Thoreau's unparalleled documentation of his biotic surroundings. Student's consider Thoreau's place in current debates about the environment and politics, and are

encouraged to make connection with those debates in a final paper. Enrollment limited to first-year students. HU

*** ENGL 033a / LING 033a, Words, Words, Words: The Structure and History of English Words** Peter Grund

Meggings. Perpendicular. Up. Ain't. Eerily. Bae. The. These are all words in the English language, but, like all words, they have different meanings, functions, and social purposes; indeed, the meaning and function may be different for the same word depending on the context in which we use it (whether spoken or written). In this course, we explore the wonderful world of words. We look at how we create new words (and why), how we change the meaning of words, and how words have been lost (and revived) over time. As we do so, we look at debates over words and their meanings now (such as the feeling by some that *ain't* is not a word at all) and historically (such as the distaste for *subpedials* for 'shoes' in the sixteenth century), and how words can be manipulated to insult, hurt, and discriminate against others. We look at a wide range of texts by well-known authors (such as Shakespeare) as well as anonymous online bloggers, and we make use of online tools like the Google Ngram viewer and the Corpus of Historical American English to see how words change over time. At the end of the course, I hope you see how we make sophisticated use of words and how studying them opens up new ways for you to understand why other people use words the way they do and how you can use words for various purposes in your own speech and writing. Enrollment limited to first-year students. HU

*** ENGL 039a / AMST 039a / ER&M 039a, Latinx Literature Aside the Law** Joseph Miranda

How has Latinx identity emerged through and against the law? From the suspension of Puerto Rican sovereignty to the contemporary proliferation of ethnic studies bans, the state has used the law to delimit Latinx to transparent or static categories of irregular "citizen," "refugee," and "migrant." If conventional thinking assumes that art only responds to the law in protest or affirmation of the status quo, this seminar introduces students to the ways Latinx literature engages, resists, and disidentifies with the law as it delineates national belonging. We ask how do Latinx creative expressions expand the notions of citizenship, nation, and family beyond their raced, classed, and gendered origins to imagine new futures. Through attention to contemporary tv, film, novels, and poetry, we examine how Latinx artists build alternative forms of thriving collective life in forms of mutual aid, queer kinship, party, and protest. Works up for discussion include those by Justin Torres, Raquel Salas Rivera, and the television show *Vida*. Drawing inspiration from these texts, students collaborate on podcasts, write analytical essays, and complete other critical and creative projects. Enrollment limited to first-year students. WR, HU

*** ENGL 041b / ART 040b, Writer as Designer, Designer as Writer** Rachel Kauder Nalebuff and Andrew Walsh-Lister

This seminar invites us to explore the boundaries between written and visual expression. Students with a background or interest in visual art learn to harness their voices as writers, and writers learn tools for how words take on new meaning through visual compositions. The course investigates the relationship between form and content through the creation of three projects—an interview, a manual, and an essay—each of which is written, designed, and physically produced using a variety of tools at our disposal. Through readings, in-class discussion and exercises, as well as workshops, we

consider the ways language and ideas can be communicated to others through different media, and how that media in itself also carries meaning. The aim of the course is to playfully blur the categories of “writer” and “designer” so that we can be both at once: messengers. Enrollment limited to first-year students. This course does not count toward the Creative Writing Concentration for English majors. HU

*** ENGL 050b / AMST 050b, Reading Poetry for Life** Jim Berger

This is a course about reading poetry – about how to read poetry. It is also a course about how reading poetry helps us live, and especially in a world of multiple zones of crisis, violence, injustice, and environmental degradation. Thus, the course’s goals are intellectual, aesthetic, emotional, and ethical. True engagement with poetry is an engagement of the whole person. The course is organized thematically: There are units on poetic responses to war and social injustice; on personal pain and transformation; on poetry of happiness; and on poems that just enjoy their own formal processes. Poetry can say powerfully – sometimes directly, sometimes obliquely – what may be difficult to express in other forms. And yet, we must ask also, what good does it do? It helps us feel? It helps us think? It helps us feel and think with others? Poetry is a very old form of linguistic expression, perhaps the oldest. Here we are, still writing and reading it. And the sufferings, crimes, and hopes it has always imagined still are happening. Here we are. Maybe poetry is our best attempt at honesty, as simple and complex as that is. Enrollment limited to first-year students. HU

*** ENGL 063b, Vampires, Castles, and Werewolves** Heather Klemann

What happens when a mirror held up to our world reflects back something ominously and unreasonably distorted? How do the sublime, the uncanny, and the supernatural fashion and fracture our sense of self? Examining gothic novels from the 18th and 19th centuries – the stuff of craggy cliffs, mysterious dungeons, and their paranormal inhabitants – alongside 20th and 21st-century films, this course explores the historical origins and deep cultural legacy of literary responses to the so-called Age of Reason. As we tour medieval monasteries, shadowy back alleys of London, and abysmal realms of the subconscious, we consider how literary representations of unreason affirm and unsettle our understanding of lived experience and our faith in laws of science and logic. Gothic fiction has long provided fertile ground for cultivating ideas about race, gender, sexuality, and colonialism – special attention is given to these topics throughout the course. Readings include *Frankenstein*, *Mexican Gothic*, *The Strange Case of Dr. Jekyll and Mr. Hyde*, and *Dracula*. Films include Peele’s *Get Out*, Bong’s *Parasite*, and Hitchcock’s *Rebecca*. Enrollment limited to first-year students. HU

*** ENGL 076b / CLCV 076b, Edward Gibbon's Decline and Fall of the Roman Empire**
Staff

This course, a discussion-oriented first-year seminar, explores through close readings the 18th-century British historian Edward Gibbon’s magnum opus, *The History of the Decline and Fall of the Roman Empire*, with two main sets of questions in mind: Firstly, what is Gibbon’s picture of the world of the Roman Empire and the processes of historical change, how do account for it, and how accurate is it? And secondly, what is interesting and important about Gibbon’s methodology, language, and rhetoric, how do we understand these elements of his work in his own intellectual and historical context, and what is the influence of his work upon the course of historical writing? Enrollment limited to first-year students. No knowledge of Roman history is required. WR, HU

*** ENGL 114a or b, Writing Seminars** Staff

Instruction in writing well-reasoned analyses and academic arguments, with emphasis on the importance of reading, research, and revision. Using examples of nonfiction prose from a variety of academic disciplines, individual sections focus on topics such as the city, childhood, globalization, inequality, food culture, sports, and war. WR

*** ENGL 115a or b, Literature Seminars** Staff

Exploration of major themes in selected works of literature. Individual sections focus on topics such as war, justice, childhood, sex and gender, the supernatural, and the natural world. Emphasis on the development of writing skills and the analysis of fiction, poetry, drama, and nonfiction prose. WR, HU

*** ENGL 120a or b, Reading and Writing the Modern Essay** Staff

Close reading of great nonfiction prepares students to develop mastery of the craft of powerful writing in the humanities and in all fields of human endeavor, within the university and beyond. Study of some of the finest essayists in the English language, including James Baldwin, Joan Didion, Leslie Jamison, Jhumpa Lahiri, George Orwell, David Foster Wallace, and Virginia Woolf. Assignments challenge students to craft persuasive arguments from personal experience, to portray people and places, and to interpret fundamental aspects of modern culture. WR

*** ENGL 121b, Styles of Professional Prose** Staff

A seminar and workshop in the conventions of good writing in a specific field. Each section focuses on one professional kind of writing and explores its distinctive features through a variety of written and oral assignments, in which students both analyze and practice writing in the field. Section topics, which change yearly, are listed at the beginning of each term on the English department website. This course may be repeated for credit in a section that treats a different genre or style of writing; may not be repeated for credit toward the major. ENGL 121 and ENGL 421 may not be taken for credit on the same topic. Prerequisite: ENGL 114, 115, 120, or another writing-intensive course at Yale. WR

*** ENGL 123a or b, Introduction to Creative Writing** Staff

Introduction to the writing of fiction, poetry, and drama. Development of the basic skills used to create imaginative literature. Fundamentals of craft and composition; the distinct but related techniques used in the three genres. Story, scene, and character in fiction; sound, line, image, and voice in poetry; monologue, dialogue, and action in drama. HU

*** ENGL 125a or b, Readings in English Poetry I** Staff

Introduction to the English literary tradition through close reading of select poems from the seventh through the seventeenth centuries. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic and social histories; and the many varieties of identity and authority in early literary cultures. Readings may include *Beowulf*, *The Canterbury Tales*, Middle English lyrics, *The Faerie Queene*, *Paradise Lost*, and poems by Isabella Whitney, Philip Sidney, William Shakespeare, Amelia Lanyer, John Donne, and George Herbert, among others. Preregistration required; see under English Department. WR, HU

*** ENGL 126a or b, Readings in English Poetry II** Staff

Introduction to the English literary tradition through close reading of select poems from the eighteenth century through the present. Emphasis on developing skills of

literary interpretation and critical writing; diverse genres and social histories; and modernity's multiple canons and traditions. Authors may include Alexander Pope, William Wordsworth, Elizabeth Barrett Browning, Robert Browning, W. B. Yeats, T. S. Eliot, Langston Hughes, Gertrude Stein, Gwendolyn Brooks, Elizabeth Bishop, and Derek Walcott, among others. Preregistration required; see under English Department.

WR, HU

*** ENGL 127a or b, Readings in American Literature** Staff

Introduction to the American literary tradition in a variety of poetic and narrative forms and in diverse historical contexts. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic and social histories; and the place of race, class, gender, and sexuality in American literary culture. Authors may include Phillis Wheatley, Henry David Thoreau, Herman Melville, Walt Whitman, Emily Dickinson, Frederick Douglass, Gertrude Stein, Langston Hughes, Ralph Ellison, Flannery O'Connor, Allen Ginsberg, Chang-Rae Lee, and Toni Morrison, among others. WR, HU

*** ENGL 128a or b, Readings in Comparative World English Literatures** Staff

An introduction to the literary traditions of the Anglophone world in a variety of poetic and narrative forms and historical contexts. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic, cultural and racial histories; and on the politics of empire and liberation struggles. Authors may include Daniel Defoe, Mary Prince, J. M. Synge, James Joyce, C. L. R. James, Claude McKay, Jean Rhys, Yvonne Vera, Chinua Achebe, Ngugi wa Thiong'o, J. M. Coetzee, Brian Friel, Amitav Ghosh, Salman Rushdie, Alice Munro, Derek Walcott, and Patrick White, among others. WR, HU

*** ENGL 129a or b / HUMS 127a or b / LITR 168a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** ENGL 130a or b / HUMS 132a or b / LITR 169a or b, Epic in the European Literary Tradition** Staff

The epic tradition traced from its foundations in ancient Greece and Rome to the modern novel. The creation of cultural values and identities; exile and homecoming; the heroic in times of war and of peace; the role of the individual within society; memory and history; politics of gender, race, and religion. Works include Homer's *Odyssey*, Vergil's *Aeneid*, Dante's *Inferno*, Cervantes's *Don Quixote*, and Joyce's *Ulysses*. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** ENGL 149b / LING 109b, History of the English Language** Peter Grund

The story of the English language is a remarkable one. During its 1,500-year history, English has gone through striking changes. For example, in the early Middle Ages,

the word *take* did not exist in English; it was later borrowed from the language of the Vikings. When a person in the 16th century claimed that someone was *nice*, they meant that the person was foolish. In the 17th century, *her* could be spelled *har*, *her*, *hor*, *hur*, and *hyr* by people living in the same community. And more recently we see how *like* has taken on new functions, especially in quotations. We will explore how and why these, and other developments took place. We look at how major historical events have spurred changes in the English language, and how people from all walks of life (from well-known authors like Shakespeare and Austen to anonymous scribes and letter writers) influence the path of change. Exploring these questions will also force us to consider whether we should more appropriately be talking about “histories of Englishes” rather than “the history of English.” By the end of the course, you see how the English you use has been shaped by people and forces over several centuries, and how you yourself contribute to the continuing change of the English language. HU

*** ENGL 150a / LING 150a, Old English** Emily Thornbury

An introduction to the language, literature, and culture of earliest England. A selection of prose and verse, including riddles, heroic poetry, meditations on loss, a dream vision, and excerpts from *Beowulf*, which are read in the original Old English. HU

*** ENGL 153b, The Earliest English Literature** Emily Thornbury

An introduction to the rich literary tradition of early medieval England (c. 650–c. 1100). Emphasis on the diversity of ways the early English people approached, preserved, and appreciated the written word. Readings include poems, histories, travel narratives, and riddles; all readings in Modern English. WR, HU

ENGL 160a, Milton Staff

A study of John Milton’s poetry, his engagement with the cultural, social, political, and philosophical struggles of the seventeenth century, and the surprising influence of *Paradise Lost* on eighteenth- and nineteenth-century American letters and religion. Formerly ENGL 220. WR, HU o Course cr

*** ENGL 182a / AFAM 182a / AMST 286a / HUMS 241a, James Baldwin's American Scene** Staff

In-depth examination of James Baldwin’s canon, tracking his work as an American artist, citizen, and witness to United States society, politics, and culture during the Cold War, the Civil Rights era, and the Black Arts Movement. HU o Course cr

ENGL 183b, Poetry since 1950 Staff

An introduction to poetry in English from the mid-twentieth century to the age of Trump and Black Lives Matter, including major figures and movements in the United States, England, Ireland and Northern Ireland, and the Caribbean. Special attention to poetic form and meaning and to themes of personal identity, home and homelessness, gender, sexuality, and race, in the context of consumerism, the Cold War, second wave feminism, decolonization, and the AIDS epidemic. Poets include Bishop, Lowell, Ginsberg, O’Hara, Plath, Baraka, Rich, Brooks, Gunn, Larkin, Heaney, Walcott, Brathwaite, and Rankine. WR, HU o Course cr

ENGL 187a / AMST 239a, Love and Hate in the American South Staff

An introduction to the literature and culture of the American South, a region of the mind identified with the former Confederate States of America and fabricated from a mix of beautiful dreams and violent nightmares, including: histories of slavery and settler colonialism, gothic fiction, the Delta blues, Hollywood movies, evangelical

sermons, *The Confessions of Nat Turner*, love poems, protest poems, prison songs, *The Adventures of Huckleberry Finn*, country music, photographs, “Strange Fruit,” folk tales, memoirs, cookbook recipes, and other fantasies. Close reading, cultural analysis, and historical context. Literary works by Capote, Faulkner, Hurston, Jacobs, O’Connor, Poe, Twain, Toomer, Walker, Welty, Wright. Music, film, and other media. HU o Course cr

ENGL 191a / HUMS 206a / LITR 318a / MMES 215a / NELC 201a, The Arabian Nights, Then and Now Robyn Creswell

The medieval cycle of tales known as The Arabian Nights or The Thousand and One Nights is among the most beloved and influential story collections of world literature. It is an “ocean” of tales that has much to teach us about how stories work, whether they must come to an end, and our apparently bottomless desire to hear them. We will spend the semester in the company of genies and princes, thieves and slaves, mass murderers, detectives, and orientalisks. We will also explore the ways in which the stories of the Nights have been adapted by later writers, such as Djebbar, Stevenson, Conan Doyle, and Mahfouz, as well as by filmmakers such Pasolini and – of course – Walt Disney. The course is intended to introduce students to the major tales of the Nights and to the classical Arabic literary tradition more broadly. It also seeks to develop their skills of close reading and analysis, particularly through a consideration of literary and filmic adaptations. HU

ENGL 196b / FILM 160b, Introduction to Media Staff

Introduction to the long history of media. Focus on taken-for-granted infrastructures as the deep background for the digital age. History will be our major resource for understanding the present. We move through strategically selected case studies including technologies for controlling space and time, writing in its many forms, visual and auditory media, and digital media. Media theory will be taught alongside case studies. WR, HU o Course cr

*** ENGL 202b / LITR 176b / WGSS 171b, Medieval Women Writers and Readers** Jessica Brantley

This course explores writings by and for women in medieval Britain, with attention to questions of authorship, authority, and audience. Readings include the *Lais* of Marie de France, *Ancrene Wisse*, *The Life of Christina of Markyate*, the *Showings* of Julian of Norwich, *The Book of Margery Kempe*, the Digby *Mary Magdalene* play, and the Paston letters. WR, HU

*** ENGL 205a / HUMS 200a / LITR 195a / MUSI 462a, Medieval Songlines** Ardis Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

*** ENGL 211a / THST 315a, Acting Shakespeare** James Bundy

This practical studio class aims to build the actor’s comprehension and confidence in Shakespeare’s language, while developing each artist’s emotional, intellectual, and imaginative responsiveness to the demands and joys of acting Shakespeare. At the same time, we will explore how, as theater artists, we each bring our own history and psyche to Shakespeare’s stories and characters, so they may still speak to us and to our audiences today. The course will include work on sonnets, monologues, and

scenes. Admission by audition. Preference to seniors and juniors; open to nonmajors. See Canvas for application. HU RP

*** ENGL 216a, Shakespeare and Popular Culture** Nicole Sheriko

How and why did Shakespeare become “popular”? Why is he still part of popular culture today? In this transhistorical and interdisciplinary course, we chart the history of Shakespeare’s celebrity, from the first publication of his works to their first adaptations in the Restoration, from Garrick’s Shakespeare Jubilee to the preservation of the Shakespeare Birthplace that he put on the map, from the recreation of the Globe Theatre to the role of Shakespeare in our contemporary cultural imagination. We read *Romeo and Juliet*, *Hamlet*, and *Macbeth* alongside a wide range of adaptations and cultural objects they inspire, using television, film, graphic novels, short stories, advertising, toys and souvenirs, and even tumblr poetry to consider how Shakespeare’s legacy evolves to meet the needs of changing eras. By the end of the course, we curate a collection of contemporary Shakespeariana to consider what Shakespeare means to our popular imagination. Not open to students who took ENGL 012. WR, HU

*** ENGL 229a, What Was Reading?** Catherine Nicholson

This course takes a long and curious view of the history of reading, using primary sources, material objects, historical records, and contemporary debates to unsettle our assumptions about what reading is and does. How have ideas about the meaning and purpose of reading changed over time? What methods or goals have fallen out of favor, and which continue to shape our ideologies of reading today? What relation is there between the reading we do in a Yale English class, and the reading we do on the beach, or at synagogue, or online – and where do those different sorts of reading come from? The syllabus focuses on early modern English literature, but it also engages ongoing debates about reading in the present, seeking both to link them to and distinguish them from earlier controversies. For instance, a unit on reading as religion raises questions about the morally improving (or morally destabilizing) effects of scriptural interpretation that then haunt later debates about the merits and limitations of anti-racist reading, as James Baldwin argues; similarly, early arguments about the effeminizing influence of certain books – especially those aimed at women or young readers – give rise to assumptions about gender and genre that still shape our ambivalence toward reading for pleasure. As we explore these older efforts to shape, inform, regulate, or liberate reading, we’ll also experiment with our own readerly practices, using forgotten or neglected forms like the commonplace book, the moral commentary, or the meditation as foils to the more usual modes of academic writing. WR, HU

*** ENGL 239a / AFAM 342a / THST 239a, African American Drama through 1959**
Shane Vogel

This course surveys the formal development and major themes of African American drama from the antebellum period through 1959. We examine how dramatists and performers reimagined the various meanings of Blackness in the U.S. public sphere, as well as individual and collective acts of self-fashioning on and off the stage. Special attention is given to aesthetic experimentation and its relationship to political theater; transformations of genre and form; Black dramatic theory; historical drama; diasporic connections and disconnections; the relationship between music, dance, spectacle, and drama; anti-lynching drama and folk drama; representations of class, gender, and

sexuality; inter- and intra-racial conflict; Black radical theatre in the New Deal; and institutional histories of key Black theatre companies. HU

*** ENGL 240a, Queen Victoria and Victorian Literature** Margaret Homans

What made the Victorian era “Victorian”? How did Queen Victoria shape the period of British history and culture named for her; how was the monarchy of this long-lived and strong-willed queen in turn shaped by the era over which she reigned? To what extent was the queen’s image created by the popular figures of her that proliferated as new media arose across the period, and to what extent did she actively forge her own image? What were the queen’s powers as a female monarch – and, later, empress – who was a wife, a widow, and a mother, and how did she influence the roles of women in her day and after? This course addresses these questions by reading the queen’s own published literary works, *Leaves from the Journal of Our Life in the Highlands* and *More Leaves*; by viewing works of visual art created under her patronage; and by reading biographical and fictional works about the queen and about Victorian queenship, such as Elizabeth Barrett Browning’s poems, Lewis Carroll’s *Alice* books, George Eliot’s *Felix Holt*, Margaret Oliphant’s *Miss Marjoribanks*, and Rider Haggard’s *She*. We also study recent reconsiderations of her reign in contemporary media. WR, HU

*** ENGL 244a / HUMS 340a / LITR 344a, The Detective Story: Solving Mysteries from Oedipus to Sherlock** Paul Grimstad

The course looks closely at detective stories, novels and films, with attention to the narrative structure of criminal enigma, logical investigation and denouement (whodunit, howdunit), and considers “genre” more broadly. Starting with the proto-detective story *Oedipus Rex* – in which tragic drama takes the form of a murder mystery – we move on to Edgar Allan Poe’s invention of the genre proper in “The Murders in the Rue Morgue” and “The Purloined Letter.” From there we go to Poe’s “golden age” inheritors Arthur Conan Doyle, G.K. Chesterton, Agatha Christie, and Dorothy Sayers, as well as the adaptation of Doyle’s tales for the BBC series *Sherlock*. We also spend time on American “hard boiled” writers (Dashiell Hammett, *The Maltese Falcon* and John Huston’s 1941 film adaptation of the novel; Chester Himes’ *The Real Cool Killers*); fiction which draws upon the conventions of detective stories without being genre fiction (Nabokov, Borges), non-fiction works which have the structure of a detective story (Freud’s “Wolf Man” case study); neo-noir film (*Chinatown*); works that fuse detective fiction and science-fiction (*Minority Report*) and recent film homage to “golden age” whodunnits (*Knives Out*). Students write essays making interpretive claims and using evidence from works on the syllabus, with emphasis on writing clear prose in support of an original argument. HU

*** ENGL 246a / AMST 245a / PLSC 247a, The Media and Democracy** Joanne Lipman

In an era of “fake news,” when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media’s role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th-century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. SO

*** ENGL 250a, Romanticism and Anti-Romanticism** Leslie Brisman

Romanticism is traditionally conceived as the “great turn inward,” where interest in exploring the complexities and depths of the human mind replaces a focus on heroic action and social interaction. But the great Romantic poets were equally concerned with interpersonal relations and political problems and reform. Some of the great recent criticism of Romantic Poets emphasize the anti-Romantic elements within the great Romantic poems. This course attempts to focus on both. Readings are mostly in the work of Blake, Coleridge, Wordsworth, Shelley, and Keats, with some attention to Byron, Charlotte Smith, Scott, and the minor poets. WR, HU RP

*** ENGL 253a / HUMS 265a, Reading Ulysses: Modernist Classic and Postcolonial Epic** Joe Cleary and Christopher McGowan

An extended reading of James Joyce’s *Ulysses* (1922) as modernist and postcolonial epic. Beginning with considerations of the relationship of modern epic and novel, the class will study Joyce’s re-working of Homeric epic in modern Irish, “World Literature,” Western and postcolonial literary contexts. The seminar will engage with the style, narrative form, and symbolic meaning of Joyce’s work and survey some of the critical controversies and interpretative challenges that *Ulysses* has provoked over the last century. HU

*** ENGL 258a / AFAM 305a, African American Autobiography** Sarah Mahurin

Examination of African American autobiography, from slave narratives to contemporary memoirs, and how the genre approaches the project (and problem) of knowing, through reading, the relationships of fellow humans. Chronological consideration of a range of narratives and their representations of race, of space, of migration, of violence, of self, and of other, as well as the historical circumstances that inform these representations. Prerequisite: one college-level literature course. HU

*** ENGL 270a / AMST 270a, Asian Culture in U.S. Literature and Film** John Williams

This course offers a survey of literary and cinematic representations of Asia and Asian America by a number of highly influential Euro- and Asian-American authors and filmmakers in the twentieth century. Unlike more traditional survey of American orientalism that deal exclusively with white American images of the East, this course examines the notion that Asian Americans contributed in significant ways to the representation of Asia and Asian America in the American imagination, often appropriating and re-purposing stereotypical images to secure a more positive space in the American cultural landscape. Our readings and discussions consider the extent to which the “Asia” that emerges in twentieth-century American literary and visual culture was a product of not only powerful (and often powerfully racist) Euro-American visions of Asian “others,” but also dialogic re-imaginings of Asia created by Asian-Americans themselves. Questions that the course addresses include: In what sense is “Asia” an aesthetic category in American literary and visual culture? What role does genre play in the circulation and recirculation of American images of Asia during the twentieth century? How do the political and economic demands of artistic production (for both literature and film) influence the type and heterogeneity of American images of Asia? WR, HU

*** ENGL 273a / AFAM 382a / AMST 482a / FREN 382a / LITR 424a, Zombies, Witches, Gods, and Spirits in Caribbean Literature** Marlene Daut

This course delves into the rich tapestry of Caribbean literature through the lens of the seemingly supernatural, such as zombies, witches, gods, and spirits. Throughout

the semester, students critically analyze a diverse range of texts by authors as varied as Edwidge Danticat, René Depestre, Derek Walcott, Alejo Carpentier, Jean Rhys, and Aimé Césaire, and others, to explore how Caribbean authors have employed other worldly elements as powerful metaphors for colonialism and resistance, trauma and cultural memory.

*** ENGL 275b, Emerson, Dickinson, and Melville** Richard Deming

Study of central works by three foundational writers of the nineteenth century. Cultural and historical context; questions concerning American identity, ethics, and culture, as well as the function of literature; the authors' views on the intersections of philosophy and religious belief, culture, race, gender, and aesthetics. Readings include novels, poems, short fiction, and essays. WR, HU

*** ENGL 276b, Jane Austen and Walter Scott: History and Manners in the Romantic Novel** Anastasia Eccles

Reading of selected works by Jane Austen and Walter Scott—the preeminent novelists of the Romantic period—with special attention to reception and the formation of the related concepts of “history” and “manners.” Readings include: *Sense and Sensibility*, *Mansfield Park*, *Persuasion*, *Waverley*, and *Ivanhoe*. WR, HU

*** ENGL 277a / AFAM 364a, Blackness and the Problem** Jonathan Howard

In *The Souls of Black Folk* (1903), W.E.B. Du Bois famously theorizes blackness as a serial confrontation with a fundamental question: “How does it feel to be a problem?” This question is in many ways the organizing query of black studies and the devoted preoccupation of this class. Over the course of the semester, we undertake a sustained interrogation of the “problem” of being black, from the advent of racial slavery through to its manifold afterlives. Reading widely across a black literary and intellectual tradition spanning multiple centuries, genres, and disciplines, we explore how black writers not only bear witness to the evolution of the problem of being black over time, but also imagine its redress. Furthermore, we explore how blackness has been conceived as a problem not merely in the conventional sense of an unwelcome condition to be solved or overcome, but also a full and ethical way of dwelling in the world. HU

*** ENGL 289a / HUMS 388a / LITR 389a / PHIL 385a / RLST 380a, The Force of Life**
Nancy Levene and James Wood

The point of departure for this course is a line from James Baldwin in *The Fire Next Time*: “To be sensual, I think, is to respect and rejoice in the force of life, of life itself, and to be *present* in all that one does, from the effort of loving to the breaking of bread.” We study four authors—Virginia Woolf, Franz Kafka, Baldwin, and Jacques Derrida—in light of the values Baldwin expresses and their challenges. Our work between philosophy and fiction involves striving to read each text according to the ideas it itself advances, as well as reading for connections and cross-pollinations. WR, HU

*** ENGL 302a, Chaucer** Ardis Butterfield

An exploration of the extraordinary breadth of Chaucer's writings in their original Middle English. Includes dream visions, lyrics, and the great love epic *Troilus and Criseyde*, as well as the comic, satiric, and religious narratives of his brilliant *Canterbury Tales*. Attention to the way his writings on love, hatred, on race, gender and sexuality, psychology, death, war, art, beauty, finance, corruption, laughter, and religion speak to our current moment. Training will be given in Middle English; Modern English translations available. WR, HU

*** ENGL 311b, Milton's *Paradise Lost*** Feisal Mohamed

An intensive reading of Milton's *Paradise Lost*, along with some of the relevant prose, focusing on the ways in which the poem responds at the level of form to the various literary, political, and theological pressures that bear upon it. Formerly ENGL 415. Prerequisite: ENGL 160 or permission of instructor. WR, HU

*** ENGL 312a / HUMS 172a, Interpretations: George Eliot's *Middlemarch*** Ruth Yeazell

An intensive study of George Eliot's *Middlemarch* (1871–72)—a work she called a “home epic” and Virginia Woolf declared “one of the few English novels for grown-up people.” Our close reading of *Middlemarch* itself is framed by a brief selection from George Eliot's essays and short fiction, as well as by a more extended study of some critical responses, both Victorian and modern. HU

*** ENGL 317a, The *Gawain* Poet** Jessica Brantley

The course offers a contextual study of four of the greatest (and most enigmatic) Middle English poems—*Pearl*, *Patience*, *Cleanness*, and *Sir Gawain and the Green Knight*. At its center is British Library MS Cotton Nero A.x, the single medieval book that contains them all. In addition to reading the poems closely in their manuscript context, we examine associated artworks, from the twelve illustrations in the Cotton MS, to *St. Erkenwald*, a poem preserved elsewhere that some argue was written by the same author. Finally, we think about the modern reception of the poems through a serious engagement with scholarly debate surrounding them, and also through comparative work with translations. HU

*** ENGL 320a, Novel Feelings** Anastasia Eccles

This course studies the emergence of the modern novel as an event in the history of emotions. The long eighteenth-century saw the rise of the novel as we know it as well as a major intellectual shift in how the passions and emotions were conceptualized. We investigate the relationship between these developments, particularly as they converged in the cultural movement of sentimentalism. With our focus on this historical nexus, we take up broader questions about the ways that aesthetic form mediates the emotions, and the ways that emotion responds to social realities like capitalism, imperialism, secularization and patriarchy. Our focus is on those feelings that might be considered distinctively novelistic—feelings that have influentially served to theorize the novel as a genre (interest for the German romantics; desire for psychoanalytic accounts of narrative), and that novels of the period helped codify and theorize (embarrassment, sympathy, wonder, happiness, complicity). Authors include Eliza Haywood, Daniel Defoe, Laurence Sterne, Henry Mackenzie, Frances Burney, William Beckford, William Godwin, and Jane Austen. WR, HU

*** ENGL 321a, Austen and Brontë and the New Woman Novel** Katie Trumpener

Examination of ways that twentieth-century Anglo-American writers rewrite, revise, and reconcile key novels by Jane Austen and Charlotte Brontë as prototypes of a women's novel tradition. Particular attention to narrative voice, reader identification, and the novel's function as a record of social norms and as an agent of historical change. Formerly ENGL 421. Advanced courses are open to students normally after two terms of English or the equivalent, or with the permission of the instructor. Starred courses may be used to fulfill the two-seminar requirement for English majors. WR, HU

* **ENGL 323b, Spenser** Catherine Nicholson

A reading of all of *The Faerie Queene*, placed in context with Spenser's prose and shorter poems. Emphasis on Spenser's poetic and sociopolitical concerns within the milieu of Elizabethan religion, empire, and humanism. WR, HU

* **ENGL 325a / AMST 257a, Modern Apocalyptic Narratives** Jim Berger

The persistent impulse in Western culture to imagine the end of the world and what might follow. Social and psychological factors that motivate apocalyptic representations. Differences and constant features in apocalyptic representations from the Hebrew Bible to contemporary science fiction. Attitudes toward history, politics, sexuality, social class, and the process of representation in apocalyptic texts. HU

* **ENGL 326a / AMST 406a, The Spectacle of Disability** Jim Berger

Examination of how people with disabilities are represented in U.S. literature and culture. Ways in which these representations, along with the material realities of disabled people, frame society's understanding of disability; the consequences of such formulations. Various media, including fiction, nonfiction, film, television, and memoirs, viewed through a wide range of analytical lenses. WR, HU RP

* **ENGL 331b / ER&M 268b, What was Latinx Literature** Joseph Miranda

With the arrival of "Latinx," the last decade was defined as a moment of rupture and break with traditional notions of *latinidad*. Artists and activists asserted refusal and historical reckoning as the mode of doing politics and aesthetics. Now, pessimistic about Latinx as a signifier of a unified political project, the generational tides have shifted to "Latine." This seminar asks what is "Latinx literature" and why are the methods of "Latinx studies" considered revolutionary or disruptive? What ideas were rooted in prior generations of feminist and queer collectives that sustained life when the arrival of a decolonial future seemed forever deferred and withheld from reach? We examine contemporary artists alongside historical antecedents to reevaluate what literary and social forms can help us challenge a racialized, heteronormative conception of citizenship. One possibility is that Gloria Anzaldúa – rightly critiqued for her relation to *mestizaje* – might be helpful in this moment of growing nationalism and hostility towards migrants to think about other ways of organizing life aside borders and the nation. We read across a long and varied arc of creative expression to consider forms that endure amidst colonial duress. For example: the serial, montage, anthology, performance collective, and inter-linked storytelling. Artists up for discussion may include Natalie Diaz, John Rechy, and Jesús Colón. Students will engage these works alongside theorists like José Esteban Muñoz and Juana María Rodríguez. WR, HU

* **ENGL 332a / AMST 428a / ER&M 448a / WGSS 328a, "I Don't Like to Argue":**

The Styles and Politics of Humility Sunny Xiang and Minh Vu

What can academic writing do besides argue? Why does critical thinking so often compel an idiom of claiming, exploring, discovering, and mastering? What might writers strive for, if not newness, rigor, excellence, or even one's own voice? In this class, we defamiliarize and repair the habits of mind and body that have been normalized by the university. Some of our time goes toward identifying the racial and colonial logics as well as presumptions about gender and ability that inform the conventions, genres, and styles of scholarly prose. For example, we contemplate the power relations and tonal effects embedded in the familiar maneuvers of advancing and defending arguments. Most of the class's energy, however, is devoted to testing out less combative modes of inhabiting the page. We pursue these experiments not in the

name of novelty but with the hope that our compositional practices can move us toward different values and different futures for writing, conversing, and living as subjects of the university. To guide us in this endeavor, we look to scholars who have critiqued the politics of knowledge by mobilizing alternative styles of knowing. Some, for example, have turned footnotes into an occasion for giving thanks instead of exhibiting mastery. Others have repurposed quotations and images in ways that challenge traditional regimes of evidence. HU

*** ENGL 334a, Postcolonial World Literatures, 1945 to the Present** Stephanie Newell
Introduction to key debates about postwar world literatures in English, to the politics of English as a language of postcolonial literature, and to debates about globalization and culture. Themes include colonial history, postcolonial migration, translation, national identity, cosmopolitanism, and global literary prizes. WR, HU

*** ENGL 341a / EVST 409a / HUMS 377a / LITR 404a, Nature Poetry, from the Classics to Climate Change** Jonathan Kramnick
Poetry of the natural world, beginning with classical pastoral and ending with lyric responses to climate change. We consider how poetry attempts to make sense of our interaction with the earth at important moments of change, from pre-industrial agriculture to global capitalism and the Anthropocene. WR, HU

*** ENGL 343a / FILM 422a / HUMS 445a, Modernities: The Aesthetics of Adaptation**
Katja Lindskog
Adaptations of literary texts are the bread and butter of visual narrative media like TV and film. Adaptations of certain authors and texts have given rise to entire sub-genres and cottage industries. We consider what adaptations of literary texts, particularly very famous and beloved texts, might help us understand better about the texts themselves, and about the needs and expectations of the audiences of their adaptations. To that purpose, this course explores the purposes and effects of adaptation through a study of a variety of screen versions of adapted texts by authors including Jane Austen, Emily St. John Mandel, and Geoffrey Chaucer. Assigned readings include both literary texts and screen adaptations. HU

*** ENGL 344b / WGSS 426b, Virginia Woolf** Margaret Homans
A study of the major novels and other writings by Virginia Woolf, with additional readings in historical contexts and in Woolf biography and criticism. Focus on Woolf's modernist formal experimentation and on her responses and contributions to political movements of her day, principally feminism and pacifism; attention also to the critical reception of her work, with emphasis on feminist and queer literary criticism and theory. WR, HU

*** ENGL 346a / HUMS 253a / RLST 233a, Poetry and Faith** Christian Wiman
Issues of faith examined through poetry, with a focus on modern poems from 1850 to the present. Poems from various faith traditions studied, as well as to secular and antireligious poetry. HU

*** ENGL 351a / AFAM 354a / HUMS 370a, Fictions of the Harlem Vogue: Novels, Short Stories, and Novellas of the "Harlem Renaissance"** Ernest Mitchell
In this seminar, we examine the major novels, short stories, and novellas of the Harlem Vogue (1923–1934), the first decade of the Negro Renaissance. Key texts by Jessie Fauset, Nella Larsen, Jean Toomer, and Eric Walrond are central, along with lesser-known works by Zora Neale Hurston and Langston Hughes. We consider critical

debates about these texts and their standard designation as part of the “Harlem Renaissance.” Careful close reading is emphasized throughout; students are guided through a process of archival research and sustained formal analysis to produce a polished critical essay. WR, HU

*** ENGL 353a, Poetry and AI** Benjamin Glaser

This course asks what literary study and especially poetics teaches us about the ongoing training, implementation, and dissemination of large language models. What can the history of poetry teach us about the form of AI text? Generative AI continues to transform writing across contexts and genres. What can its linguistic algorithms teach us about human-authored writing? What AI tools serve literary analysis? No knowledge of machine learning, programming, or familiarity with AI tools is required. Student work will include traditional critical essays, creative projects, and/or the supported development of digital tools and projects. HU

*** ENGL 360b / AFAM 322b, Coming of Age in Black Literature** Sarah Mahurin
Phillip Atiba Goff’s 2014 study “The Essence of Innocence” confirmed that Black children are widely perceived as older than they actually are, and are presumed to be less innocent than their white classmates—often with devastating consequences. This course aims to challenge the “systematic adultification” so prevalent in American (mis)understandings of Black youth by centering narratives of Black childhood across literary genres. How do these texts disrupt conventional approaches to the *bildungsroman*, and what can these writers teach us about coming of age in America? HU

*** ENGL 368a / HIST 341Ja / SAST 474a, The Novel and the Nation: Reading India in Vikram Seth’s *A Suitable Boy*** Priyasha Mukhopadhyay and Rohit De

This course pairs two interconnected phenomena: the rise of the Indian Republic and the birth of the postcolonial novel. Over the course of the semester, we read a single primary text: Vikram Seth’s *A Suitable Boy* (1993). Set in the 1950s in the aftermath of India’s Independence and Partition, Seth’s encyclopaedic novel is the story of four families brought together by a mother’s search for a “suitable boy” for her daughter to marry. In the process, it builds a microcosm of an Indian society coming to terms with postcolonial statehood and weighing the aftereffects of British colonialism. Entwined in its plot about marriage, love, and relationships are some of the most urgent cultural and political concerns facing the new nation: legislative changes and land reforms, the violent aftermath of the Partition, secularism tainted by communal tensions, the disintegration of courtly forms of sociality, the reconstruction of city life, and the fate of the English novel in the postcolonial classroom. We read *A Suitable Boy* as literary critics and historians, pairing close readings of language and literary form with historical scholarship. Over the course of our discussions, we address the following questions: what is the relationship between the nation, the novel, and identity in the postcolonial world? How do we read narratives of “nation building” as literary and cultural constructions? What do we make of “literature” and “history” as disciplinary categories and formations? The seminar introduces students to methods of literary criticism and textual studies, and teaches them how to read a range of primary sources, from legislative debates, bureaucratic reports, newspapers, poetry, cinema, and radio. HU

*** ENGL 376b, Theories and Histories of the Western Novel** Joe Cleary

Widely considered the ‘youngest,’ most protean, and major literary form of the modern era, the novel has been associated variously with the disenchantment of premodern sacred orders, the rise of the European middle classes, the cultural articulation of the nation-state and other imagined communities, the criticism or reproduction of society, and many other purposes. This seminar offers an advanced introduction to twentieth-century theories and histories of the Western novel and considerations of the genres, techniques, and sociocultural functions associated with the novel form as it has evolved in Europe and the Americas between the eighteenth century and the present. Students taking this seminar for senior credit will write a substantial essay (20–25 pages) with a basis in research. This project should demonstrate an ability to assemble an appropriately specific reading list and engage thoughtfully with wider scholarship. HU

*** ENGL 377a, Contemporary British Fiction** Caryl Phillips

A study of literature that responds to a changing post–World War II Britain, with attention to the problem of who “belongs” and who is an “outsider.” Authors include William Trevor, Kazuo Ishiguro, Jean Rhys, Samuel Selvon, Ruth Praver Jhabvala, and John Osborne. Formerly ENGL 416. WR, HU RP

*** ENGL 384a / FILM 461a / LITR 364a / THST 416a, British Cinema** Katie Trumpener

Survey of the British film tradition, emphasizing overlap with literature, drama, and art; visual modernism; documentary’s role in defining national identity; “heritage” filmmaking and alternative approaches to tradition; and auteur and actors’ cinema. HU RP

*** ENGL 385b / WGSS 339b, Fiction and Sexual Politics** Margaret Homans

Historical survey of works of fiction that have shaped and responded to feminist, queer, and transgender thought from the late eighteenth century to the present. Authors include Wollstonecraft, C. Bronte, H. Jacobs, C. P. Gilman, R. Hall, Woolf, Wittig, Walker, Anzaldua, Morrison, Kingston, Winterson, and Bechdel. WR, HU

*** ENGL 396a / AMST 416a / ER&M 339a, Region, Indigeneity, and American Literary Realism** Lloyd Kevin Sy

A study of American literature between roughly 1865 and 1930, with a focus on the themes of place and race, especially how authors handle the theme of being authentically American. An outsized focus is placed on the often neglected works of Indigenous American writers. Potential readings: Zitkala-Sa, Sarah Winnemucca, Susette La Flesche, Mourning Dove, Twain, James, Charles Chesnutt, Hurston, Cather, Dunbar, Wharton, Sherwood Anderson, Jewett, Sui Sin Far. May satisfy the 18th/19th-century or 20th/21st-century literature requirement for English majors with permission from the instructor and the DUS. HU

*** ENGL 397a, Poetry and the City: The New York School** Langdon Hammer and Daniel Swain

This seminar explores the works, lives, and legacy of the ‘New York School’ of poets including Frank O’Hara, John Ashbery, James Schuyler, LeRoi Jones/Amiri Baraka, Bernadette Mayer, and Barbara Guest, among others. Topics include queer intimacy and sexuality, the relationship between popular and commercial art, the tensions between aesthetic and economic value, the imbrications of class, gender and race, and

the ethical implications of loss and grief, tracked from the Cold War to the era of the AIDS epidemic. The course is a senior seminar in the English Major, but it will be open to students in other majors with the expectation that students will have taken one or more courses previously in English and/or in modern and contemporary literature. HU TR

*** ENGL 398b, The Sensuous Life of Empire** Sunny Xiang and Rasheed Tazudeen

This course examines the cross-sections of material culture, imperial consumption, and racial fetishism. In thinking the material traces of empire—its histories, archives, and counter-archives—we adopt a multi-sensory approach that emphasizes the tactile, the sonic, and the olfactory as modes of both enacting and resisting imperial desires. A decolonial sensorium, this course wagers, attunes us to empire's failures to inscribe matter, flesh, pixels, ripples, beats, cries, and scars into systems of meaning, and thus opens new, insurgent spaces for feeling, hearing, thinking, and being. The role of vision and visibility in the sensuous life of race and empire has been well-examined. In shifting the focus to imperial and counter-imperial textures, surfaces, sounds, and scents, this course explores a wider array of sensory regimes and subject-object relations. How do the textures of objects such as mammy figurines, silks, and cake mixes materialize imperial fantasies? What happens to our idea of the human subject when we encounter it at the level of skin, hair, flesh, musculature, and other of its seemingly inalienable or eminently disposable components? How might we hear the sounds of Creole and Black vernacular speech and music against the grain of colonial inscriptive practices and technologies? In terms of method, the thinkers whom we engage throughout the term cut across a range of disciplines, genres, and media. Although many of our readings are “about” materiality, we also attend to how each text evokes and enacts materiality and the labors of the senses. HU

*** ENGL 404a or b, The Craft of Fiction** Staff

Fundamentals of the craft of fiction writing explored through readings from classic and contemporary short stories and novels. Focus on how each author has used the fundamentals of craft. Writing exercises emphasize elements such as voice, structure, point of view, character, and tone. Formerly ENGL 134. HU

*** ENGL 406b, The Craft of Poetry** Maggie Millner

An introduction to reading and writing poetry. Classic examples from Shakespeare and Milton, the modernist poetics of Stein, Pound, Moore, and Stevens, and recent work in a variety of forms and traditions. Students develop a portfolio of poems and write an essay on the poetic craft of poets who have influenced their work. Formerly ENGL 135. HU

*** ENGL 407a or b, Fiction Writing** Marie-Helene Bertino

An intensive study of the craft of fiction, designed for aspiring creative writers. Focus on the fundamentals of narrative technique and peer review. Formerly ENGL 245.

*** ENGL 411a, American Horror Stories** Brian Price

From its earliest days, the horror genre, although often denigrated, has remained a persistent presence in our culture. This course investigates the reasons for this hold on the imagination and the social function it has provided, helping navigate questions of identity, gender, sexuality, violence, grief, loss, and otherness. Texts include films, short fiction, and critical essays. An exciting blend of creative and critical writing, this course tracks the genre's evolution and explores various subgenres and thematic points of

interest through both scholarly engagement and weekly creative writing responses that culminate in a longer creative project that explores the ideas arising from the semester's discussions. HU

*** ENGL 412a, Literary Production: Poetry** Maggie Millner

This course provides students an in-depth look into contemporary literary production from all sides of the publishing process: that of the writer, the reader, and the editor. Under the instruction of current editors of the *Yale Review*, and housed at the *Review's* offices, this course offers students invaluable hands-on experience at a state-of-the-art literary and cultural magazine, from which they emerge with a deep understanding of how poetry is composed, read, edited, and circulated today. Reading as a magazine editor teaches students about the contemporary literary landscape and leaves them with a deeper understanding of style, form, aesthetics, and genre—as well as the hands-on practical skills involved in 21st-century publishing. Students read submissions from our queue, as well as published work by some of the submitting writers; they then discuss which pieces may merit eventual publication and why. Students also follow drafts of pieces as they go through the process of acceptance, editing, promotion, and publication. Alongside the editorial process, students compose and revise their own original poems, becoming sharper poets by learning to read—and think—as discerning editors.

*** ENGL 413a or b, Literary Production: Prose** Staff

This course provides students with an in-depth look into contemporary literary production from all sides of the publishing process: writing, reading, and editing. Taught by current editors of *The Yale Review*, and housed at the *Review's* offices, this course offers students invaluable hands-on experience at a state-of-the-art literary and cultural magazine. They'll emerge from it equipped with a new set of skills, making them sharper readers, bolder creative writers, and better editors. Reading as an editor offers students a unique perspective on today's literary landscape, deepens their understanding of style, form, and genre—and gives them practical skills involved in 21st-century publishing. Students are introduced to the concept of assigning pieces and thinking about what kind of magazine stories can add value to an ever-more fast-paced and reactive media landscape. They read fiction and nonfiction submissions from our queue and discuss which pieces might be worth publishing, and why. And they follow and work on drafts of pieces as they go through the process of editing, promotion, and publication. Along the way, they may also write and revise a creative piece of their own, becoming better writers by learning to read and think as editors.

*** ENGL 418b / EVST 224b, Writing About The Environment** Staff

Exploration of ways in which the environment and the natural world can be channeled for literary expression. Reading and discussion of essays, reportage, and book-length works, by scientists and non-scientists alike. Students learn how to create narrative tension while also conveying complex—sometimes highly technical—information; the role of the first person in this type of writing; and where the human environment ends and the non-human one begins. Formerly ENGL 241. Admission by permission of the instructor only. Students interested in the course should email the instructor at alan.burdick@gmail.com with the following information: 1.) A few paragraphs describing your interest in taking the class. 2.) A non-academic writing sample that best represents you. WR

*** ENGL 419a / HSAR 460a / HUMS 185a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

*** ENGL 421a or b, Nonfiction Writing** Staff

A seminar and workshop in the craft of nonfiction writing as pertains to a given subcategory or genre. Each section focuses on a different form of nonfiction writing and explores its distinctive features through a variety of written and oral assignments. Students read key texts as models and analyze their compositional strategies. They then practice the fundamentals of nonfiction in writing and revising their own essays. Section topics, which change yearly, are listed at the beginning of each term on the English department website. This course may be repeated for credit in a section that treats a different genre or style of writing; ENGL 121 and ENGL 421 may not be taken for credit on the same topic. HU

*** ENGL 425a, Writing the Television Drama** Aaron Tracy

Crafting the television drama with a strong emphasis on creating and developing an original concept from premise to pilot; with consideration that the finest television dramas being created today aspire to literary quality. Students read original scripts of current and recent critically acclaimed series and create a series document which will include formal story and world descriptions, orchestrated character biographies, a detailed pilot outline, and two or more acts of an original series pilot. Formerly ENGL 248.

*** ENGL 431a / JDST 345a, Ghostwriting** Staff

This is a class about the process, politics, aesthetics, ethics, and psychology of ghostwriting—that is, writing work that will appear under another person’s name. Readings range from works of theory to popular works written by and about ghostwriters. Particular attention is paid to the psychological aspects of ghostwriting, and the resemblance of the ghoster-ghosted relationship to clinical talk therapy. Readings also address the image of the ghost in popular and political culture, including the image of the Jews, women, and the repressed Other. Students are expected to “ghost” passages in the voices of their classmates, as well as in the voices of prominent figures. Secondary topics include the phenomena of collective writing and human-AI collaboration. Academic integrity is enforced according to the rules and regulations established by the Yale College Writing Center. WR, HU

*** ENGL 434a / THST 215a, Writing Dance** Brian Seibert

The esteemed choreographer Merce Cunningham once compared writing about dance to trying to nail Jello-O to the wall. This seminar and workshop takes on the challenge. Taught by a dance critic for the New York Times, the course uses a close reading of exemplary dance writing to introduce approaches that students then try themselves, in response to filmed dance and live performances in New York City, in the widest possible variety of genres. No previous knowledge of dance is required. WR, HU

*** ENGL 447a, Shakespeare and the Craft of Writing Poetry** Danielle Chapman

Shakespeare’s Craft brings students into conversation with Shakespeare’s plays and his sonnets; and teaches students how to draw from his many modes when writing their

own poems—without attempting to sound “Shakespearean.” Over the course of the semester, we read three plays and a selection of the sonnets, pairing close readings with contemporary poems that use similar techniques. We also watch performances and learn how actors and directors find personal ways into Shakespeare’s protean language and meanings. Weekly assignments include both critical responses and creative assignments, focusing on specific craft elements, such as: “The Outlandish List: How to Keep Anaphora Interesting,” “Verbs: How to Hurtle a Poem Forward,” “Concrete Nouns and Death-defying Descriptions,” “The Poet as Culture Vulture: Collecting Contemporary Details,” “Exciting Enjambments and Measured Meter” and “Finis: How to Make a Poem End.” This hybrid course is an exciting blend of creative and critical writing. Students decide before midterm whether they want to take the course as a Renaissance Literature or Creative Writing Credit, and this determines whether their final project is a creative portfolio or critical paper.

*** ENGL 453a / THST 320a, Playwriting** Donald Margulies

A seminar and workshop on reading for craft and writing for the stage. In addition to weekly prompts and exercises, readings include modern American and British plays by Pinter, Mamet, Churchill, Kushner, Nottage, Williams, Hansberry, Hwang, Vogel, and Wilder. Emphasis on play structure, character, and conflict. RP

*** ENGL 456a or b / HUMS 427a or b / JDST 316a or b / LITR 348a or b, The Practice of Literary Translation** Staff

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation—by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

*** ENGL 459a / EVST 215a / MB&B 459a, Writing about Science, Medicine, and the Environment** Carl Zimmer

Advanced non-fiction workshop in which students write about science, medicine, and the environment for a broad public audience. Students read exemplary work, ranging from newspaper articles to book excerpts, to learn how to translate complex subjects into compelling prose. Admission by permission of the instructor only. Applicants should email the instructor at carl@carlzimmer.com with the following information: 1. One or two samples of nonacademic, nonfiction writing. (No fiction or scientific papers, please.) Indicate the course or publication, if any, for which you wrote each sample. 2. A note in which you briefly describe your background (including writing experience and courses) and explain why you’d like to take the course. WR RP

*** ENGL 460a, Advanced Poetry Writing** Cynthia Zarin

A seminar and workshop in the writing of verse. May be repeated for credit with a different instructor. RP

*** ENGL 461a, The Art and Craft of Television Drama** Derek Green

This is an advanced seminar on the craft of dramatic television writing. Each week we'll conduct an intensive review of one or two elements of craft, using scripts from the contemporary era of prestige drama. We'll read full and partial scripts to demonstrate the element of craft being studied, and employ weekly writing exercises (both in-class and by assignment) to hone our skills on the particular elements under consideration. Students learn how to develop character backstories, series bibles, story areas, and outlines. The final assignment for the class is the completion of a working draft of a full-length script for an original series pilot. No previous study required, but ENGL 425 and at least one other intro-level creative writing course are highly recommended. Permission of instructor or an application is required for enrollment.

*** ENGL 463a, Writing Outsiderness and Interiority** Rachel Kaadzi Ghansah

The essayist, the writer of non-fiction, has historically been an oracle of opinions that most often go unsaid. They do not traditionally reinforce a sense of insular collectivity, instead they often steer us towards a radical understanding of the moment that they write from. The best essayists unearth and organize messages from those most at the margins: the ignored, the exiled, the criminal, and the destitute. So, by writing about these people, the essayist is fated, most nobly or just as ignobly, to write about the ills and aftermaths of their nation's worse actions. It is an obligation and also a very heavy burden. In this class we examine how the essay and many essayists have functioned as geographers of spaces that have long been forgotten. And we read a series of non-fiction pieces that trouble the question of interiority, belonging, the other, and outsiderness. And we attempt to do a brief but comprehensive review of the essay as it functions as a barometer of the author's times. This is accomplished by reading the work of such writers as: Herodotus, William Hazlitt, Doris Lessing, Audre Lorde, Gay Talese, Binyavanga Wainaina, Jennifer Clement, V.S. Naipaul, Sei Shonagon, George Orwell, Margo Jefferson, Tobi Haslett, and Joan Didion. HU RP

*** ENGL 465a, Advanced Fiction Writing** Staff

An advanced workshop in the craft of writing fiction. May be repeated for credit with a different instructor.

*** ENGL 467a, Journalism** Steven Brill

Examination of the practices, methods, and impact of journalism, with focus on reporting and writing; consideration of how others have done it, what works, and what doesn't. Students learn how to improve story drafts, follow best practices in journalism, improve methods for obtaining, skeptically evaluating, and assessing information, as well as writing a story for others to read. The core course for Yale Journalism Scholars. No prerequisites. WR

*** ENGL 469a, Advanced Nonfiction Writing** Anne Fadiman

A seminar and workshop with the theme "At Home in America." Students consider the varied ways in which modern American literary journalists write about people and places, and address the theme themselves in both reportorial and first-person work. Application required in advance; see the English website for deadline and instructions. WR, HU

*** ENGL 474a, The Genre of the Sentence** Verlyn Klinkenborg

A workshop that explores the sentence as the basic unit of writing and the smallest unit of perception. The importance of the sentence itself versus that of form or genre.

Writing as an act of discovery. Includes weekly writing assignments. Not open to first-years. HU

*** ENGL 477a / THST 321a, Production Seminar: Playwriting** Deborah Margolin

A seminar and workshop in playwriting with an emphasis on exploring language and image as a vehicle for “theatricality.” Together we will use assigned readings, our own creative work, and group discussions to interrogate concepts such as “liveness,” what is “dramatic” versus “undramatic,” representation, and the uses and abuses of discomfort.

*** ENGL 481a / THST 322a, Advanced Playwriting** Branden Jacobs-Jenkins

A seminar and workshop in advanced playwriting that furthers the development of an individual voice. Study of contemporary and classical plays to understand new and traditional forms. Students write two drafts of an original one-act play or adaptation for critique in workshop sessions. Familiarity with basic playwriting tools is assumed. Open to juniors and seniors, nonmajors as well as majors, on the basis of their work; priority to Theater Studies majors. Writing samples should be submitted to the instructor before the first class meeting. Prerequisite: THST 320 or 321, or a college seminar in playwriting, or equivalent experience. RP

*** ENGL 483b / HUMS 428b / JDST 343b / LITR 305b, Advanced Literary Translation**

Robyn Creswell

A sequel to LITR 348 or its equivalent, this course brings together advanced and seriously committed students of literary translation, especially (but not only) those who are doing translation-related senior theses. Students must apply to the class with a specific project in mind, that they have been developing or considering, and that they will present on a regular basis throughout the semester. Discussion of translations-in-progress are supplemented by short readings that include model works from the world of literary translation, among them introductions and pieces of criticism, as well as reflections by practitioners treating all phases of their art. The class is open to undergraduates and graduate students who have taken at least one translation workshop. By permission of the instructor. Prerequisite: LITR 348.

*** ENGL 484a, Writing Across Literary Genres** Cynthia Zarin

Students in this writing workshop explore three out of four literary genres over the semester: creative nonfiction (including personal essays and reporting), poetry, playwriting, and fiction. The first half of the semester is devoted to experimentation in three different genres; the second half is spent developing an experimental piece into a longer final project: a one act play, a long poem or set of poems, a short story, or a longer essay. We discuss the work of writers—including Shakespeare, John Donne, Jonathan Swift, Chekhov, Virginia Woolf, W.H. Auden, James Baldwin, Elizabeth Bishop, Derek Walcott, Zadie Smith, Maggie Nelson, and Leanne Shapton—who addressed an idea from two or more perspectives. HU

*** ENGL 487a, Tutorial in Writing** Stefanie Markovits

A writing tutorial in fiction, poetry, playwriting, screenwriting, or nonfiction for students who have already taken writing courses at the intermediate and advanced levels. Conducted with a faculty member after approval by the director of undergraduate studies. Proposals must be submitted to the DUS in the previous term; deadlines and instructions are posted at <https://english.yale.edu/undergraduate/courses/independent-study-courses>. Prerequisites: two courses in writing.

*** ENGL 488a, Special Projects for Juniors or Seniors** Stefanie Markovits

Special projects set up by the student in an area of particular interest with the help of a faculty adviser and the director of undergraduate studies, intended to enable the student to cover material not otherwise offered by the department. The course may be used for research or for directed reading, but in either case a term paper or its equivalent is normally required. The student meets regularly with the faculty adviser. Proposals must be signed by the faculty adviser and submitted to the DUS in the previous term; deadlines and instructions are posted at <https://english.yale.edu/undergraduate/courses/independent-study-courses>.

*** ENGL 489a, The Creative Writing Concentration Senior Project** Stefanie Markovits and Cynthia Zarin

A term-long project in writing, under tutorial supervision, aimed at producing a single longer work (or a collection of related shorter works). The creative writing concentration accepts students with demonstrated commitment to creative writing at the end of the junior year or, occasionally, in the first term of senior year. Proposals for the writing concentration should be submitted during the designated sign-up period in the term before enrollment is intended. The project is due by the end of the last week of classes (fall term), or the end of the next-to-last week of classes (spring term). Proposal instructions and deadlines are posted at <https://english.yale.edu/undergraduate/courses/independent-study-courses>.

*** ENGL 490a, The Senior Essay I** Stefanie Markovits and Marcel Elias

Students wishing to undertake an independent senior essay in English must submit a proposal to the DUS in the previous term; deadlines and instructions are posted at <https://english.yale.edu/undergraduate/courses/independent-study-courses>. For one-term senior essays, the essay itself is due in the office of the director of undergraduate studies according to the following schedule: (1) end of the fourth week of classes: five to ten pages of writing and/or an annotated bibliography; (2) end of the ninth week of classes: a rough draft of the complete essay; (3) end of the last week of classes (fall term) or end of the next-to-last week of classes (spring term): the completed essay. Consult the director of undergraduate studies regarding the schedule for submission of the yearlong senior essay.

*** ENGL 491a, The Senior Essay II** Stefanie Markovits and Marcel Elias

Second term of the optional yearlong senior essay. Students may begin the yearlong essay in the spring term of the junior year, allowing for significant summer research, with permission of the instructor. Students must submit a proposal to the DUS in the previous term; deadlines and instructions are posted at <https://english.yale.edu/undergraduate/courses/independent-study-courses>. After ENGL 490.

Environmental Engineering (ENVE)

*** ENVE 120b / CENG 120b / ENAS 120b, Introduction to Environmental Engineering**

John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently), or permission of instructor. QR, SC

ENVE 210a / CENG 210a, Principles of Chemical Engineering and Process Modeling
Staff

Analysis of the transport and reactions of chemical species as applied to problems in chemical, biochemical, and environmental systems. Emphasis on the interpretation of laboratory experiments, mathematical modeling, and dimensional analysis. Lectures include classroom demonstrations. Prerequisite: MATH 115 or permission of instructor. QR, SC RP o Course cr

ENVE 215b, Environmental Engineering Practice Jaehong Kim

Focus on the technical tools of environmental engineering and science, with emphasis on data acquisition and integration, experimental project design and problem solving, and science and engineering communication. Students emerge competent in the skills needed for environmental exploration and communication and armed with the tools of discovery. Prerequisite: ENVE 120.

ENVE 314a / CENG 314a, Transport Phenomena I Kyle Vanderlick

First of a two-semester sequence. Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of the instructor. QR, SC RP

ENVE 315b / CENG 315b, Transport Phenomena II Amir Haji-Akbari

Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of instructor. QR, SC

*** ENVE 320b / ENRG 320b / MENG 320b, Energy, Engines, and Climate** Staff

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the “big picture” on how to tackle future energy needs. The course is designed for

juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

ENVE 360b / ENAS 360b, Green Engineering and Sustainable Design Julie Zimmerman

Study of green engineering, focusing on key approaches to advancing sustainability through engineering design. Topics include current design, manufacturing, and disposal processes; toxicity and benign alternatives; policy implications; pollution prevention and source reduction; separations and disassembly; material and energy efficiencies and flows; systems analysis; biomimicry; and life cycle design, management, and analysis. Prerequisites: CHEM 161, 165 or 163, 167 (or CHEM 112, 113, or 114, 115), or permission of instructor.

ENVE 373a / CENG 373a, Air Pollution Control Drew Gentner

An overview of air quality problems worldwide with a focus on emissions, chemistry, transport, and other processes that govern dynamic behavior in the atmosphere. Quantitative assessment of the determining factors of air pollution (e.g., transportation and other combustion-related sources, chemical transformations), climate change, photochemical “smog,” pollutant measurement techniques, and air quality management strategies. Prerequisite: ENVE 120. QR, SC RP

*** ENVE 377b / CENG 377b, Water-Energy Nexus** Lea Winter

This course explores processes and technologies at the water-energy nexus. We utilize chemical and environmental engineering fundamentals to explore the links between maintaining clean water supply and energy security globally, as well as implications for environmental contamination and climate change. We develop a quantitative understanding of water chemistry and energy considerations for topics including traditional water and wastewater treatment, energy recovery from wastewater, membrane processes, water electrolysis for energy storage and electrochemical contaminant conversion, industrial water consumption and wastewater production, underground water sources and water for oil and gas, opportunities for reuse of nontraditional source waters and contaminant valorization, and considerations for decentralization, resilience, and electrification. Quantitative understanding of these processes will be attained based on mass and energy balances, systems engineering, thermodynamics, and kinetics. Prerequisite: ENVE 120 or permission of instructor. The course is primarily designed for juniors and seniors majoring in environmental engineering, but students in other engineering majors are welcome. Students in non-engineering majors are also welcome but are encouraged to communicate with the instructor to make sure they have sufficient background knowledge in required mathematics. QR, SC

ENVE 416b / CENG 416b, Chemical Engineering Process Design Yehia Khalil

Study of the techniques for and the design of chemical processes and plants, applying the principles of chemical engineering and economics. Emphasis on flowsheet development and equipment selection, cost estimation and economic analysis, design strategy and optimization, safety and hazards analysis, and environmental and ethical considerations. Enrollment limited to seniors majoring in Chemical Engineering or Environmental Engineering. QR, SC RP

ENVE 441a, Biological Processes in Environmental Engineering Jordan Peccia
 Fundamental aspects of microbiology and biochemistry, including stoichiometry, kinetics, and energetics of biochemical reactions, microbial growth, and microbial ecology, as they pertain to biological processes for the transformation of environmental contaminants; principles for analysis and design of aerobic and anaerobic processes, including suspended- and attached-growth systems, for treatment of conventional and hazardous pollutants in municipal and industrial wastewaters and in groundwater. Prerequisites: CHEM 161, 165, or 163, 167 (or CHEM 112, 113, or 114, 115, or 118); MCDB 290 or equivalent; or with permission of instructor. SC

ENVE 448a, Environmental Transport Processes Menachem Elimelech
 Analysis of transport phenomena governing the fate of chemical and biological contaminants in environmental systems. Emphasis on quantifying contaminant transport rates and distributions in natural and engineered environments. Topics include distribution of chemicals between phases; diffusive and convective transport; interfacial mass transfer; contaminant transport in groundwater, lakes, and rivers; analysis of transport phenomena involving particulate and microbial contaminants. Prerequisite: ENVE 120 or permission of instructor. QR, SC

* **ENVE 490a or b, Senior Project** Staff

Individual research and design projects supervised by a faculty member in Environmental Engineering, or in a related field with permission of the director of undergraduate studies.

Environmental Studies (EVST)

* **EVST 020a, Sustainable Development in Haiti** Gordon Geballe

The principles and practice of sustainable development explored in the context of Haiti's rich history and culture, as well as its current environmental and economic impoverishment. Enrollment limited to first-year students. WR

* **EVST 030a / ARCG 031a / NELC 026a, Origins of Civilization: Egypt and Mesopotamia** Harvey Weiss

The origins of the earliest civilizations in Mesopotamia and Egypt along the Nile and Tigris-Euphrates Rivers explored with archaeological, historical and environmental data for the origins of agriculture, the classes and hierarchies that marked earliest cities, states and empires, the innovative monumental architecture, writing, imperial expansion, and new national ideologies. How and why these civilizational processes occurred with the momentous societal collapses at periods of abrupt climate change. Enrollment limited to first-year students. HU, SO

* **EVST 040a, Collections of the Peabody Museum** David Skelly

Exploration of scientific questions through the study and analysis of objects within the Peabody Museum's collections. Formulating a research question and carrying out a project that addresses it are the core activities of the course. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. Enrollment limited to first-year students. SC

* **EVST 060b, Topics in Environmental Justice** Michael Fotos

This seminar introduces students to key concepts in environmental justice and to a selection of cases representing a wide range of environmental dilemmas. Course readings and discussions impart awareness of the diverse contexts in which problems

of environmental justice might be studied, whether historical, geographic, racial, social, economic, political, biological, geophysical, or epistemic. Enrollment limited to first-year students. WR, SO

*** EVST 100b / APHY 100b / ENAS 100b / EPS 105b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC RP

EVST 109a / HIST 109a, Climate & Environment in American History: From Columbian Exchange to Closing of the Frontier Staff

This lecture course explores the crucial role that climate and environmental conditions have played in American history from the period of European colonization to the end of the 19th century. Its focus is on the dramatic changes brought about by the encounters among Indigenous, European, and African peoples in this period, the influence of climate and climate change on these encounters, and the environmental transformations brought about by European colonization and conquest and the creation of new economies and polities (including chattel slavery). The lectures offer a new framework for organizing and periodizing North American history, based on geographical and environmental conditions rather than traditional national and political frameworks. The course provides a historical foundation for understanding contemporary American (and global) climate and environmental issues. HU
o Course cr

EVST 120b / AMST 163b / HIST 120b / HSHM 204b, American Environmental History Paul Sabin

Ways in which people have shaped and been shaped by the changing environments of North America from precolonial times to the present. Migration of species and trade in commodities; the impact of technology, agriculture, and industry; the development of resources in the American West and overseas; the rise of modern conservation and environmental movements; the role of planning and impact of public policies. WR, HU

EVST 144a / EDST 144a / ER&M 211a / SOCY 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO o Course cr

EVST 206a / HIST 127a / HSHM 201a / HUMS 106a / PHYS 106a, Sustainable Energy: Physics and History Staff

Students explore the physical logic of energy and power in parallel with the histories of technology for energy exploitation and economic theories of sustainability on the path to modernity. They learn the fundamentals of quantitative analysis of contemporary and historical energy harvesting, its carbon intensity, and climate impact. They also gain an understanding of the historical underpinnings of the current global energy status quo and its relationship to economic theories of sustainability. Mathematical

proficiency with algebra is assumed. Students from all academic interests and experiences are welcome in the course. QR, SC, SO o Course cr

EVST 209b / HIST 465b / HSHM 209b, Making Climate Knowledge Deborah Coen

This is a course about *how* humans have come to know what we know about our impacts on the earth's climate and our vulnerability to climate change. When did humans first *know* that their actions, in the aggregate, could transform the planet? Did scientists bear responsibility to warn of these consequences? In what ways has the modern science of climate both appropriated and undermined traditional and indigenous forms of climate knowledge? Students learn to work with the methods of history of science: we analyze science as a social and material process bound to the cultural and epistemological particularities of its historical context, and we examine the political dimensions of historical narratives about the emergence of the theory of global warming. Via hands-on experience with Yale's historical collections, students learn to analyze maps, artifacts, and instruments as historical sources. They also gain familiarity with the methods of environmental history, learning to attend to historical evidence of shifting relationships between humans and non-humans. Finally, students become more attuned to the evidence of climate change around them and more confident in their ability to make climate knowledge for themselves. HU

* **EVST 212a / EP&E 390a / PLSC 212a, Democracy and Sustainability** Michael Fotos
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

* **EVST 215a / ENGL 459a / MB&B 459a, Writing about Science, Medicine, and the Environment** Carl Zimmer

Advanced non-fiction workshop in which students write about science, medicine, and the environment for a broad public audience. Students read exemplary work, ranging from newspaper articles to book excerpts, to learn how to translate complex subjects into compelling prose. Admission by permission of the instructor only. Applicants should email the instructor at carl@carlzimmer.com with the following information:
1. One or two samples of nonacademic, nonfiction writing. (No fiction or scientific papers, please.) Indicate the course or publication, if any, for which you wrote each sample.
2. A note in which you briefly describe your background (including writing experience and courses) and explain why you'd like to take the course. WR RP

EVST 223a / E&EB 220a, General Ecology Staff

The theory and practice of ecology, including the ecology of individuals, population dynamics and regulation, community structure, ecosystem function, and ecological interactions at broad spatial and temporal scales. Topics such as climate change, fisheries management, and infectious diseases are placed in an ecological context. Prerequisite: MATH 112 or equivalent. SC o Course cr

* **EVST 224b / ENGL 418b, Writing About The Environment** Staff

Exploration of ways in which the environment and the natural world can be channeled for literary expression. Reading and discussion of essays, reportage, and book-length works, by scientists and non-scientists alike. Students learn how to create narrative tension while also conveying complex – sometimes highly technical – information; the role of the first person in this type of writing; and where the human environment

ends and the non-human one begins. Formerly ENGL 241. Admission by permission of the instructor only. Students interested in the course should email the instructor at alan.burdick@gmail.com with the following information: 1.) A few paragraphs describing your interest in taking the class. 2.) A non-academic writing sample that best represents you. WR

*** EVST 228a / HIST 459a / HUMS 228a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

*** EVST 232a / SPAN 232a, Ecological Mindfulness: Poetics and Praxis in the Spanish-Speaking World** Sarah Glenski

What is our relationship with nature? What constitutes ecological mindfulness? Does the practice of ecological mindfulness constitute a poetics? Is art a form of ecological mindfulness? These are some of the questions that we consider as we examine the concept of ecological mindfulness as an intersection of poetics and praxis. Throughout the semester, we explore a wide array of artistic expressions (essays, short stories, sound, poetry, photography, painting, etc.), which allows us to both appreciate and interrogate the many ways in which interactions with nature are depicted and performed in different Hispanophone cultures. Our analysis of these texts is complemented by carrying out and reflecting upon our own practice of ecological mindfulness. This course is taught in Spanish. Prerequisite: SPAN 140, or SPAN 142, or SPAN 145, or equivalent L5, HU

*** EVST 234La, Field Science: Environment and Sustainability** Kealoha Freidenburg A field course that explores the effects of human influences on the environment. Analysis of pattern and process in forested ecosystems; introduction to the principles of agroecology, including visits to local farms; evaluation of sustainability within an urban environment. Weekly field trips and one weekend field trip. SC

*** EVST 244a, Coastal Environments in a Changing World** Mary Beth Decker The effects of human action and natural phenomena on coastal marine ecosystems. Methods used by coastal scientists to address environmental issues; challenges associated with managing and conserving coastal environments. Priority to Environmental Studies majors; open to nonmajors as space permits. SC

*** EVST 255a / PLSC 215a, Environmental Law and Politics** John Wargo We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

*** EVST 261a / EPS 261a, Minerals and Human Health** Ruth Blake

Study of the interrelationships between Earth materials and processes and personal and public health. The transposition from the environment of the chemical elements essential for life. After one year of college-level chemistry or with permission of instructor; EPS 110 recommended. SC

EVST 265b / EPS 255b, Environmental Geomicrobiology Ruth Blake

Microbial diversity in natural geologic habitats and the role of microorganisms in major biogeochemical cycles. Introduction to prokaryote physiology and metabolic diversity; enrichment culture and molecular methods in geomicrobiology. Prerequisite: college-level chemistry. SC

*** EVST 266a / HUMS 452a / LAST 350a / SPAN 365a, Ecologies of Culture: Latin American Environmental Aesthetics** Santiago Acosta

In the age of rising sea levels, mass extinction, and carbon-driven climate change, can culture and the arts remain unchanged? This course focuses on the intersections between aesthetics and ecological practices in the context of the Anthropocene, a proposed geological epoch wherein humans have become a major geological force shaping the planet. It challenges traditional approaches by examining how culture and the arts can help to understand and respond to environmental crises. Discussions and readings emphasize the role of culture and aesthetics as agents and producers of environmental knowledge, highlighting their potential to challenge socio-ecological relations. Throughout the semester, students explore various themes, including colonialism, anthropocentrism, human-animal relations, fossil capitalism, indigenous ontologies, and the impact of extractive industries on territories and bodies in Latin America, the Caribbean, and the Latinx world. Students engage with works by established and emerging artists, aiming to produce ecocritical knowledge about the current climate and environmental crisis. The course also offers a panoramic view of Latin American culture by examining some key historical events and authors whose works can shed light on cultural and ideological processes at the root of climate change. By the end of the semester, students can formulate research questions that are critical to the field of Latin American environmental humanities, as well as produce papers that are relevant to a broader debate about culture and ecology. Lastly, the course hopes to motivate students—beyond the classroom—to examine their place in an increasingly warming world. **Taught in Spanish.** L5, HU

EVST 322a, Human Science Foundations for Environmental Managers Amity Doolittle

The environmental fields of inquiry that focus on human behavior, culture, governance, and history have matured and proliferated in the twenty-first century (environmental anthropology, environmental sociology, environmental governance, environmental history, environmental humanities, and more). This new scholarship has advanced the academic state of knowledge and sharpened our collective ability to understand human-environmental relations. Yet despite better science, we struggle to make material change in the collective rate of human consumption of Earth's natural resources. Not only is the planet harmed by our failures, but millions of people are also harmed. Embedded in all scientific endeavors is a theory of change. But rarely are theories of change made explicit for environmental stewardship. In this course, we investigate new bodies of scholarship that explore relational values, varying concepts of stewardship, a range of theories of change, and, finally, capabilities or human rights-based measure of the life well lived.

We explore the following questions: What does it mean to be an environmental steward in a world filled with social, political, and economic inequalities? How can we weave together multiple knowledge systems or ways of knowing through environmental stewardship? How can we balance the need for social and environmental change in a way that is both place-based and responsive to global concerns? Can theories of change help us act when the scientific data is both clear and uncertain? How can we incorporate non-economic measures of human well-being into our decision making? so

*** EVST 323a, Wetlands Ecology Conservation & Management** Kealoha Freidenburg
Wetlands are ubiquitous. Collectively they cover 370,000 square miles in the United States and globally encompass more than 5 million square miles. Most points on a map are less than 1 km from the nearest wetland. Yet wetlands are nearly invisible to most people. In this course we explore wetlands in all of their dimensions, including the critical services they provide to other systems, the rich biodiversity they harbor, their impact on global climate, and the links by which they connect to other systems. Additionally, wetlands are lynchpin environments for scientific policy and regulation. The overarching aim of the course is to connect what we know about wetlands from a scientific perspective to the ways in which wetlands matter for people. SC

*** EVST 335a, Global Human-Wildlife Interactions** Nyeema Harris
Wildlife and humans have increasingly complex interactions, balancing a myriad of potentially positive and negative outcomes. In a highly interactive format, students evaluate the importance of human-wildlife interactions across diverse ecosystems, exacerbators influencing outcomes, and management interventions that promote coexistence. A science and statistics background is highly recommended. SC
o Course cr

EVST 347b, Introduction to Environmental Chemistry Gaboury Benoit
Introduction to environmental chemistry and to the nature and behavior of environmental pollutants, including chemical, biological, and physical processes. The fundamental classes of chemical reactions in the environment; critical analysis of chemical data; sampling techniques; analytical methods; natural biogeochemical controls on environmental chemistry. Case studies examine contaminants of special interest such as acid precipitation, nutrients, and sewage. SC

*** EVST 349b / HIST 449Jb / HSHM 449b / HUMS 446b / URBN 382b, Critical Data Visualization: History, Theory, and Practice** Bill Rankin
Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshoping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

*** EVST 350a, Writing the World** Verlyn Klinkenborg

This is a practical writing course meant to develop the student's skills as a writer. But its real subject is perception and the writer's authority—the relationship between what you notice in the world around you and what, culturally speaking, you are allowed to notice. What you write during the term is driven entirely by your own interest and attention. How you write is the question at hand. We explore the overlapping habitats of language—present and past—and the natural environment. And, to a lesser extent, we explore the character of persuasion in environmental themes. Every member of the class writes every week, and we all read what everyone writes every week. It makes no difference whether you are a would-be journalist, scientist, environmental advocate, or policy maker. The goal is to rework your writing and sharpen your perceptions, both sensory and intellectual. Enrollment limited to fifteen. WR

*** EVST 356a, Qualitative Social Science Research Methods** Amity Doolittle

This course is designed to provide a broad introduction to issues of qualitative research methods and design. The course is intended for both doctoral students who are in the beginning stage of their dissertation research, as well as master's students developing research proposals for their thesis projects with a focus on understanding the nexus of human-environment issues. The course covers the basic techniques of designing qualitative research and for collecting, interpreting, and analyzing qualitative data. We explore three interrelated dimensions of research: theoretical foundations of science and research, specific methods available to researchers for data collection and analysis, and the application and practice of research methods—all with a strong emphasis on the relationship between people and natural resources. The final product for this course is a research proposal. SO

*** EVST 362b / ARCG 362b / EPS 362b, Observing Earth from Space** Xuhui Lee

A practical introduction to satellite image analysis of Earth's surface. Topics include the spectrum of electromagnetic radiation, satellite-borne radiometers, data transmission and storage, computer image analysis, the merging of satellite imagery with GIS and applications to weather and climate, oceanography, surficial geology, ecology and epidemiology, forestry, agriculture, archaeology, and watershed management. Prerequisites: college-level physics or chemistry, two courses in geology and natural science of the environment or equivalents, and computer literacy. QR, SC o Course cr

*** EVST 369a / AFST 368a / HIST 366Ja, Commodities of Colonialism in Africa**

Robert Harms

This course examines historical case studies of several significant global commodities produced in Africa to explore interactions between world market forces and African resources and societies. Through the lens of four specific commodities—ivory, rubber, cotton, and diamonds—this course evaluates diverse industries and their historical trajectories in sub-Saharan Africa within a global context from ~1870–1990s. Students become acquainted with the historical method by developing their own research paper on a commodity using both primary and secondary sources. WR, HU

*** EVST 371a / ARCG 363a / NELC 189 / NELC 330a, Archaeologies of Empire** Harvey Weiss

Empire is rarely studied cross-culturally, although it is second only to hunting-and-gathering as the most successful, longest-lived, regional politico-economic organization. Despite major empire-specific research efforts, there remains, as well, little consensus as to empires' genesis and function. Here we attempt to define

the features of empire, their genesis and their function, in ancient and modern times. Comparative study of origins, structures, efficiencies, and limitations of imperialism, ancient and modern, in the Old and New Worlds, from Akkad to “Indochine” and from Wari to Aztec. The contrast between ancient and modern empires examined from the perspectives of nineteenth- and twentieth-century archaeology and political economy. HU, SO

EVST 372b / MB&B 365b, Biochemistry and Our Changing Climate Karla Neugebauer

Climate change is impacting how cells and organisms grow and reproduce. Imagine the ocean spiking a fever: cold-blooded organisms of all shapes, sizes and complexities struggle to survive when water temperatures go up 2–4 degrees. Some organisms adapt to extremes, while others cannot. Predicted and observed changes in temperature, pH and salt concentration do and will affect many parameters of the living world, from the kinetics of chemical reactions and cellular signaling pathways to the accumulation of unforeseen chemicals in the environment, the appearance and dispersal of new diseases, and the development of new foods. In this course, we approach climate change from the molecular point of view, identifying how cells and organisms—from microbes to plants and animals—respond to changing environmental conditions. To embrace the concept of “one health” for all life on the planet, this course leverages biochemistry, cell biology, molecular biophysics, and genetics to develop an understanding of the impact of climate change on the living world. We consider the foundational knowledge that biochemistry can bring to the table as we meet the challenge of climate change. Prerequisites: MB&B 300/301 or MB&B 200/MCDB 300 or permission of the instructor. Can be taken concurrently with MB&B 301. SC o Course cr

*** EVST 377b / ANTH 376b, Observing and Measuring Behavior, Part I: Study Design** Eduardo Fernandez-Duque

This is the first course in a spring-fall sequence. The course surveys theoretical issues and practical methods relevant to studying the behavior of animals and humans, primarily in the “wild.” Topics covered include formulation of research questions, hypotheses and predictions, study design, sampling methods for studying behavior, genetics, endocrinology, ecology, climate. Students learn and practice various forms of behavioral and ecological sampling, as well as gain familiarity with some widely-used technologies that facilitate the study of behavior (e.g. radiotelemetry). Then, working around a specific research question, students design their own study. Those who choose can develop a study to be implemented during an NSF-funded Summer Program in Argentina (<https://www.owlmonkeyproject.com/open-calls>). Students who enrolled in ANTH 376 during spring 2021 when the summer program was cancelled due to the pandemic can apply to take part in the 2022 summer program in Argentina and may enroll in ANTH 377 during the fall 2022 term. Prerequisite: Some background (including high school) on evolutionary biology, animal behavior, biology recommended. Contact the Instructor if in doubt. SC, SO

*** EVST 379a / ANTH 377a, Observing and Measuring Behavior, Part II: Data Analyses and Reporting** Eduardo Fernandez-Duque

This is the second course in a spring-fall sequence. The course is primarily for students who have recently conducted research and are in the process of analyses and writing up the results of the research. In this course students learn how to analyze the data they have collected, strategies for interpreting and presenting results, including

considerations of study design issues and a priori statistical protocols; predictive and/or explanatory power and interpretation of statistical significance, scientific inference and research relevance. Students practice writing and oral skills associated with how to write communicating the results of their study. Prerequisite: ANTH 376 or EVST 377 QR, SC, SO

EVST 394a, Current Topics in Global Climate Change Staff

People are currently mining millions of years' worth of stored photosynthetic carbon from the solid Earth and transferring it to the atmosphere where it is profoundly changing the chemistry, physics, and biology of the atmosphere, land, and oceans. Exchanges with the oceans and land surface have been modified substantially, so that currently only about half of anthropogenic emissions remain in the atmosphere. These "carbon sinks" are poorly understood, contributing a great deal of uncertainty to future climate. We consider biogeochemical and transport processes in land ecosystems, the oceans, and atmosphere as well as anthropogenic emissions. We conclude with a study of changes in carbon cycling in the past and future, including predictions by coupled Earth System Models. SO o Course cr

*** EVST 396a or b, Independent Study: Environmental Studies** Michael Fotos

Independent research under the direction of a Yale faculty member on a special topic in Environmental Studies not covered in other courses and not the focus of the senior essay. Permission of the director of undergraduate studies and of the instructor directing the research is required. A proposal approved by the instructor must be submitted to the director of undergraduate studies by the end of the second week of classes. The instructor meets with the student regularly, in person or remotely, typically for an hour a week, and the student writes a final paper or a series of short essays.

*** EVST 399b / ARCG 399b / NELC 399b, Agriculture: Origins, Evolution, Crises**

Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

*** EVST 400b / E&EB 275b, Biological Oceanography** Mary Beth Decker

Exploration of oceanic ecosystems and how these environments function as coupled physical/biological systems. Ocean currents and other physical processes determine where nutrients are available to support primary production and where organisms from plankton to top predators occur. Includes discussion of anthropogenic impacts, such as the effects of fishing and climate change on marine ecosystems. Enrollment limited to 35. SC

*** EVST 409a / ENGL 341a / HUMS 377a / LITR 404a, Nature Poetry, from the Classics to Climate Change** Jonathan Kramnick

Poetry of the natural world, beginning with classical pastoral and ending with lyric responses to climate change. We consider how poetry attempts to make sense of our interaction with the earth at important moments of change, from pre-industrial agriculture to global capitalism and the Anthropocene. WR, HU

*** EVST 415b / BENG 405b, Biotechnology and the Developing World** Staff

Study of technological advances that have global health applications. Ways in which biotechnology has enhanced quality of life in the developing world. The challenges

of implementing relevant technologies in resource-limited environments, including technical, practical, social, and ethical aspects. Prerequisite: MCDB 120, or BIOL 101 and 102.

*** EVST 422a / ANTH 409a / ER&M 394a / F&ES 422a / GLBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove
Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities. WR, SO

EVST 431b, The Physical Science of Climate Change Peter Raymond and Xuhui Lee
The course provides students with core knowledge on the processes controlling the earth's climate system. The first half of the class focuses on the four components of the earth climate system, providing a knowledge base on the atmospheric energy and water budgets and the roles of anthropogenic greenhouse gases, the oceans, land and cryosphere in altering these budgets. Students also learn how to run a climate GCM (general circulation model). The second half of the class focuses on impacts of climate change on a number of societal sectors including natural ecosystems, energy use, water resources, the food system and the built environment. SC

*** EVST 463a and EVST 464b / AMST 463a and AMST 464b / FILM 455a and FILM 456b / THST 457a and THST 458b, Documentary Film Workshop** Staff
A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

*** EVST 473b / ARCG 473b / NELC 373b, Climate Change, Societal Collapse, and Resilience** Harvey Weiss
The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

*** EVST 496a or b, Senior Research Project and Colloquium** Staff
Independent research under the supervision of members of the faculty, resulting in a senior essay. Students meet with peers and faculty members regularly throughout the fall term to discuss the progress of their research. Projects should offer substantial opportunity for interdisciplinary work on environmental problems. Seniors in the BS track typically write a two semester senior essay by enrolling in EVST 496 and EVST 496. For the B.A. degree, students most often complete one term of EVST 496, in either the fall or spring semester of their senior year. Students writing the one-term essay in the BA track must also complete an additional advanced seminar in the environment. Two-term senior research projects in the BA track require the permission of the DUS. Single semester essays are permissible also for students completing a double major that involves writing a senior essay in another department or program with permission of the DUS and subject to Yale College academic regulations governing completion of two majors.

Ethics, Politics, & Economics (EP&E)

* EP&E 212a, *Classics Justice, Morality, and the State* Max Lewis

In this course, we critically explore classic theories of morality, justice, politics, and economics concerning how we each individually ought to live and how we ought to live together in a society. Our aim is not just to understand these theories and their implications, but to understand their strengths, limitations, and the important questions they leave open. To this end, we explore how some of the most influential thinkers in Western philosophy, politics, and economics answered the following questions, “How should we live?” “How can I be virtuous?” “What makes actions right or wrong?” “What is justice and what makes a society just?” “What makes a political system legitimate or authoritative?” “When, if ever, may we legitimately limit people’s freedoms?” “Can a society protect both liberty and equality?” “How do we come to justly acquire and transfer property?” “Is there conflict between our capitalist society and our nature as humans?” “How should we distribute resources, goods, and opportunities in society?” and so on. SO

* EP&E 214a or b, *Classics of Ethics, Politics and Economics* Kevin Elliott

This course is designed to explore the moral and theoretical foundations, critiques, and open questions surrounding the social organization of production and governance in modern societies. A key aim of this class is to better understand the moral and philosophical background of market-based distribution, criticisms of it, and how thinkers have tried to make sense of it. HU, SO

* EP&E 216b, *Classics of EPE: African-American Perspectives* Gregory Collins

The purpose of this course is to examine the interdisciplinary subjects of ethics, politics, and economics through the lens of African-American thought and to grasp how African-American thinkers have deepened our understanding of the interaction between race and socioeconomic debates and controversies throughout U.S. history. Far from being a univocal tradition, African-American thought encompasses a rich variety of intellectual perspectives that have critically assessed the impact of slavery, education, capitalism, and religion, among a number of topics, on African-Americans. While the study of American racial relations can include a wide range of topics, our thematic focus remains on the ethical, political, sociological, and economic dimensions of African-American experiences from the eighteenth century to the present day. This inquiry further prompts us to reflect on the various conceptions of liberty, justice, and equality that have informed the Declaration of Independence and U.S. Constitution and that lie at the core of intellectual discussion over race in American history. HU

* EP&E 217a, *Classics of EP&E—Intellectual Origins of Liberalism and Conservatism*

Gregory Collins

The purpose of this course is to explore the intellectual origins of liberalism and conservatism through an EP&E framework. We discuss the tensions between collective wisdom and individual reason in the early modern period and survey the thought of thinkers in the proto-liberal and proto-conservative traditions, such as Thomas Hobbes and John Locke on sovereignty, individual autonomy, reason, and toleration; and Robert Filmer, Richard Hooker, and David Hume on order, custom, and utility. Our main object of inquiry, however, is the intellectual division that emerged between supporters and critics of the French Revolution, the historical event that prompted the modern political identities of liberalism and conservatism. Accordingly, we

examine the political, moral, and economic theories of the Revolution; reactions to the Revolution from Edmund Burke, Joseph de Maistre, and other counterrevolutionaries; critical responses to their reactions, including those from Thomas Paine, Mary Wollstonecraft, and James Mackintosh; and the impact of this debate on the evolution of liberalism and conservatism in the nineteenth and twentieth centuries in Europe and the United States. Class discussions and readings confront liberal and conservative perspectives on human nature; reason; freedom; tradition; individual rights; religion; the Enlightenment; market economies; democratic participation; and equality. so

*** EP&E 234a, Contemporary Moral and Social Controversies: Freedom, Autonomy, Well-Being** Max Lewis

We are living in a time of moral turmoil. Not only have legal rights we took for granted been overturned (e.g., the right to abortion), but we seem more polarized than ever. In this course, we take a careful and sober look at some of the moral and social controversies that constitute this state of turmoil and polarization. At the heart of the course are debates concerning conflicts between the following rights and values that people in liberal democracies see as sacrosanct, e.g., autonomy (e.g., bodily autonomy), freedom (e.g., free speech and freedom of association), harm prevention, the right to life, and well being. We start by exploring the fundamental theories in morality (e.g., Consequentialism, Deontology, and Rights Theory) and well-being (e.g., Hedonism, Desire-satisfaction, and Objective List views). We then use these theories to critically analyze particular moral and social controversies. In particular, we explore how these theories answer the following questions, “Is abortion morally permissible?”, “Is euthanasia morally wrong?”, “Should there be limits on free speech? If so, when?”, “Should there be limits on what can be bought and sold?”, “Can the state be justified in interfering with who gets to parent children?”, “How open should state borders be?”, “What do we owe the global poor?” so

*** EP&E 239a / PLSC 239a, Political Representation** Amir Fairdosi

The notion of political representation lies at the center of government in the United States and much of the rest of the world. In this course, we examine the features of political representation, both in theory and practice. We ask (and possibly find ourselves struggling to answer!) such questions as: What is political representation? Should we have a representative system as opposed to something else like monarchy or direct democracy? Should representatives demographically resemble those they represent, or is that not necessary? How do things like congressional redistricting, electoral competition, and term limits affect the quality of representation? Do constituents' preferences actually translate into policy in the United States, and if so, how? In Part I of this course, we discuss the theoretical foundations upon which representative government rests. In Part II, we move beyond theories of representation and on to the way political representation actually operates in the United States. In Part III, we move beyond the ways in which representation works and focus instead on some ways in which it doesn't work. Proposed solutions are also explored. so

*** EP&E 244a / ECON 449a / PLSC 374a, The Economic Analysis of Conflict** Gerard Padro

In this course we apply microeconomic techniques, theoretical and empirical, to the analysis of internal violent conflict, including civil wars, terrorism, and insurgencies, its causes and consequences. Topics include forced migration, ethnic conflict, long-

term consequences of war, and individual choices to participate in violence. Readings comprise frontier research papers and students will learn to critically engage with cutting-edge research designs. Prerequisites: Intermediate econometrics SO

*** EP&E 246a / PLSC 330a, Participatory Democracy** Amir Fairdosi

What does democracy look like without elections? In this class, we discuss the theory and practice of “participatory” forms of democracy (i.e. those that allow and encourage citizens to influence policy directly, rather than indirectly through elected representatives). SO

*** EP&E 248b / AFAM 177b / PLSC 256b, American Political Institutions** Michael Fotos

The origins and development of American political institutions, especially in relation to constitutional choice and the agency of persons seeking freedom, equality, and self-governing capabilities as a driver of constitutional change. Key concepts include: American federalism, compound republic, citizenship, social movements, racial justice, and nonviolence. WR, SO

*** EP&E 250a / PLSC 354a, The European Union** David Cameron

Origins and development of the European Community and Union over the past fifty years; ways in which the often-conflicting ambitions of its member states have shaped the EU; relations between member states and the EU’s supranational institutions and politics; and economic, political, and geopolitical challenges. SO

*** EP&E 254b, The Ethics of Work** Max Lewis

Work structures our daily existence. If we are not getting ready for work, we’re on our way to work, or we’re heading home from work. All the while, we’re trying to find a “work-life balance.” Most of us spend at least half of our waking lives working. In fact, one primary reason that we go to college is so that we can get a “good job.” But why do we want to work? Does working provide goods (other than money)? Are there goods unique to work? Can work be a source of meaning in our lives? Is there anything inherently bad about working or are the ways work is currently structured bad? Do we have a right to work? Do we have a duty to work? Should power structures at workplaces match those of a country (e.g., be democratic)? Would it be preferable to severely reduce work hours or completely eliminate work? Should we use technology to automate not only jobs but also housework and errands? These are some of the questions we address as we consider the ethics of work through classical texts in ethics, politics, and economics (e.g., by Aristotle, Locke, Smith, Marx, etc.) and modern debates in ethics and politics. SO

*** EP&E 255b, Morality and Relationships** Max Lewis

This course explores the nuances of two kinds of relationships: interpersonal relationships and normative relationships. The course starts with foundational work in relational ethics which connects ethics with moral accountability, e.g., moral demands, claims, blame, apology, forgiveness, etc. With a grasp of these views in place, we turn toward the morality of interpersonal relationships. Interpersonal relationships are a central part of our lives. As social creatures, they are essential for our well-being and the meaningfulness of our lives. But they raise important moral questions. For example, do we have special obligations to our friends, family, or co-national? Are we epistemically permitted to ignore evidence if it indicates that our friend or family has done something wrong? Is there a conflict between what morality requires and what is

required for being a good friend or family member? What's wrong or bad about being friends with an immoral person? We also explore psychological and moral aspects of these relationships, e.g., what does loving a person consist of? What reasons do we have to love others? Do we owe our loved ones debts of gratitude? so

*** EP&E 256b / ANTH 307b, Reparation, Repair, Reconciliation: Reckoning with Slavery and Colonialism in Global Perspective** Yukiko Koga

Imperial reckoning for slavery, imperialism, and colonialism has gained new momentum in recent years, from official apologies for colonial violence to reparations lawsuits filed in Asia, Europe, and the US for slavery, genocide, and massacres, to demands for the return of bodily remains and cultural artifacts from established cultural institutions. This seminar explores how these new attempts for belated imperial reckoning are reshaping relations between former empires and their ex-colonies. It approaches imperial reckoning as a site for redressing not only the original violence but also the transitional *injustice* incurred in the process of the unmaking of empire, which calls for post-imperial reckoning. Drawing on examples from recent cases, this course explores what it means to belatedly reckon with imperial violence today. What does it mean to reckon with imperial violence through legal means, decades after the dissolution of empires? What is the role of law in belated redress? How is historical responsibility articulated and by whom? Who is responsible for what, then and now? What are the stakes in reckoning with distant, yet still alive, pasts? Why and how does it matter today for those of us who have no direct experience of imperial violence? This course approaches these questions through an anthropological exploration of concepts such as debt, gift, moral economy, structural violence, complicity and implication, and abandonment. Instructor permission required. HU, SO

*** EP&E 286a / ECON 426a, Discrimination in Law, Theory, and Practice** Gerald Jaynes

How law and economic theory define and conceptualize economic discrimination; whether economic models adequately describe behaviors of discriminators as documented in court cases and government hearings; the extent to which economic theory and econometric techniques aid our understanding of actual marketplace discrimination. This course was formerly listed as ECON 475. Prerequisites: introductory microeconomics and at least one additional course in Economics, African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies.

EP&E 295a / PLSC 344a, Game Theory and Political Science Staff

Introduction to game theory—a method by which strategic interactions among individuals and groups in society are mathematically modeled—and its applications to political science. Concepts employed by game theorists, such as Nash equilibrium, subgame perfect equilibrium, and perfect Bayesian equilibrium. Problems of cooperation, time-consistency, signaling, and reputation formation. Political applications include candidate competition, policy making, political bargaining, and international conflict. No prerequisites other than high school algebra. Political Science majors who take this course may not count ECON 159 toward the major. QR, SO
o Course cr

*** EP&E 297b / ECON 471b, Topics in Cooperative Game Theory** Pradeep Dubey
The theory and applications of cooperative games. Topics include matching, bargaining, cost allocation, market games, voting games, and games on networks. Prerequisite: intermediate microeconomics.

*** EP&E 299a / GLBL 299a / PLSC 332a, Philosophy of Science for the Study of Politics** Ian Shapiro
An examination of the philosophy of science from the perspective of the study of politics. Particular attention to the ways in which assumptions about science influence models of political behavior, the methods adopted to study that behavior, and the relations between science and democracy. Readings include works by both classic and contemporary authors. SO

*** EP&E 300b, Capitalism and its Critics: Foundational Thinkers of Business Ethics** Gregory Collins
The question of whether capitalism is moral may seem like a recent debate, but its roots are grounded in the wisdom of philosophers and economists spanning back to classical antiquity who have reflected on the ethical implications of market activities. The purpose of this course is to critically examine these thinkers' understanding of the connection between markets and morals and grasp how they have built the intellectual foundation of the modern business ethics discipline. We address the thinkers' perspectives on the ethical, social, historical, and religious dimensions of property rights, profit, money, free trade, and shareholder and stakeholder theories of corporate management, among a variety of topics. We also explore deeper philosophical dilemmas about the relation between market exchange and conceptions of human nature, equality, liberty, the common good, commodification, social and economic complexity, justice, and reason and its limits. SO

*** EP&E 305a / AFST 366a / HIST 367a / PLSC 364a, Bureaucracy in Africa: Revolution, Genocide, and Apartheid** Jonny Steinberg
A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

*** EP&E 306a / PLSC 228a, First Amendment and Ethics of Law** Karen Goodrow
This course addresses the First Amendment and freedom of speech, focusing on the ethical implications of restrictions on free speech, as well as the exercise of free speech. Course topics and discussions include the "fighting words" doctrine, hate speech, true threats, content regulated speech, freedom of speech and the internet, and the so-called "right to be forgotten." By the end of the course, students recognize the role free speech plays in society, including its negative and positive impacts on various segments of society. Students also have an understanding of the competing interests arising from the First Amendment's right to free speech, and can analyze how these competing interests are weighed and measured in the United States as compared with other countries. SO

*** EP&E 313a / ECON 209a, Economic Analysis of Law** Robin Landis

This course is intended to provide an introduction to the economic analysis of law. We examine the economic rationale(s) underlying various legal doctrines of both common law and statutory law, as well as the economic consequences of different legal doctrines. Previous coursework in economics, while helpful, is not a prerequisite for the course. SO

*** EP&E 318b, Healthcare Business Ethics: The Moral Political Economy of Healthcare**
Ximena Benavides Reverditto

This course explores the intersections between the ethics, politics, and economics of the U.S. health sector. By adopting a critical thinking approach, we aim to explore how policy choices – and the laws in which they instrumentalize – have shaped the health sector to advance or prevent access to quality living conditions and medical services. This includes examining the power dynamics among the market's stakeholders (e.g., clinicians, patients, hospitals, and the pharmaceutical industry, among others), reflecting on the factors that limit, ossify, or exacerbate their power, and questioning how power misallocations and imbalances may be promoted via policy choices from both public and private institutions. The core query is whether efficiency and equity can co-govern health institutions rather than one exclude the other. Our goal is to study the subject from both theoretical and empirical perspectives. Throughout the course, we engage with multidisciplinary scholarship from public health, economics, sociology, history, law and political science champions and critics of health policy decisions and learn from advocates about the initiatives and strategies that can be used to address the moral and political problems of health policies. Please see attached syllabus.

*** EP&E 325b / PLSC 304b, Business Ethics and Law** Robin Landis

This seminar is intended to provide frameworks for the analysis of ethical issues that may arise in the context of business decisions, including such aspects as the role of ethics, competing values and interests, and tools for making principled decisions. The course also covers, as appropriate, some aspects of law as they relate to business ethics. Previous courses in philosophy and ethics may be helpful. SO

*** EP&E 328a / PLSC 347a / S&DS 172a, YData: Data Science for Political Campaigns**
Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying politics, and opportunities to practice the data science skills presented in S&DS 123, YData. QR

*** EP&E 334b / PHIL 455b, Normative Ethics** Shelly Kagan

A systematic examination of normative ethics, the part of moral philosophy that attempts to articulate and defend the basic principles of morality. The course surveys and explores some of the main normative factors relevant in determining the moral status of a given act or policy (features that help make a given act right or wrong). Brief consideration of some of the main views about the foundations of normative ethics (the

ultimate basis or ground for the various moral principles). Prerequisite: a course in moral philosophy. HU

* **EP&E 336a / PLSC 258a / PLSC 841a, Democracy and Bureaucracy** Ian Turner
Exploration of what government agencies do and why; focus on issues of accountability and the role of bureaucracy in representative democracy. Understanding how bureaucracy works internally and how it is affected by interactions with other political actors and institutions. SO

* **EP&E 356a, Constitutional Law and Business Ethics** Gregory Collins
The purpose of this course is to explore how the U.S. Constitution and Supreme Court case law have had an impact on business and commercial activities throughout U.S. history. We first identify provisions of the Constitution that relate to economics and familiarize ourselves with methods of constitutional interpretation, including originalism and living constitutionalism. We then apply this guiding framework to our analysis of key Supreme Court cases that have addressed the Commerce Clause, the Takings Clause, the First Amendment, the Fourteenth Amendment, and a number of other constitutional provisions that relate to commercial exchange and the legal status of corporations. Additional concepts we discuss include the countermajoritarian difficulty, the rational basis test, strict scrutiny, substantive due process, fundamental rights, disparate impact, public accommodations law, antidiscrimination law, and antitrust law. The guiding question we confront is whether the courts should a.) defer to legislatures in regulating business actors; or b.) overturn democratically enacted laws to protect the economic liberties of individuals. Prerequisite: Familiarity with major theories in the business ethics discipline (virtue ethics, deontological ethics, utilitarianism, natural rights theory) and the U.S. Constitution.

* **EP&E 371b, Law, Ethics and Criminal Justice: Policing in America, Accountability and Reforms** Karen Goodrow

This course examines the history of policing in America and the role of systemic bias on arrests and prosecutions, including wrongful convictions. The course explores police accountability efforts and the doctrine of qualified immunity, which has historically protected police from allegations of misconduct. By the end of the course, students are able to recognize the factors which contribute to arrests and police misconduct, and to recognize the role bias plays in criminal prosecutions and wrongful convictions. Students also develop an understanding of how society's conflicting views on policing influence efforts at police reform and accountability. SO

* **EP&E 372a / HUMS 263a / PLSC 329a, Thucydides** Daniel Schillinger
In this seminar, we undertake a careful examination of Thucydides' so-called History of the Peloponnesian War in its entirety. Central problems include the psychological and structural causes of war, the relation of justice to necessity, the susceptibility of democracy to imperialism and demagoguery, and the experience of war itself. We also engage with the secondary literature on Thucydides. WR, HU

* **EP&E 380b / PLSC 313b, Bioethics, Politics, and Economics** Stephen Latham
Ethical, political, and economic aspects of a number of contemporary issues in biomedical ethics. Topics include abortion, assisted reproduction, end-of-life care, research on human subjects, and stem cell research. SO

*** EP&E 390a / EVST 212a / PLSC 212a, Democracy and Sustainability** Michael Fotos
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

*** EP&E 421b / PLSC 320b, Ethics, Law, and Current Issues** Karen Goodrow
Examination of how freedom of speech and bias influence the criminal justice system, focusing on wrongful convictions and administration of the death penalty. Understanding the role of potential bias at various levels and the competing interests of protecting speech, due process, and the innocent. Topics include limitations on speech, practical effects of speech, the efficacy of the death penalty, actual innocence, gender/race/economic bias and its effects on the justice system, as well as best practices for improving our sense of justice.

*** EP&E 471a or b, Directed Reading and Research** Sarah Khan
For individual reading and research unrelated to the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

*** EP&E 478b / PHIL 450b, The Problem of Evil** Keith DeRose
The challenge that evil's existence in the world poses for belief in a perfectly good and omnipotent God. The main formulations of the problem of evil; proposed ways of solving or mitigating the problem and criticism of those solutions. Skeptical theism, the free-will defense, soul-making theodicies, and doctrines of hell. HU

*** EP&E 491a or b, The Senior Essay** Sarah Khan
A one-term senior essay. The essay should fall within the student's area of concentration. If no appropriate seminar is offered in which the essay might be written, the student, in consultation with the director of undergraduate studies, should choose an appropriate member of the faculty to supervise the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

*** EP&E 492a or b and EP&E 493a or b, The Yearlong Senior Essay** Sarah Khan
A two-term senior essay. The essay should fall within the student's area of concentration. The student, in consultation with the director of undergraduate studies, should choose an appropriate member of the faculty to supervise the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

Ethnicity, Race, & Migration (ER&M)

*** ER&M 039a / AMST 039a / ENGL 039a, *Latinx Literature Aside the Law*** Joseph Miranda

How has Latinx identity emerged through and against the law? From the suspension of Puerto Rican sovereignty to the contemporary proliferation of ethnic studies bans, the state has used the law to delimit Latinx to transparent or static categories of irregular “citizen,” “refugee,” and “migrant.” If conventional thinking assumes that art only responds to the law in protest or affirmation of the status quo, this seminar introduces students to the ways Latinx literature engages, resists, and disidentifies with the law as it delineates national belonging. We ask how do Latinx creative expressions expand the notions of citizenship, nation, and family beyond their raced, classed, and gendered origins to imagine new futures. Through attention to contemporary tv, film, novels, and poetry, we examine how Latinx artists build alternative forms of thriving collective life in forms of mutual aid, queer kinship, party, and protest. Works up for discussion include those by Justin Torres, Raquel Salas Rivera, and the television show *Vida*. Drawing inspiration from these texts, students collaborate on podcasts, write analytical essays, and complete other critical and creative projects. Enrollment limited to first-year students. WR, HU

*** ER&M 081a / MUSI 081a / SOCY 081a, *Race and Place in British New Wave, K-Pop, and Beyond*** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992-present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s–70s, British and American punk rock music (1970s–1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. SO

*** ER&M 089a / AMST 099a / HIST 059a / PHYS 047a, *Asian Americans and STEM*** Eun-Joo Ahn

As both objects of study and agents of discovery, Asian Americans have played an important yet often unseen role in fields of science, technology, engineering, and math (STEM) in the U.S. Now more than ever, there is a need to rethink and educate students on science’s role in society and its interface with society. This course unites the humanities fields of Asian American history and American Studies with the STEM fields of medicine, physics, and computer science to explore the ways in which scientific practice has been shaped by U.S. histories of imperialism and colonialism, migration and racial exclusion, domestic and international labor and economics, and war. The course also explores the scientific research undertaken in these fields and delves into key scientific principles and concepts to understand the impact of such work on the lives of Asians and Asian Americans, and how the migration of people may have impacted the migration of ideas and scientific progress. Using case students, students engage

with fundamental scientific concepts in these fields. They explore key roles Asians and Asian Americans had in the development in science and technology in the United States and around the world as well as the impact of state policies regarding the migration of technical labor and the concerns over brain drains. Students also examine diversity and inclusion in the context of the experiences of Asians and Asian Americans in STEM. Enrollment limited to first-year students. HU, SC

*** ER&M 150a, Mexicans, Mexican Americans, and the U.S. Empire** Ximena Lopez Carrillo

This course examines the history of Mexicans and Mexican Americans at the U.S.-Mexico border and their important contributions to U.S. politics and culture, from the Treaty of Guadalupe Hidalgo to the present. By looking at specific historical case studies, students learn about the impact of U.S. imperial and migratory policies on border life, the tensions and solidarity bonds between Mexicans and Mexican Americans, the formation of a hybrid Mexican American culture, and the long history of popular resistance and activism. As students learn about this history, they reflect on the politics behind our historical memory surrounding Mexicans and Mexican Americans, and the newest methodological proposals to recover their history. HU, SO

ER&M 154a / FILM 154a / LAST 154a / PORT 154a / WGSS 154a, Advanced Studies: Women Filmmakers and Photographers of the Portuguese-Speaking World
Giseli Tordin

Women Filmmakers and Photographers of the Portuguese-Speaking World is a Portuguese advanced course that delves into the language and culture of the Lusophone world through the lens of women filmmakers and photographers. Organized into three interconnected units, namely, “Diasporas and (De)Territorialities,” “Memories They Told Me,” and “Reframing Other Existences,” students explore how these authors bring forth other perspectives, including those of indigenous people, Afro-Lusophone women, immigrants, and LGBTQIA+ community, among others, challenging societal norms and dominant portrayals. It also explores how their films and photographs reconnect with cultural roots in Africa and Latin America, fragmented by patriarchy, colonialism, and capitalism. By exploring a variety of productions by photographers like Yassmin Forte, Madalena Schwartz, Claudia Andujar, and filmmakers like Anna Muylaert, Carolina Paiva, and Lúcia Murat, among others, students investigate links between identities, memory, and language, enabling them to describe, interpret and make inferences about how cultural environments have been historically constructed and how these artistic productions reshape perceptions of our societies. By the course’s end, students have a deeper understanding of the Portuguese language and diverse cultural aspects within the Lusophone world. Conducted in Portuguese. Portuguese 140 or equivalent. L5, HU

ER&M 200a, Introduction to Ethnicity, Race, and Migration Staff

Historical roots of contemporary ethnic and racial formations and competing theories of ethnicity, race, and migration. Cultural constructions and social practices of race, ethnicity, and migration in the United States and around the world. HU, SO
o Course cr

*** ER&M 207a / LING 107a, Language Endangerment and Revitalization** Edwin Ko

Introduction to language endangerment and language revitalization. This course explores a range of theories and practices that provide the basis by which linguists and language activists aim to revitalize endangered languages in communities around

the world. Beginning with surveying the various ways in which the world's linguistic diversity and language ecologies can be assessed and discussing the serious threats to that diversity, why this might be a matter of concern, and the principle of linguistic human rights, the course will narrow toward individual student projects to investigate a minority language in some depth and report on its status with respect to the range of issues discussed in class. WR, SO

ER&M 211a / EDST 144a / EVST 144a / SOCY 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO o Course cr

ER&M 219a / HIST 219a / JDST 200a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

*** ER&M 236a / ITAL 337a / LITR 395a / WGSS 364a, Feminism without Women: Modernist and Postcolonial Textual Experiments** Serena Bassi

Antifeminist critics charge the feminist movement with having forgotten “real women” in favor of inaccessible theories rejecting the supposedly incontrovertible fact that there are only two sexes and genders. This seminar turns the charge on its head by exploring a theoretical and literary canon that – by questioning the ontological status of the male/female binary – has transformed feminism into a capacious, radically inclusive, revolutionary 21st Century movement. The texts and the theories that we discuss put pressure on the very category of “woman” as they strive to rethink feminism as a non-identitarian world-making project. The class focuses on two movements that employ art and literature to push back against the idea of “women” as the monolithic subject of feminism: Italian vanguard modernism and Italophone literary postcolonialism. We discuss modernist and postcolonial novels, poems, essays, and performative art pieces together with classics of feminist, queer and postcolonial theory. We push our own political imagination further by asking ever more sophisticated questions about gender, sexuality, ethnicity, race, and the way these intersecting social formations mediate the way we see, experience, and represent our material and social reality. The course is taught entirely in English. No previous knowledge of Italian language, art, or literature required. Students seeking departmental credit for Italian do their writing and reading in the original language, and attend a discussion session in Italian. HU

ER&M 238a / AFAM 192a / AFST 238a / AMST 238a, Third World Studies Staff

Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice.

Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

ER&M 241b / ANTH 140b / SOCY 138b, The Corporation Douglas Rogers

Survey of the rise, diversity, and power of the capitalist corporation in global contexts, with a focus on the 20th and 21st centuries. Topics include: the corporation as legal entity and the social and cultural consequences of this status; corporations in the colonial era; relationships among corporations, states, and non-governmental organizations in Western and non-Western contexts; anti-corporate critique and response; corporate social responsibility; and race, gender, and indigeneity. HU, SO o Course cr

ER&M 243b / AMST 234b / HIST 188b / RLST 342b, Spiritual But Not Religious
Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

*** ER&M 252a / AFAM 345a / AFST 363a / SPAN 360a, Our Guinea: Locating Africa in Early Iberian Archives** Staff

African coastlines were the first horizons of Iberian imperial expansion into the Atlantic, and eventually, the world. While the worlds made by Africans displaced by the slave trade and their descendants have received extensive attention in recent years, Africa itself rarely enters the frame. The histories that unfolded on the continent in many ways challenge our understandings of Spanish and Portuguese expansion and colonialism, shaped as they are by the “New World” paradigm of conquest and conversion. Were African societies part of the “New World” or the “Old World”? In this course we study an often-overlooked domain of Spanish and Portuguese imperialism and commerce from an approach that includes but does not limit itself to the study of slavery and enslaved Africans in the Americas. We read a selection of primary texts from the early modern Ibero-African archive, with a focus on texts produced about the African continent and Africans (and when possible, by Africans) in Spanish, and to a lesser extent Portuguese, seeking (1) to challenge existing narratives and frameworks for the study of precolonial Africa, but also (2) to see what kinds of African worlds appear when we set aside our assumptions and generalizations. L5, HU TR

*** ER&M 268b / ENGL 331b, What was Latinx Literature** Joseph Miranda

With the arrival of “Latinx,” the last decade was defined as a moment of rupture and break with traditional notions of *latinidad*. Artists and activists asserted refusal and historical reckoning as the mode of doing politics and aesthetics. Now, pessimistic about Latinx as a signifier of a unified political project, the generational tides have shifted to “Latine.” This seminar asks what is “Latinx literature” and why are the methods of “Latinx studies” considered revolutionary or disruptive? What ideas were rooted in prior generations of feminist and queer collectives that sustained life when the arrival of a decolonial future seemed forever deferred and withheld from reach? We examine contemporary artists alongside historical antecedents to reevaluate what literary and social forms can help us challenge a racialized, heteronormative conception of citizenship. One possibility is that Gloria Anzaldúa – rightly critiqued for her relation to *mestizaje* – might be helpful in this moment of growing nationalism and hostility

towards migrants to think about other ways of organizing life aside borders and the nation. We read across a long and varied arc of creative expression to consider forms that endure amidst colonial duress. For example: the serial, montage, anthology, performance collective, and inter-linked storytelling. Artists up for discussion may include Natalie Diaz, John Rechy, and Jesús Colón. Students will engage these works alongside theorists like José Esteban Muñoz and Juana María Rodríguez. WR, HU

*** ER&M 269a, Embodied Methods: Lessons in Praxis from Women of Color** Alison Kibbe

Understanding ethnic studies, black studies, and gender studies as necessarily anti-disciplinary practices, this course explores modes of research that embrace the body as a tool, a way of knowing, and a method for cutting across the silos and boundaries that academic disciplines impose. We explore various forms of embodied research praxis, including performance ethnography, food studies, oral history, dance, and other boundary-crossing methods. Centering the approaches of women of color researchers, artists, and practitioners who have, we ask, what is the role of the body and embodied knowledge in relationship to written scholarship? How do embodied approaches contribute to our work about migration, mobility, social movements, race, class, gender, sexuality, and their intersections? The class involves movement and embodiment practices during every session, both instructor and student-led. Students should be willing to participate and experiment with various forms. Students should anticipate a holistic experience that requires an openness to physical activity (accessible to all) as one of our primary tools for both analyzing course materials and constructing our own boundary-crossing projects. HU

*** ER&M 271a, Media, Writing, and Feminist Resistance in the Americas** Ever Esther Osorio Ruiz

From the crafting of the text “me too” in the United States to “not one less” in Latin America—to visibilize sexual abuse and combat feminicide respectively—multitudes of thousands have gathered in the streets and in the digital avenues of the continent to demand a different world and to change everything. In this course we approach these texts as events, as literatures, as cultural artifacts, and as entry points for the analysis of culture and feminist resistance in the continent. We explore the power of writing and of words through the analysis of contemporary slogans, manifestos, digital media threads, chants, novels, poetry and artifacts—such as a green scarf—throughout the Americas. These “texts” are explored as communally woven knowledges that are socially, politically and historically specific and that were created to contest different systems of organized violence in the forms of colonialism, capitalism and patriarchy. By closely reading films, performances, exhibits, digital media threads, we explore the following questions: What emotions does the text mobilize? What do they want to achieve? How were they created? What can they do? How do they circulate? Where do they take place? HU

*** ER&M 272b / AFAM 362b / FREN 262b / GBL 272b / HIST 223b, Black France** Marlene Daut

This course offers an in-depth exploration of the complex history of Black France, tracing its roots from the era of French colonization in the Caribbean and the transatlantic slave trade to its contemporary manifestations across France and its overseas territories. Beginning with an examination of French colonialism in the Caribbean, particularly focusing on the brutal system of slavery and the development

of the Code Noir under the reign of Louis XIV, students gain a comprehensive understanding of the origins of race-thinking in France. Students also read about the pivotal role of French colonies like Saint-Domingue, Martinique, and Guadeloupe in the resistance against slavery, highlighting the Haitian Revolution as a watershed moment in the struggle for freedom and self-determination. Through the lens of this historic event, students analyze the complexities of slave rebellion, the quest for abolition, and the enduring legacy of resistance in Black (francophone) communities. By highlighting the socio-political relationship of the colonial and revolutionary era to the present, students explore the interconnectedness of slavery, colonialism, and power dynamics within the French empire and the enduring impact of this tumultuous history on contemporary conceptions of Blackness in France. Using an interdisciplinary approach that encompasses history, sociology, literary, and cultural studies, students analyze the formation of Black identity, racial ideologies, and the ongoing struggle for recognition and equality within French society. WR, HU

ER&M 278a / LAST 228a / SPAN 228a, Borders & Globalization in Hispanophone Cultures Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources (including goods, knowledge, information, technologies, etc.). Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that constrain the access of excluded persons to resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts that may include treatises, maps, travel literature, visual culture, material culture (e.g., currency), law, music, and performance art, students investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. More broadly, we explore, describe, and trace the entanglements of bordering, globalizations, and knowledge production in Hispanophone cultures. Some of the questions that will guide our conversations are: What are (social) borders and what are the processes through which they persist? How do the effects of practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? What can we learn from indigenous peoples' responses to bordering process and globalization? Prerequisite: SPAN 140 or 145, or in accordance with placement results. The course is conducted entirely in Spanish. Readings are available electronically through Canvas and the University Library. To be conducted in Spanish. L5, HU

*** ER&M 285a / LAST 305a / SOCY 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia

Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos – numbering more than 60 million in the U.S. – are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the

aim of providing students the tools necessary to thoughtfully participate in current debates. SO

*** ER&M 291a / AFAM 352a / AMST 438a / LITR 295a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

*** ER&M 292b / AFAM 239b / AMST 461b / EDST 209b / WGSS 202b, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

*** ER&M 297a / AMST 371a, Food, Race, and Migration in United States Society** Quan Tran

Exploration of the relationship between food, race, and migration in historical and contemporary United States contexts. Organized thematically and anchored in selected case studies, this course is comparative in scope and draws from contemporary work in the fields of food studies, ethnic studies, migration studies, American studies, anthropology, and history. SO

*** ER&M 298b / AMST 307b / HIST 117b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. WR, HU

*** ER&M 300a or b, Comparative Ethnic Studies** Staff

Introduction to the methods and practice of comparative ethnic studies. Examination of racial formation in the United States within a transnational framework. Legacies of colonialism, slavery, and racial exclusion; racial formation in schools, prisons, and citizenship law; cultural politics of music and performance; social movements; and postcolonial critique. SO

*** ER&M 310b / AFAM 326b / AMST 312b / WGSS 298b, Postcolonial Cities of the West** Fadila Habchi

Examination of various texts and films pertaining to the representation of postcolonial cities in the global north and a range of social, political, and cultural issues that concern those who inhabit these spaces. HU

*** ER&M 314b / AMST 314b / WGSS 306b, Gender and Transgender** Greta LaFleur

Introduction to transgender studies, an emergent field that draws on gender studies, queer theory, sociology, feminist science studies, literary studies, and history. Representations of gender nonconformity in a cultural context dominated by a two-sex model of human gender differentiation. Sources include novels, autobiographies, films, and philosophy and criticism. RP

*** ER&M 333a, Mexico and the Migratory Lyric** David Francis

What is a lyric and how does it move? How have understandings of Mexican poetry changed over the course of the nation's history, and what factors have contributed to these changes? To investigate these questions, this course examines how different forms of lyrical communication have been disseminated within Mexico and internationally. Therein, we discuss how lyrical production has been complicated by such issues as print culture and the publication industry; race, gender, class, and economics; and cultural politics and political representation. Our explorations begin with the popular *corrido*. They then move to discussions of nationality, translation, and bilingual anthology production before and after the rise of boom literature; border writing, migration, and the formation of multilingual literary communities; discourse of gender, sexuality, race, and disease; and the popularization of narco-ballads. We conclude by discussing the contemporary lyric as seen in different media like the novel and the film industry. HU

*** ER&M 339a / AMST 416a / ENGL 396a, Region, Indigeneity, and American Literary Realism** Lloyd Kevin Sy

A study of American literature between roughly 1865 and 1930, with a focus on the themes of place and race, especially how authors handle the theme of being authentically American. An outsized focus is placed on the often neglected works of Indigenous American writers. Potential readings: Zitkala-Sa, Sarah Winnemucca, Susette La Flesche, Mourning Dove, Twain, James, Charles Chesnutt, Hurston, Cather, Dunbar, Wharton, Sherwood Anderson, Jewett, Sui Sin Far. May satisfy the 18th/19th-century or 20th/21st-century literature requirement for English majors with permission from the instructor and the DUS. HU

*** ER&M 342b / HIST 372Jb / LAST 372b, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

ER&M 345b / HIST 325b / LAST 325b, Introduction to Latin American History Anne Eller

Critical themes and events in Latin American history from pre-Columbian times to the present. Major formative epochs such as the pre-Columbian era, colonization, independence, and contemporary moments; modern political flashpoints, including Haiti, Cuba, Argentina, and Peru. HU

*** ER&M 357a / AMST 328a / HIST 112a / HUMS 418a, “None Dare Call It Conspiracy:” Paranoia and Conspiracy Theories in 20th and 21st-Century America**
David Walsh

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

*** ER&M 360a / HLTH 370a / HSHM 432a / SOCY 390a / WGSS 390a, Politics of Reproduction** Rene Almeling

Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality. WR, SO

*** ER&M 367b / AMST 447b / EDST 270b, Contemporary Native American K–12 and Postsecondary Educational Policy** Mira Debs

This course will explore current Native American educational policy issues, programming, funding, and success. Native American representation in policy conversations is often incomplete, complicated, or relegated to an asterisk resulting in a lack of resources, awareness, and visibility in educational policy. This course examines the challenges and issues related to Native education; however, the impetus of this course centers on the resiliency, strength, and imagination of Native American students and communities to redefine and achieve success in a complex and often unfamiliar educational environment. EDST 110 recommended SO

ER&M 368a / HIST 368a / LAST 368a, Political Violence, Citizenship, and Democracy in Latin America Staff

Exploration of how and when definitions of citizenship and democracy have been shaped by violent conflicts; how local and global contexts have influenced individual and collective political action; and the transformation of leadership, ideologies, and utopias in different Latin American contexts. WR, HU o Course cr

*** ER&M 394a / ANTH 409a / EVST 422a / F&ES 422a / GLBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove

Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities. WR, SO

*** ER&M 404a / AMST 394a / HIST 114Ja, Texas Histories** Stephen Pitti

An exploration of topics in Texas history from the 16th century into the contemporary moment. Readings focus on Native American, African American, Latinx, Asian American, and LGBTQ histories, as well as broader political developments and patterns over the last two centuries. WR, HU

*** ER&M 412a / PSYC 312a, Native American Mental Health** Mark Beitel and Christopher Cutter

Issues of health policy, research, and service delivery in Native American communities, with a focus on historical antecedents that shape health outcomes and social policy for indigenous communities. Urgent problems in health and wellness, with special attention to Native American mental health. The roles of the Indian Health Service, state and local agencies, and tribal health centers; comparison of Native American and European American conceptions of health and illness. SO

*** ER&M 417a / AFST 389a / MMES 389a, Comparative settler geographies** Leslie Gross-Wyrtzen

This advanced undergraduate seminar delves into theories and comparative studies of recent and contemporary settler colonial geographies to ask the following questions:

1) What are the key characteristics of settler colonial geographies and (how) are they distinct from colonial geographies? 2) What are the intellectual and political stakes of applying settler colonialism as an analytical lens? 3) How does comparative analysis deepen or disrupt concepts such as sovereignty, race, and I/indigeneity, especially in a majority world context? 4) How do Indigenous or and/or occupied peoples contest settler cartographies through placemaking and other strategies? In this seminar, we read key theoretical texts in colonial, postcolonial, settler, Native, and Indigenous studies with an emphasis on global and Southern intervention. Alongside theoretical texts, we focus on four case studies that, to a greater or lesser degree, push the boundaries of settler colonial definitions and concepts: South Africa, Morocco/Western Sahara, Israel/Palestine, and southwestern China and Tibet. Where possible, we invite scholars with expertise in the cases to speak to the class. SO

*** ER&M 430a / AMST 450a / WGSS 461a, Islam in the American Imagination** Zareena Grewal

The representation of Muslims in the United States and abroad throughout the twentieth century. The place of Islam in the American imagination; intersections between concerns of race and citizenship in the United States and foreign policies directed toward the Middle East. WR, SO

*** ER&M 432a / AMST 430a / ANTH 430a / HIST 123a, Muslims in the United States** Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different

dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

*** ER&M 439a / AMST 439a, Fruits of Empire** Gary Okihiro

Readings, discussions, and research on imperialism and “green gold” and their consequences for the imperial powers and their colonies and neo-colonies. Spatially conceived as a world-system that enmeshes the planet and as earth’s latitudes that divide the temperate from the tropical zones, imperialism as discourse and material relations is this seminar’s focus together with its implantations – an empire of plants. Vast plantations of sugar, cotton, tea, coffee, bananas, and pineapples occupy land cultivated by native and migrant workers, and their fruits move from the tropical to the temperate zones, impoverishing the periphery while profiting the core. Fruits of Empire, thus, implicates power and the social formation of race, gender, sexuality, class, and nation. HU, SO

*** ER&M 444a / RLST 289a, Race, Religion, and Transnational Mobilities** Gana Ndiaye

This course surveys how “migrants” and “desirable migrants” are produced through race and religion in the Americas and Europe. It also examines how racial identities and religious beliefs inform human mobilities and shape the experiences of such mobile persons as settlers, exiles, asylum seekers, temporary workers, and economic migrants. By the end of the course, participants will familiarize themselves with the crucial roles that religious beliefs and practices play in causing and responding to human mobilities. Students will also gain familiarity with the ways in which migrants’ religious practices transform local cultures, politics, and societies as their own religious practices are reconfigured by and in the context of host nations. Topics to be covered include citizenship and cultural difference, religion and the public sphere, multiculturalism, Islam and democracy, Christian Pentecostal missions, liberation theology, and African diasporic religions. SO

*** ER&M 445b, Remembering the Vietnam War** Quan Tran

Approaching the fiftieth anniversary of its conclusion, the Vietnam War as well as its legacies and memories remain topics of ongoing debates not only in Vietnam and in the US, but also in other parts of the world given the war’s extensive reach. This multidisciplinary seminar considers what different actors remember of the war as well as how, when, where, and why they invoke war memories. The course engages with war memories in cultural productions such as literature, film, music, and art as well as in memorialization, museum, archival, and tourism efforts to name a few sites of war remembrance. The first third of the course will provide an historical overview of the war from different perspectives while the last two thirds of the class will focus on a wide range of war legacies and memories and their multilayered significance. HU, SO

*** ER&M 448a / AMST 428a / ENGL 332a / WGSS 328a, “I Don’t Like to Argue”: The Styles and Politics of Humility** Sunny Xiang and Minh Vu

What can academic writing do besides argue? Why does critical thinking so often compel an idiom of claiming, exploring, discovering, and mastering? What might writers strive for, if not newness, rigor, excellence, or even one’s own voice? In this class, we defamiliarize and repair the habits of mind and body that have been normalized by the university. Some of our time goes toward identifying the racial and colonial logics as well as presumptions about gender and ability that inform the conventions, genres, and styles of scholarly prose. For example, we contemplate the power relations and tonal effects embedded in the familiar maneuvers of advancing and defending arguments. Most of the class’s energy, however, is devoted to testing out less combative modes of inhabiting the page. We pursue these experiments not in the name of novelty but with the hope that our compositional practices can move us toward different values and different futures for writing, conversing, and living as subjects of the university. To guide us in this endeavor, we look to scholars who have critiqued the politics of knowledge by mobilizing alternative styles of knowing. Some, for example, have turned footnotes into an occasion for giving thanks instead of exhibiting mastery. Others have repurposed quotations and images in ways that challenge traditional regimes of evidence. HU

*** ER&M 467a / AFAM 457a / AFST 457a / AMST 470a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the “beur” author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements. HU

*** ER&M 491a, The Senior Colloquium: Theoretical and Methodological Issues** Staff

A research seminar intended to move students toward the successful completion of their senior projects, combining discussions of methodological and theoretical issues with discussions of students’ fields of research. Not available

Film and Media Studies (FILM)

*** FILM 045a / THST 099a, Dance on Film** Emily Coates

An examination of dance on film from c. 1920 to the present, including early Hollywood pictures, the rise of Bollywood, avant-garde films of the postwar period, translations of stage choreography to screen, music videos, and dance film festivals. The impact of industry, circulation and audience, aesthetic lineages, and craft in the union of the two mediums. Students develop an original short film for a final class project. No prior

dance or filmmaking experience necessary. Enrollment limited to first-year students.
WR, HU

FILM 150a, Introduction to Film Studies Staff

A survey of film studies concentrating on theory, analysis, and criticism. Students learn the critical and technical vocabulary of the subject and study important films in weekly screenings. Prerequisite for the major. WR, HU o Course cr

**FILM 154a / ER&M 154a / LAST 154a / PORT 154a / WGSS 154a, Advanced Studies:
Women Filmmakers and Photographers of the Portuguese-Speaking World**
Giseli Tordin

Women Filmmakers and Photographers of the Portuguese-Speaking World is a Portuguese advanced course that delves into the language and culture of the Lusophone world through the lens of women filmmakers and photographers. Organized into three interconnected units, namely, “Diasporas and (De)Territorialities,” “Memories They Told Me,” and “Reframing Other Existences,” students explore how these authors bring forth other perspectives, including those of indigenous people, Afro-Lusophone women, immigrants, and LGBTQIA+ community, among others, challenging societal norms and dominant portrayals. It also explores how their films and photographs reconnect with cultural roots in Africa and Latin America, fragmented by patriarchy, colonialism, and capitalism. By exploring a variety of productions by photographers like Yassmin Forte, Madalena Schwartz, Claudia Andujar, and filmmakers like Anna Muylaert, Carolina Paiva, and Lúcia Murat, among others, students investigate links between identities, memory, and language, enabling them to describe, interpret and make inferences about how cultural environments have been historically constructed and how these artistic productions reshape perceptions of our societies. By the course’s end, students have a deeper understanding of the Portuguese language and diverse cultural aspects within the Lusophone world. Conducted in Portuguese. Portuguese 140 or equivalent. L5, HU

FILM 160b / ENGL 196b, Introduction to Media Staff

Introduction to the long history of media. Focus on taken-for-granted infrastructures as the deep background for the digital age. History will be our major resource for understanding the present. We move through strategically selected case studies including technologies for controlling space and time, writing in its many forms, visual and auditory media, and digital media. Media theory will be taught alongside case studies. WR, HU o Course cr

*** FILM 161a / ART 241a, Introductory Film Writing and Directing** Jonathan Andrews

Problems and aesthetics of film studied in practice as well as in theory. In addition to exploring movement, image, montage, point of view, and narrative structure, students photograph and edit their own short videotapes. Emphasis on the writing and production of short dramatic scenes. Priority to majors in Art and in Film & Media Studies. RP

*** FILM 162a or b / ART 142a or b, Introductory Documentary Filmmaking** Staff

The art and craft of documentary filmmaking. Basic technological and creative tools for capturing and editing moving images. The processes of research, planning, interviewing, writing, and gathering of visual elements to tell a compelling story with integrity and responsibility toward the subject. The creation of nonfiction narratives.

Issues include creative discipline, ethical questions, space, the recreation of time, and how to represent “the truth.” RP

*** FILM 205a / GMAN 205a / HUMS 160a / LITR 244a, The Question of Technology in Continental Theory** Staff

In Greek mythology, Niobe is the queen of Thebes and mother of six daughters and six sons. She rebelled against the gods and was severely punished for it: her children were killed and she herself was petrified in eternal mourning. In Walter Benjamin’s much-discussed essay “On the Critique of Violence,” Niobe’s fate is a memorial to a mythical violence that has never been overcome. According to Benjamin, this violence today is linked to an instrumental approach to technology. In the seminar, we discuss media and technology philosophical approaches by Benjamin, Heidegger, Simondon, Haraway, Chude-Sokei, among others, but also texts by Kant, in order to explore the question of how we should understand the entanglement of melancholy, violence and an instrumental understanding of technology. Furthermore, we discuss how this link between violence, technology and melancholy can be resolved from the perspective of Benjamin’s critique of violence. HU

FILM 232b / THST 241b, Classical Hollywood Narrative 1920–1960 Staff

Survey of Classical Hollywood films. Topics include history of the studio system; origin and development of genres; the film classics of the Classical Hollywood period, and the producers, screenwriters, directors, and cinematographers who created them. WR, HU
o Course cr

FILM 240b / HUMS 190b / LITR 143b, Cinema in the World Moira Fradinger

Development of ways to engage films from around the globe productively. Close analysis of a dozen complex films, with historical contextualization of their production and cultural functions. Attention to the development of critical skills. Includes weekly screenings, each followed immediately by discussion. HU

*** FILM 241b / PLSH 246b, Polish Communism and Postcommunism in Film**

Krystyna Illakowicz

The Polish film school of the 1950s and the Polish New Wave of the 1960s. Pressures of politics, ideology, and censorship on cinema. Topics include gender roles in historical and contemporary narratives, identity, ethos of struggle, ethical dilemmas, and issues of power, status, and idealism. Films by Wajda, Munk, Polanski, Skolimowski, Kieslowski, Holland, and Kedzierzawska, as well as selected documentaries. Readings by Milosz, Andrzejewski, Mickiewicz, Maslowska, Haltoff, and others. Readings and discussion in English. HU

*** FILM 263a, The Movie Memory Project** Camille Thomasson

This course is an interdisciplinary offering for students of film and media, American studies, architecture, history of art, data science, East Asian studies, economics, history, psychology, and theater studies to participate in a class focused on the Movie Memory Project. For seven years, my students in *Classical Hollywood Narrative* have collected interviews from their elders about early movie memories. We have 500 interviews from around the world. I’m looking for self-motivated students who want to delve into the Movie Memory archive to research a topic of their choice. Students should be passionate about research, self-directed, and willing to work collaboratively to share findings with a community of scholars. **Please go to the syllabus to apply.** WR, HU

*** FILM 307a / EALL 280a / EAST 260a, East Asian Martial Arts Film** Staff

The martial arts film has not only been a central genre for many East Asian cinemas, it has been the cinematic form that has most defined those cinemas for others. Domestically, martial arts films have served to promote the nation, while on the international arena, they have been one of the primary conduits of transnational cinematic interaction, as kung-fu or samurai films have influenced films inside and outside East Asia, from *The Matrix* to *Kill Bill*. Martial arts cinema has become a crucial means for thinking through such issues as nation, ethnicity, history, East vs. West, the body, gender, sexuality, stardom, industry, spirituality, philosophy, and mediality, from modernity to postmodernity. It is thus not surprising that martial arts films have also attracted some of the world's best filmmakers, ranging from Kurosawa Akira to Wong Kar Wai. This course focuses on films from Japan, China, Hong Kong, Taiwan, and South Korea—as well as on works from other countries influenced by them—covering such martial arts genres such as the samurai film, kung-fu, karate, wuxia, and related historical epics. It provides a historical survey of each nation and genre, while connecting them to other genres, countries, and media. HU o Course cr

*** FILM 310a / GMAN 331a / HUMS 281a / LITR 416a, Paper: Material and Medium**
Austen Hinkley

Paper is one of the most ubiquitous and indispensable media of the modern era. Although we are (still) surrounded by it, paper tends to recede into the background, working best when we do not notice it at all. This course sets out to challenge our understanding of paper as a neutral or passive bearer of inscriptions by foregrounding its material quality. Our focus rests in equal parts on the media history of paper and paper works of art—among them many literary texts—that reflect or take advantage of their medium. Studying materials and histories from the early modern period to the present, we uncover paper's status as a commodity bound up in a complex web of economic processes, as an instrument of political power, as a gendered and racialized object, and as a material that can be cut, shuffled, and even eaten. Ultimately, we investigate how paper is still central to our lives, even in the age of tablets and PDFs. Readings include Emily Dickinson's envelope poems, Robert Walser's "Microscripts," and M. NourbeSe Philip's "Zong!" The class makes several visits to the Beinecke Library for hands-on work with paper materials. WR, HU

*** FILM 320b / HSAR 490b, Close Analysis of Film** Oksana Chefranova

Close study of a range of major films from a variety of periods and places. Apart from developing tools for the close analysis of film, we consider such topics as genre and mode; the role of sound; cinema as a structure of gazes; remakes and adaptations; approaches to realism; narration and resistance to narration; film in relation to other moving image media; and the relationship of close analysis to historical contextualization and interpretation more generally. Prerequisite: FILM 150. WR, HU

*** FILM 325a / GMAN 379a / LITR 374a, German Cinema 1918–1933** Jan Hagens

The years between 1918 and 1933 are the Golden Age of German film. In its development from Expressionism to Social Realism, this German cinema produced works of great variety, many of them in the international avantgarde. This introductory seminar gives an overview of the silent movies and sound films made during the Weimar Republic and situate them in their artistic, cultural, social, and political context between WWI and WWII, between the Kaiser's German Empire and the Nazis' Third Reich. Further objectives include: familiarizing students with basic categories of film

studies and film analysis; showing how these films have shaped the history and the language of film; discussing topic-oriented and methodological issues such as: film genres (horror film, film noir, science fiction, street film, documentary film); set design, camera work, acting styles; narration in film; avantgarde cinema; the advent and use of sound in film; Realism versus Expressionism; film and popular mythology; melodrama; representation of women; modern urban life as spectacle; film and politics. Directors studied include: Grune, Lang, Lubitsch, Murnau, Pabst, Richter, Ruttman, Sagan, von Sternberg, Wiene, et al.

WR, HU

*** FILM 327a / AMST 395a, Studies in Documentary Film** Charles Musser

This course examines key works, crucial texts, and fundamental concepts in the critical study of non-fiction cinema, exploring the participant-observer dialectic, the performative, and changing ideas of truth in documentary forms. HU RP

*** FILM 333a / HUMS 422a / LITR 351a, Early Film Theory and Modernity** Francesco Casetti

For a long time, early film theory and criticism have been overlooked and underestimated. However, their recent rediscovery has highlighted their crucial role in framing film as a “modern” invention. While discussing what then was a recent invention, early film theory and criticism tackled some of the main characteristic of modern life: speed, excitation, contingency, openness, subjectivity, circulation, etc. By doing so, they underscored the parallel between modern experience and filmic representations. On the screen – they claimed – spectators do not only see the world in which they live, but also the effects of the political, industrial, and social revolutions on this world. At the same time, early film theory and criticism developed an ideal of “modern” art and “modern” language, through a systematic exploration of filmic style and iconography. According to them, film was the epitome of a “new art” for “new times.” The course explores the idea of modernity as it developed in the Western world between the end of the 19th and the beginning of the 20th centuries. Despite this limitation, we do not meet a uniform landscape; on the contrary, ideological differences and national identities played a major role in defining the perspectives forged by film theorists and critics. While considering texts from France (Delluc, Epstein), Germany (Arnheim, Kracauer), Middle-Europe (Blazs, Lukcs, Tille), Italy (Papini, Thovez), Soviet Union (Eisenstein, Vertov, Pudovkin) and USA (Lindsay, Freeburg, Mnsterberg), the course systematically and critically compares them and their traditions. Every week there is a screening with films representative of the time. When possible, we use original prints. HU

*** FILM 341a / MGRK 238a / WGSS 233a, Weird Greek Wave Cinema** George Syrimis

The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term “weird Greek wave” applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers’ expectations of national stereotypes of classical luminosity – the proverbial “Greek light” – Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its ‘quaint’ people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness and violence, aggression, corporeality, and xenophobia). The course also pays particular

attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. HU

*** FILM 344a / GMAN 344a, Landscape, Film, Architecture** Fatima Naqvi
Movement through post-1945 landscapes and cityscapes as a key to understanding them. The use of cameras and other visual-verbal means as a way to expand historical, aesthetic, and sociological inquiries into how these places are inhabited and experienced. Exploration of both real and imaginary spaces in works by filmmakers (Wenders, Herzog, Ottinger, Geyrhalter, Seidl, Ade, Grisebach), architects and sculptors (e.g. Rudofsky, Neutra, Abraham, Hollein, Pichler, Smithson, Wurm, Kienast), photographers (Sander, B. and H. Becher, Gursky, Höfer), and writers (Bachmann, Handke, Bernhard, Jelinek). Additional readings by Certeau, Freytag, J.B. Jackson, L. Burckhardt. HU

*** FILM 350a or b, Screenwriting** Shakti Bhagchandani
A beginning course in screenplay writing. Foundations of the craft introduced through the reading of professional scripts and the analysis of classic films. A series of classroom exercises culminates in intensive scene work. Prerequisite: FILM 150. Not open to first-year students.

FILM 355b / ART 341b, Intermediate Film Writing and Directing Jonathan Andrews
In the first half of the term, students write three-scene short films and learn the tools and techniques of staging, lighting, and capturing and editing the dramatic scene. In the second half of the term, students work collaboratively to produce their films. Focus on using the tools of cinema to tell meaningful dramatic stories. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 241. RP

FILM 356b / ART 342b, Intermediate Documentary Filmmaking Michel Auder
Students explore the storytelling potential of the film medium by making documentaries an art form. The class concentrates on finding and capturing intriguing, complex scenarios in the world and then adapting them to the film form. Questions of truth, objectivity, style, and the filmmaker's ethics are considered by using examples of students' work. Exercises in storytelling principles and screenings of a vast array of films mostly made by independent filmmakers from now to the beginning of the last century. Limited enrollment. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 141 or 142. HU RP

*** FILM 360a / LITR 301a / RSEE 380a / RUSS 380a, Putin's Russia and Protest Culture** Staff
Survey of Russian literature and culture since the fall of communism. The chaos of the 1990s; the solidification of power in Putin's Russia; the recent rise of protest culture. Sources include literature, film, and performances by art collectives. Readings and discussion in English; texts available in Russian. WR, HU

FILM 362a / FREN 384a / ITAL 384a / JDST 289a / LITR 338a, Representing the Holocaust Maurice Samuels and Millicent Marcus
The Holocaust as it has been depicted in books and films, and as written and recorded by survivors in different languages including French and Italian. Questions of aesthetics and authority, language and its limits, ethical engagement, metaphors and memory, and narrative adequacy to record historical truth. Interactive discussions about films (*Life Is Beautiful*, *Schindler's List*, *Shoah*), novels, memoirs (Primo Levi, Charlotte Delbo,

Art Spiegelman), commentaries, theoretical writings, and testimonies from Yale's Fortunoff Video Archive. WR, HU

*** FILM 363a / LAST 360a / LITR 360a, Radical Cinemas of Latin America** Staff
Introduction to the radical New Latin American Cinema movement that started in the sixties, with an emphasis on manifestos that conceived the relation between art and politics for social change and with a corpus of films produced in Brazil, Colombia, Cuba, Argentina, Bolivia, Venezuela, Haiti and Mexico. Examination of films in their historical and aesthetic aspects, and in light of questions concerning national cinema, "militant cinema," "political cinema" and "third cinema." Discussions about the global sixties at large, and about some Latin American texts that were read globally. Conducted in English; knowledge of Spanish and Portuguese helpful but not required. HU
o Course cr

*** FILM 369a / HUMS 186a / RSEE 244a / RUSS 222a, War Games** Staff
Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players "perform" war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU TR

*** FILM 371a, Migration, Exile, and Diasporic Cinema** Claire Demoulin
World cinema has been affected by various waves of voluntary and forced migrations during the 20th and 21st centuries. This course investigates the constitutive influence of diasporas, of émigrés artistic networks, of exile, and more generally of artists' transnational movements in the making of films and in the writing of film history. What would characterize, and would distinguish, migration, diaspora, and exile cinemas? What are the artistic and mediatic outcomes of constant movements due to economic, cultural, political or humanitarian needs? And reversely, how do cinema reflect these issues? What do films made in a context of migrations expose of the most "sweeping transformation of collective historical experience since WWII" (Burgoyne & Bayraktar, 2022)? The circulations of artists from countries and continents goes

hand in hand with the circulation of practices and ideas that influence in return the representations and the art works. We detail numerous processes revealing the central influence played by migrations in the making of films and the mixing of cultural references. But beyond cultural hybridization, exiles and émigrés artists also promote the expression of political ideas. Each week, we analyze one or two influential essays (Flusser, Bhabha, Nacif, etc.) to explore how crossings and diasporas have affected modern societies, and how cinematic dynamics testify from it. HU

*** FILM 372a, What is Television?** Staff

Television, as an experience, a spectatorial mode, and a medium, entered our lives in the 1950s. This mass medium has since proved to be surprisingly shape-shifting, moving from public, linear broadcasting to cable TV to, now, streaming platforms. This course employs a keywords approach to offer a historical, albeit nonlinear, account of domestic spectatorship. Built around a set of theoretical debates and watershed moments—from black-and-white to color, analog to digital, standard to high-definition, and broadcast to cable—we explore how people have engaged with television in a variety of ways. Who is the imaginary spectator? Is it the distracted suburban housewife, the child subjected to an “electronic babysitter,” or, more recently, the early adopter of new technologies? Who has been historically excluded from domestic and public rituals of spectatorship? Drawing on a variety of readings, screenings, podcast episodes, and assignments, we will engage with these questions and other aspects of television as a medium in order to rethink not only how but why we (still) watch TV. HU

*** FILM 382a, Cinema as Room for Play** Staff

In 1936, Walter Benjamin observed that the loss of the aura was compensated by an enormous gain in “room-for-play” (*Spiel-Raum*), which, as he claimed, was the widest in film. What is left of this *Spiel-Raum* in cinema today? And how was it explored in the past decades? Was it limited to avant-garde practices or did it also expand to mainstream cinema? And what about the spectators? Is Benjamin’s notion turning them into players? This seminar proposes to rethink cinema as a form of play and to make connections, throughout history, with other playful media practices. Can for instance the Internet with its numerous GIF makers and social media platforms be considered as the new *Spiel-Raum*? How are contemporary online loops related to 19th-century optical toys and proto-cinematic slot machines? What made cinema the medium of “suspension of disbelief,” which is a form of pretend play? These and other questions are addressed to get to a better understanding of what cinema was and still is today. Therefore, the seminar revisits classical theories of play (Huizinga, Caillois, Winnicott) as well as contemporary game theories, which students are invited to apply to various film practices, ranging from avant-garde films to Nouvelle Vague productions and mind-game movies to selfie videos and playful recordings made with smartphones and other mobile devices. HU TR

*** FILM 390a, Media, AI and Algorithmic Bias** Staff

Algorithms, a systematic way to perform a task in a finite number of steps, existed long before the computer was invented. In the digital age, algorithms are chains of actions or steps that define how software will perform and react. As such they condition, shape, and transform our daily lives: Algorithms play a crucial role in deciding which clothes we buy, which songs we listen to, which books we read, who we might date, and how much we would pay for a flight ticket. They help shift political opinions and shape cultural tastes. However, the logic on which algorithmic systems are based and

the infrastructures that sustain them are still largely unknown to their users (and, increasingly, to their developers). This course explores several case studies—from Netflix’s recommendation system to Google’s autocomplete—in order to demystify the logic of algorithms and map the understudied ways in which they paradoxically decrease diversity of tastes, opinions, and experiences despite the techno-utopian promise of endless choice. This process of “un-black boxing” will emphasize “the implantation gap” in algorithmic systems and the ways in which they give birth to new systems of control, surveillance, and biopower. WR, HU

*** FILM 395b, Intermediate Screenwriting** Shakti Bhagchandani

A workshop in writing short screenplays. Frequent revisions of each student’s script focus on uniting narrative, well-delineated characters, dramatic action, tone, and dialogue into a polished final screenplay. Prerequisite: FILM 350. Priority to majors in Film & Media Studies.

*** FILM 417a, Experimental Multimodal Videomaking and Exhibition** Staff

In this course we make ten prompt driven one-minute video projects specifically designed to increase fluidity of thinking-through-videomaking. Some of the projects happen in class. Most are out-of-class assignments for which I give specific problems to solve or parameters to work within. Some assignments we design as a class. When we are not shooting or editing in class we exercise our critical skills by screening projects and discussing them. We take experimental approaches to the process of making these 10 videos as we glance toward the standard cinematic categories of drama, documentary, experimental film, and animation as we glide past. These categories are familiar, but not always productive, divisions among modes of production since none of these categories defines clear boundaries between practices. Instead, this class leads us closer to understanding the complex array of contingencies impinging on all filmmaking processes. We take an ecologically based, transdisciplinary attitude rather than a categorized genre-based categorization. We continually ask, how do the various aspects and approaches to a filmmaking environment interact and modify each other? Through weekly prompt based video-making exercises, we navigate through a topography of filmmaking and exhibition practices. HU

*** FILM 422a / ENGL 343a / HUMS 445a, Modernities: The Aesthetics of Adaptation**

Katja Lindskog

Adaptations of literary texts are the bread and butter of visual narrative media like TV and film. Adaptations of certain authors and texts have given rise to entire sub-genres and cottage industries. We consider what adaptations of literary texts, particularly very famous and beloved texts, might help us understand better about the texts themselves, and about the needs and expectations of the audiences of their adaptations. To that purpose, this course explores the purposes and effects of adaptation through a study of a variety of screen versions of adapted texts by authors including Jane Austen, Emily St. John Mandel, and Geoffrey Chaucer. Assigned readings include both literary texts and screen adaptations. HU

*** FILM 424a or b, What Is or Was an Image?** Staff

How can we define the image in the digital age? Vilém Flusser once remarked that the composite essence of digital technology was already embedded in photography because the photographic image is an image composed of points, which the human eye synthesizes into an image. This seminar proposes not only to revisit Flusser’s notion of the “technical image” in light of today’s changes in visual culture but also to

rethink the history of image technologies beyond (or beneath) their visual dimensions. Starting with 15th- and 16th-century perspectival images and drawing tools – from Alberti’s “veil” to Durer’s grid – we trace the origins of the digital image with detours in the history of textile and the invention of the Jacquard loom, patented in 1804. Subsequently, the course analyzes 19th-century optical devices and so-called philosophical toys that required manual operation to produce the illusion of a moving image, fooling the human eye. Moving into the 20th century, Vertov’s “kino-eye” is reread as an early theory of machine vision. Other topics are: the indexicality of the photographic image, the haptic quality of the video image, the operational image of surveillance and warfare, the history of 3D images, CGIs, and GIFs. What is or was there to see? Do we (still) need to believe our eyes? Lastly, we study the non-visual dimension of the screenic image and the emergence of AI generated images. HU

*** FILM 425b / GMAN 275b / LITR 358b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949–1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country’s emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf, Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU

*** FILM 431a, The Other Side of French and Francophone Cinema** Claire Demoulin

What is the story of French and Francophone Cinema if told by other countries? May an external point of view engender a new interpretative move towards familiar topics and subjects? If French cinematography and its historical, aesthetical, and political evolutions has mainly unfolded from an internal and national standpoint, studies in transnational cinema demonstrate the impact of cultural circulations on the making of films and on the evolution of artistic movements. By examining how French and Francophone Cinema is seen and commented on from abroad – whether in the context of collaborations between countries or the way films and filmmakers are exposed, valorized, or on the contrary, silenced – this course puts into perspective the decisive role of external influences. We revisit early French films, canonical art works and different film productions from French-speaking countries while challenging monocultural interpretative paradigms. Such an approach underlies our critical examination of The Lumière Brother’s world expeditions, Méliès’s film subsidiary in the US, French artists in exile, the New Wave’s connections with other countries, and Jean Rouch’s cinema. Our focus on transnational perspectives sheds light on the links between cultural circulations, the postcolonial discourse and the politicizing of art, especially in North African French-speaking film productions. Spanning early to contemporary cinema, this course illuminates the local and global dimensions of French and Francophone cinema, as well as their intricate interconnections. HU

*** FILM 434b / AFAM 220b, Archive Aesthetics and Community Storytelling** Thomas Harris

This production course explores strategies of archive aesthetics and community storytelling in film and media. It allows students to create projects that draw from archives—including news sources, personal narratives, and found archives—to produce collaborative community storytelling. Conducted as a production workshop, the course explores the use of archives in constructing real and fictive narratives across a variety of disciplines, such as—participants create and develop autobiographies, biographies, or fiction-based projects, tailored to their own work in film/new media around Natalie Goldberg’s concept that “our lives are at once ordinary and mythical.” HU

*** FILM 438b, Media Anxieties** Staff

This seminar delves into the multifaceted anxieties entwined with our always-connected lives. In an era where the digital permeates every aspect of our daily experience, from communication to identity formation, understanding the complex emotions it generates is paramount. Drawing from diverse methodologies such as film history, German media theory, affect theory, critical data studies, gender studies, and disability studies, this seminar provides a comprehensive examination of the intersection between media as technological dispositifs and the human psyche. Drawing on a plethora of thinkers, students explore how black box technologies produce and sustain regimes of anxiety, fear and dependency. Students critically analyze how ubiquitous technologies shape our perceptions, behaviors, and anxieties. Through examining historical and contemporary media artifacts, theoretical frameworks, and interdisciplinary perspectives, participants explore topics including cinephilia/cinephobia, surveillance culture, algorithmic biases, addiction, and the politics of representation in digital spaces. This seminar encourages interdisciplinary dialogue and fosters critical thinking skills necessary for navigating the evolving digital landscape in an informed and ethically conscious manner. HU

*** FILM 448b / EALL 271b, Japanese Cinema after 1960** Aaron Gerow

The development of Japanese cinema after the breakdown of the studio system, through the revival of the late 1990s, and to the present. No knowledge of Japanese required. HU TR

*** FILM 455a and FILM 456b / AMST 463a and AMST 464b / EVST 463a and EVST 464b / THST 457a and THST 458b, Documentary Film Workshop** Staff

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

*** FILM 460a, Sound/Image Practice** Staff

We start from the assumption that sound is actually the ‘secret-sauce’ in the film/videomaking process. Often overlooked—or at least neglected, sound is a potent tool to advance the logic of a film or video and even more, to enhance the emotional patina and immersive engagement of a film or video. Sound becomes an accessible portal to the perhaps overlooked not-quite-conscious realm of the film/video experience. While we certainly read some theory/history of sound, this is primarily a class of making. The first 7 weeks include videomaking exercises designed to highlight specific challenges in sound for picture. The core concern is with conceptual development in the myriad ways that sound and picture work together. There is no genre or mode preference in this class. Fiction, non-fiction, experimental, animation, game, tiktok, anything is okay.

For the second half of the semester, each student (or collaborative small group—with permission) design, shoot, edit, and mix a short (3–5min) video of their own design—a video that demonstrates attention and developing sophistication in the use of sound with picture, as well as in how to design visual shots and temporal structures (editing) with sound in mind. The visual and auditory aspects of any video are entangled in such a way that contribute (when blended with the audience's imagination and memory) to the formation of the Sound/Image in the audience member's minds.

*** FILM 461a / ENGL 384a / LITR 364a / THST 416a, British Cinema** Katie Trumpener

Survey of the British film tradition, emphasizing overlap with literature, drama, and art; visual modernism; documentary's role in defining national identity; "heritage" filmmaking and alternative approaches to tradition; and auteur and actors' cinema. HU
RP

*** FILM 471a or b, Independent Directed Study** Staff

For students who wish to explore an aspect of film and media studies not covered by existing courses. The course may be used for research or directed readings and should include one lengthy essay or several short ones as well as regular meetings with the adviser. To apply, students should present a prospectus, a bibliography for the work proposed, and a letter of support from the adviser to the director of undergraduate studies. Term credit for independent research or reading may be granted and applied to any of the requisite areas upon application and approval by the director of undergraduate studies.

*** FILM 474b / FREN 396b, World War II in French Cinema** Alice Kaplan

A study of French films dealing with everyday life in France during the Nazi occupation (1940–44). Close analysis of scenes and cinematic techniques, historical readings, and film criticism. HU

*** FILM 483a and FILM 484b / ART 442a and ART 443b, Advanced Film Writing and Directing** Jonathan Andrews

A yearlong workshop designed primarily for majors in Art and in Film & Media Studies making senior projects. Each student writes and directs a short fiction film. The first term focuses on the screenplay, production schedule, storyboards, casting, budget, and locations. In the second term students rehearse, shoot, edit, and screen the film. Priority to majors in Art and in Film & Media Studies. Prerequisite: ART 341.

*** FILM 487a and FILM 488b, Advanced Screenwriting** Shakti Bhagchandani

Students write a feature-length screenplay. Emphasis on multiple drafts and revision. Admission in the fall term based on acceptance of a complete step-sheet outline for the story to be written during the coming year. Primarily for Film & Media Studies majors working on senior projects. Prerequisite: FILM 395 or permission of instructor.

*** FILM 491a and FILM 492b, The Senior Essay** Marta Figlerowicz

An independent writing and research project. A prospectus signed by the student's adviser must be submitted to the director of undergraduate studies by the end of the second week of the term in which the essay project is to commence. A rough draft must be submitted to the adviser and the director of undergraduate studies approximately one month before the final draft is due. Essays are normally thirty-five pages long (one term) or fifty pages (two terms).

*** FILM 493a and FILM 494b, The Senior Project** Marta Figlerowicz

For students making a film or video, either fiction or nonfiction, as their senior project. Senior projects require the approval of the Film and Media Studies Committee and are based on proposals submitted at the end of the junior year. An interim project review takes place at the end of the fall term, and permission to complete the senior project can be withdrawn if satisfactory progress has not been made. For guidelines, consult the director of undergraduate studies. Does not count toward the fourteen courses required for the major when taken in conjunction with FILM 455, 456 or FILM 483, 484.

Finnish (FNSH)

*** FNSH 110a, Elementary Finnish I** Staff

The structure of the Elementary Finnish course ensures that students receive a solid grounding in both the language and the culture of Finland. The course promotes the development of language ability through the students' participation in communicative activities and discussions. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

*** FNSH 120b, Elementary Finnish II** Staff

Continuation of FNSH 110. The structure of the Elementary Finnish course sequence ensures that students receive a solid grounding in both the language and the culture of Finland. This course continues to promote the development of language ability through the students' participation in communicative activities and discussions. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Credit only on completion of FNSH 110. L2 RP 1½ Course cr

French (FREN)

*** FREN 109a, French for Reading** Constance Sherak

Fundamental grammar structures and basic vocabulary are acquired through the reading of texts in various fields (primarily humanities and social sciences, and others as determined by student interest). Intended for students who either need a reading knowledge of French for research purposes or are preparing for French reading examinations and who have had no (or minimal) prior study of French. No preregistration required. Conducted in English. Does not satisfy the language requirement.

*** FREN 110a, Elementary and Intermediate French I** Candace Skorupa

Intensive training and practice in all the language skills, with an initial emphasis on listening and speaking. Emphasis on communicative proficiency, self-expression, and cultural insights. Extensive use of audio and video material. Conducted entirely in French. To be followed by FREN 120. For students with no previous experience of French. Daily classroom attendance is required. L1 RP 1½ Course cr

*** FREN 120b, Elementary and Intermediate French II** Matuku Ngame

Continuation of FREN 110. Open only to students who took FREN 110 (L1) at Yale. Conducted entirely in French. Only after FREN 110. To be followed by FREN 130.
L2 RP 1½ Course cr

*** FREN 121a, Intermediate French** Candace Skorupa

Designed for initiated beginners, this course develops all the language skills with an emphasis on listening and speaking. Activities include role playing, self-expression, and discussion of cultural and literary texts. Emphasis on grammar review and acquisition of vocabulary. Frequent audio and video exercises. Conducted entirely in French. Daily classroom attendance is required. Placement according to placement test score. Online preregistration required; see french.yale.edu for details. L2 1½ Course cr

*** FREN 125a, Intensive Elementary French** Constance Sherak

An accelerated course that covers in one term the material taught in FREN 110 and 120. Practice in all language skills, with emphasis on communicative proficiency. Admits to FREN 145. Conducted entirely in French. For students of superior linguistic ability. No preregistration required. L1, L2 RP 2 Course cr

*** FREN 130a or b, Intermediate and Advanced French I** Staff

The first half of a two-term sequence designed to develop students' proficiency in the four language skill areas. Prepares students for further work in literary, language, and cultural studies, as well as for nonacademic use of French. Oral communication skills, writing practice, vocabulary expansion, and a comprehensive review of fundamental grammatical structures are integrated with the study of short stories, novels, and films. Admits to FREN 140. Conducted entirely in French. After FREN 120, 121, or a satisfactory placement test score. L3 RP 1½ Course cr

*** FREN 140a or b, Intermediate and Advanced French II** Soumia Koundi

The second half of a two-term sequence designed to develop students' proficiency in the four language skill areas. Introduction of more complex grammatical structures. Films and other authentic media accompany literary readings from throughout the francophone world, culminating with the reading of a longer novel and in-class presentation of student research projects. Admits to FREN 150. Conducted entirely in French. After FREN 130 or a satisfactory placement test score. L4 RP 1½ Course cr

*** FREN 145b, Intensive Intermediate and Advanced French** Candace Skorupa

An accelerated course that covers in one term the material taught in FREN 130 and 140. Emphasis on speaking, writing, and the conversion of grammatical knowledge into reading competence. Admits to FREN 150. For students of superior linguistic ability. Conducted entirely in French. After FREN 120, 121, or 125. No preregistration required. L3, L4 RP 2 Course cr

*** FREN 150a or b, Advanced Language Practice** Staff

An advanced language course intended to improve students' comprehension of spoken and written French as well as their speaking and writing skills. Modern fiction and nonfiction texts familiarize students with idiomatic French. Special attention to grammar review and vocabulary acquisition. Conducted entirely in French. After FREN 140, 145, or a satisfactory placement test score. Online preregistration required; see <http://french.yale.edu/academics/placement-and-registration> for details. L5

*** FREN 160a or b, Advanced Conversation Through Culture, Film, and Media** Staff

Intensive oral practice designed to further skills in listening comprehension, speaking, and reading through the use of videos, films, fiction, and articles. Emphasis on contemporary French and francophone cultures. Conducted entirely in French. Prerequisites: FREN 150, 151, or a satisfactory placement test score, or with permission of the course director. May be taken concurrently with or after FREN 170. L5

*** FREN 170a or b, Introduction to Literatures in French** Staff

Introduction to close reading and analysis of literary texts written in French. Works by authors such as Marie de France, Molière, Balzac, Hugo, Baudelaire, Duras, Proust, and Genet. Please note the syllabus is different for each section. Each syllabus can be found on the syllabus tab of the section course resources in Yale Course Search. May not be taken after FREN 171. L5, HU

*** FREN 182b, Advanced Writing Workshop** Staff

An advanced writing course for students who wish to work intensively on perfecting their written French. Frequent compositions of varying lengths, including creative writing, *rédictions* (compositions on concrete topics), and *dissertations* (critical essays). Recommended for prospective majors. Conducted entirely in French. After FREN 150 or higher, or a satisfactory placement test score. May be taken after courses in the 200–449 range. L5

*** FREN 183a, Medical French: Conversation and Culture** Leo Tertrain

An advanced language course emphasizing verbal communication and culture. Designed to introduce students to historical and contemporary specificities of various Francophone medical environments, and to foster the acquisition of vocabulary related to these environments. Discussions, papers, and oral presentations, with a focus on ethical, economic, legal, political, semiological, and artistic questions. Topics such as public health policies, epidemics, medicine in Francophone Africa, humanitarian NGOs, assisted reproductive technologies, end-of-life care, and organ donation are explored through films, documentaries, graphic novels, a literary text, an autobiographical narrative, and articles. Conducted entirely in French. Prerequisite: FREN 150 or a satisfactory placement test score, or with permission of instructor. L5

*** FREN 184b, Business French: Communication and Culture** Leo Tertrain

An advanced language course emphasizing verbal communication and culture. Designed to introduce students to historical and contemporary specificities of various Francophone economic environments, and to foster the acquisition of vocabulary related to these environments. Discussions, papers, and oral presentations, with a focus on ethical, political, legal, semiological, and artistic questions. Topics such as taxation, privatization, the eurozone, the energy industry, labor unions, labor law, banking, the sharing economy, and human resources are explored through films, documentaries, a graphic novel, a literary text, a biographical narrative, articles, and excerpts from essays. Conducted entirely in French. Prerequisite: FREN 150 or a satisfactory placement test score, or with permission of instructor. L5

*** FREN 191a, Literary Translation: History and Theory in Practice** Nichole Gleisner

This course offers a semester-long introduction to the practice of literary translation. Each week, we will read and discuss a notable piece of translation theory and we will also translate and workshop together an assigned text from French into English. With these workshop sessions, students will gain a range of translation experience across a

variety of genres (poetry, theatre, short story, fiction, nonfiction, and personal essay) as well as a sense of formative moments in French literary history. Readings in translation theory and history include du Bellay, Dryden, Schleiermacher, Goethe, Benjamin, Sontag, Apter, Moi, and Briggs. Readings in French and in English. Generally taken after FREN 150 or with permission of instructor. HU

*** FREN 192b, Literary Translation: Contemporary Workshop** Nichole Gleisner

This course will focus on translating contemporary literature by exploring concerns of writers and translators working in the French and Francophone field today. Each week, students will translate an excerpt from a wide variety of texts written in French: prose, poetry, graphic novels, YA, science fiction, long-form journalism. We will also read and craft literary criticism, paying special attention to reviews of books in translation as we seek to understand and define the role of the translator in our current day. How does literary criticism complement the work of translation? In what ways is the current mode of approaching translations in reviews lacking? How can we develop criteria to evaluate works in translation that acknowledge the role of the translator? How do these activities—both translating and reviewing—enrich scholarly communities, webs of thought, networks of writers, students' own ways of approaching and understanding a text? Students will translate and workshop selections each week as well as undertake the translation of a significant portion (25–35 pages) of a contemporary text of their own. Course may be taken after FREN 150 or with permission of the instructor. HU

FREN 240b / HUMS 201b / LITR 214b, The Modern French Novel Alice Kaplan and Maurice Samuels

A survey of major French novels, considering style and story, literary and intellectual movements, and historical contexts. Writers include Balzac, Flaubert, Proust, Camus, and Sartre. Readings in translation. One section conducted in French. HU TR
o Course cr

*** FREN 241a / GMAN 301a / LITR 397a, After the War, Novels after 1945, French and German** Rudiger Campe

How to write, how to narrate after war? In this course we read alternately some of the greatest novels and novellas after 1945 (until ca. 1968) from German speaking countries and from France. This can but does not necessarily mean novels about fascism and democracy, aggression and resistance (Sartre, Grass). It also means negotiating radical break and reorientation, politically and ideologically (German “Zero Hour”, the absurd, existentialism in France); and the attempt to reinvent literary writing in general (‘nouveau roman’ in France, Handke and Bernhard in Austria). Further authors include Camus, Duras, Robbe-Grillet, Le Clezio, Koeppen, Wolf, Handke, Bachmann. HU

*** FREN 247b / LITR 446b, Experimental Literature, Theory, and Manifestoes** Morgane Cadieu

A survey of the French experimental prose of the 20th and 21st centuries. Corpus includes novels and plays, literary and political manifestoes, and landmark articles on literary theory, structuralism, and poststructuralism. Topics include: inspiration and creativity; the aesthetics of manifestoes and the politics of literature; automatic writing and constrained prose; feminist and queer writings; urban spaces in avant-garde literary movements. Works by: Bataille, Beauvoir, Beckett, Breton, Perec, Sarraute, Wittig. Theoretical excerpts by: Barthes, Deleuze, Derrida, Foucault, Glissant, Malabou. HU

* **FREN 262b / AFAM 362b / ER&M 272b / GBL 272b / HIST 223b, Black France**

Marlene Daut

This course offers an in-depth exploration of the complex history of Black France, tracing its roots from the era of French colonization in the Caribbean and the transatlantic slave trade to its contemporary manifestations across France and its overseas territories. Beginning with an examination of French colonialism in the Caribbean, particularly focusing on the brutal system of slavery and the development of the Code Noir under the reign of Louis XIV, students gain a comprehensive understanding of the origins of race-thinking in France. Students also read about the pivotal role of French colonies like Saint-Domingue, Martinique, and Guadeloupe in the resistance against slavery, highlighting the Haitian Revolution as a watershed moment in the struggle for freedom and self-determination. Through the lens of this historic event, students analyze the complexities of slave rebellion, the quest for abolition, and the enduring legacy of resistance in Black (francophone) communities. By highlighting the socio-political relationship of the colonial and revolutionary era to the present, students explore the interconnectedness of slavery, colonialism, and power dynamics within the French empire and the enduring impact of this tumultuous history on contemporary conceptions of Blackness in France. Using an interdisciplinary approach that encompasses history, sociology, literary, and cultural studies, students analyze the formation of Black identity, racial ideologies, and the ongoing struggle for recognition and equality within French society. WR, HU

* **FREN 331a, The French Enlightenment and the Pursuit of Happiness** Pierre Saint-Amand

French Revolutionary Saint-Just famously declared: "happiness is a new idea in Europe." It is certainly a major concern in the eighteenth century. Whether envisioned as an individual or a collective pursuit the quest for happiness increasingly moves away from the realm of theology to become secularized and democratized. This course proposes to study how the writers of the period introduced the idea of happiness in their works, both literary and philosophical. Readings in Abbé Prévost, Jean-Jacques Rousseau, Giacomo Casanova, Denis Diderot, Mme de Charrière, Voltaire, and others. This course is conducted in French at L5 level. L5

* **FREN 345a, The Prose Poem** Thomas Connolly

An examination of the *poème en prose*, from its beginnings as a response to the inadequacy of French verse forms through its emergence as an independent genre. Ability to read and discuss in French HU

* **FREN 362a, Mid-Century Modern Memoir** Alice Kaplan

Autobiography came into its own as a literary genre in the 20th century, and it is as varied as fiction in its ambitions and approach. The seminar is divided into four units: Memories of Childhood (Sartre, Sarraute, Camus); WWII memoirs (Duras, Bloch, Gold); braided autobiography and biography (Modiano, Ernaux, Beauvoir); and revolutionary autobiography (Fanon, Mokhtefi, Drif). **WR designation** The class is taught in English with readings in translation; previous course work in literature is helpful but not required. WR, HU

* **FREN 365a / AFAM 375a / AMST 465a / HIST 378a / LITR 377a, Haiti in the Age of Revolutions** Marlene Daut

The Haitian Revolution (1791–1804) was an event of monumental world-historical significance. This class studies the collection of slave revolts and military strikes

beginning in August of 1791 that resulted in the eventual abolition of slavery in the French colony of Saint-Domingue and its subsequent independence and rebirth in January of 1804 as Haiti, the first independent and slavery-free nation of the American hemisphere. Considering Haiti's war of independence in the broader context of the Age of Revolutions, we cover topics such as enlightenment thought, natural history, the workings and politics of the printing press, and representations of the Haitian Revolution in art, literature, music, and in various kinds of historical writings and archival documents. Students develop an understanding of the relevant scholarship on the Haitian Revolution as they consider the relationship of this important event to the way it was written about both as it unfolded and in its long wake leading up to the present day. WR, HU

*** FREN 370a / AFAM 371a / AFST 377a, Caribbean Poetry in French** Thomas Connolly

An introduction to Caribbean poetry in French from the turn of the twentieth century to the present day. Topics covered will include literary, social, and political movements including surrealism, colonization, decolonization, immigration, the relation of French to other languages of the Caribbean including Créole, Spanish, and English, and points of contact between poetry, music, theater, and the visual arts. Students will learn how to read, comment on, and write about poetry. Primary authors will include Étienne Léro, Aimé Césaire, Saint-John Perse, Magloire-Saint-Aude, Édouard Glissant, René Depestre, Davertige, Jean Métellus, Raphaël Confiant, Suzanne Dracius, and Patrick Chamoiseau. Readings, assignments, and discussions in French. Ability to read, write, and discuss in French.

*** FREN 382a / AFAM 382a / AMST 482a / ENGL 273a / LITR 424a, Zombies, Witches, Gods, and Spirits in Caribbean Literature** Marlene Daut

This course delves into the rich tapestry of Caribbean literature through the lens of the seemingly supernatural, such as zombies, witches, gods, and spirits. Throughout the semester, students critically analyze a diverse range of texts by authors as varied as Edwidge Danticat, René Depestre, Derek Walcott, Alejo Carpentier, Jean Rhys, and Aimé Césaire, and others, to explore how Caribbean authors have employed otherworldly elements as powerful metaphors for colonialism and resistance, trauma and cultural memory. TR

FREN 384a / FILM 362a / ITAL 384a / JDST 289a / LITR 338a, Representing the Holocaust Maurice Samuels and Millicent Marcus

The Holocaust as it has been depicted in books and films, and as written and recorded by survivors in different languages including French and Italian. Questions of aesthetics and authority, language and its limits, ethical engagement, metaphors and memory, and narrative adequacy to record historical truth. Interactive discussions about films (*Life Is Beautiful*, *Schindler's List*, *Shoah*), novels, memoirs (Primo Levi, Charlotte Delbo, Art Spiegelman), commentaries, theoretical writings, and testimonies from Yale's Fortunoff Video Archive. WR, HU

*** FREN 396b / FILM 474b, World War II in French Cinema** Alice Kaplan

A study of French films dealing with everyday life in France during the Nazi occupation (1940–44). Close analysis of scenes and cinematic techniques, historical readings, and film criticism. HU

*** FREN 405b / HIST 204Jb / HSAR 373b / HUMS 453b, Notre-Dame de Paris**

R. Howard Bloch and Paul Freedman

Against the background of Gothic cathedral building in the High Middle Ages, we study from multiple perspectives the building of Notre-Dame within the teaching and preaching culture of the twelfth and thirteenth centuries, with special focus on medieval Paris. Interdisciplinary materials include religious, literary, historical, and philosophic works alongside of music and the visuals—stained glass and sculpture—that are such an integral part of Gothic architecture. We also consider the history of Notre-Dame de Paris since the Middle Ages, especially Viollet-le-Duc's nineteenth-century restoration, to be read alongside Victor Hugo's *Notre-Dame of Paris*, and in the context of the rebuilding and reopening after the fire of 2019. WR, HU

*** FREN 470a or b and FREN 471b, Special Tutorial for Juniors and Seniors** Thomas Connolly

Special projects set up by the student in an area of individual interest with the help of a faculty adviser and the director of undergraduate studies. Intended to enable the student to cover material not offered by the department. The project must terminate with at least a term paper or its equivalent and must have the approval of the director of undergraduate studies. Only one term may be offered toward the major, but two terms may be offered toward the bachelor's degree. For additional information, consult the director of undergraduate studies.

*** FREN 481a / AFAM 457a / AFST 457a / AMST 470a / ER&M 467a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements. HU

*** FREN 491a or b, The Senior Essay** Thomas Connolly

A one-term research project completed under the direction of a ladder faculty member in the Department of French and resulting in a substantial paper in French or English. For additional information, consult the director of undergraduate studies.

FREN 492a or b, The Senior Essay—Translation Concentration Thomas Connolly

A one-term research project completed under the direction of a ladder faculty member in the Department of French and resulting in a substantial translation (roughly 30 pages) from French to English, with a critical introduction of a length to be determined by the student in consultation with the advising ladder faculty member. Materials submitted for the translation concentration cannot be the same as the materials

submitted for the translation courses. For additional information, consult the director of undergraduate studies.

*** FREN 493a and FREN 494b / FREN 495a and FREN 496b, The Senior Essay in the Intensive Major** Thomas Connolly

A yearlong research project completed under the direction of a ladder faculty member in the Department of French and resulting in a paper of considerable length, in French or English. For additional information, consult the director of undergraduate studies.

FREN 495a and FREN 496b / FREN 493a and FREN 494b, The Senior Essay in the Intensive Major – Translation Concentration Thomas Connolly

First term of a yearlong research project completed under the direction of a ladder faculty member in the Department of French and resulting in a translation of considerable length (roughly 60 pages), from French to English, with a critical introduction of a length to be determined by the student in consultation with the advising ladder faculty member. Materials submitted for the translation concentration cannot be the same as the materials submitted for the translation courses. For additional information, consult the director of undergraduate studies.

German Studies (GMAN)

*** GMAN 110a or b, Elementary German I** Staff

A beginning content- and task-based course that focuses on the acquisition of spoken and written communication skills, as well as on the development of cultural awareness and of foundations in grammar and vocabulary. Topics such as school, family life, and housing. Course materials include a variety of authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. To be followed by GMAN 120. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>.

L1 1½ Course cr

GMAN 120a or b, Elementary German II Staff

Continuation of GMAN 110. A content- and task-based course that focuses on the acquisition of communicative competence in speaking and writing and on the development of strong cultural awareness. Topics such as multiculturalism, food, childhood, and travel; units on Switzerland and Austria. Course materials include a variety of authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. To be followed by GMAN 130. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L2 1½ Course cr

GMAN 130a or b, Intermediate German I Staff

Builds on and expands knowledge acquired in GMAN 120. A content- and task-based course that helps students improve their oral and written linguistic skills and their cultural awareness through a variety of materials related to German literature, culture, history, and politics. Course materials include authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. After GMAN 120 or according to placement examination. Followed by GMAN 140. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online

preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L3 1½ Course cr

GMAN 140a or b, Intermediate German II Staff

Builds on and expands knowledge acquired in GMAN 130. A content- and task-based course that helps students improve their oral and written linguistic skills and their cultural awareness through a variety of materials related to German literature, culture, history, and politics. Course materials include authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. After GMAN 130 or according to placement examination. Normally followed by GMAN 150 or, with permission of the director of undergraduate studies, by GMAN 171. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L4 1½ Course cr

*** GMAN 158a, Contemporary German Culture through Sports** Theresa Schenker

This course is about sports in German-speaking countries. It consists of several units, each of them addressing a different type of sport such as soccer, handball, basketball, tennis, “winter sports” (alpine skiing, ski jumping, and cross-country skiing), track and field or swimming. Topics include different sports histories, famous athletes, homophobia and racism in sports, inclusivity and gender equality, and differences in recreational sports culture in the German-speaking countries and the United States. Prerequisite: GMAN 140 or equivalent. L5, HU

*** GMAN 162a, German History & Culture in the 19th Century and the Weimar Republic** Marion Gehlker

An advanced language course focusing on improving upper-level written and oral language skills through the discussion of selected aspects of pre-1945 German culture, politics, and history in literary and nonliterary texts, films, and the arts. Topics include the Kaiserreich, the Weimar Republic, Expressionist art and film, youth movements, social democracy, and Nazi Germany. Emphasis on vocabulary building through frequent oral and written assignments. After GMAN 140, 145, or 150, or with permission of instructor. L5, HU

*** GMAN 171a, Introduction to German Prose Narrative** Austen Hinkley

Study of key authors and works of the German narrative tradition, with a focus on the development of advanced reading comprehension, writing, and speaking skills. Readings from short stories, novellas, and at least one novel. Writings by exemplary storytellers of the German tradition, such as Goethe, Kleist, Hebel, Hoffmann, Stifter, Keller, Kafka, Mann, Musil, Bachmann, and Bernhard. L5, HU

*** GMAN 205a / FILM 205a / HUMS 160a / LITR 244a, The Question of Technology in Continental Theory** Staff

In Greek mythology, Niobe is the queen of Thebes and mother of six daughters and six sons. She rebelled against the gods and was severely punished for it: her children were killed and she herself was petrified in eternal mourning. In Walter Benjamin’s much-discussed essay “On the Critique of Violence,” Niobe’s fate is a memorial to a mythical violence that has never been overcome. According to Benjamin, this violence today is linked to an instrumental approach to technology. In the seminar, we discuss media and technology philosophical approaches by Benjamin, Heidegger, Simondon, Haraway, Chude-Sokei, among others, but also texts by Kant, in order to explore the

question of how we should understand the entanglement of melancholy, violence and an instrumental understanding of technology. Furthermore, we discuss how this link between violence, technology and melancholy can be resolved from the perspective of Benjamin's critique of violence. HU

*** GMAN 211b / HUMS 314b / LITR 441b / PHIL 412b, Marx, Nietzsche, Freud**
Austen Hinkley

The course is designed as an introduction to the thought of these three towering figures in the German-language intellectual tradition and to their contributions to our attempts to understand the human mind and society. We read seminal essays as well as (excerpts from) longer works, including Marx's *Capital*, Nietzsche's *Genealogy of Morality* and *Thus Spake Zarathustra*, and Freud's *Interpretation of Dreams*. But we also look at what came before and after these thinkers, considering—among others—Kant, Ludwig Feuerbach, Melanie Klein, Adorno, and Foucault; and we think about the relevance of Marx, Nietzsche, and Freud for the understanding of our own times. HU

GMAN 226a / LITR 218a, The Faust Tradition Jan Hagens

The development of the Faust motif through time, from the period of the Renaissance and the Reformation to the twentieth century. Readings from the English adaptation of the original German chapbook and from works by Marlowe, Ben Johnson, Goethe, Wilde, Bulgakov, and Thomas Mann. Screenings of films with a Faustian theme. HU

GMAN 233a / ANTH 237a / HUMS 225a / LITR 242a / PHIL 219a, Karl Marx's Capital
Staff

A careful reading of Karl Marx's classic critique of capitalism, *Capital* volume 1, a work of philosophy, political economy, and critical social theory that has had a significant global readership for over 150 years. Selected readings also from *Capital* volumes 2 and 3. HU o Course cr

*** GMAN 275b / FILM 425b / LITR 358b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949–1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country's emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf, Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU TR

*** GMAN 288a / HUMS 480a / LITR 482a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary

philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.
HU

*** GMAN 290a / HUMS 171a / THST 293a, Politics of Performance** Sophie Schweiger
The stage is, and always has been, a political space. Ever since its beginnings, theatre has offered ways to rethink and criticize political systems, with the stage serving as a "moral institution" (Schiller) but also as a laboratory for models of representation. The stage also delineates the limits of representation for democratic societies (Rousseau), as it offers the space for experimentation and new modes of being together, being *ensemble*. The stage also raises the question of its own condition of possibility and the networks it depends on (Jackson). This course revisits the history of German and German speaking theatre since the Enlightenment, and discusses the stage in its relationship to war, the nation state, the social question, femicide and gender politics, the Holocaust, globalization, and 21st-century migration. Readings include works by G.E. Lessing, Friedrich Schiller, Hugo v. Hofmannstahl, Georg Büchner, Peter Weiss, Ida Fink, Dea Lohar, Elfriede Jelinek, Christoph Schlingensief, Heiner Müller, and Elsa Bernstein. HU TR

*** GMAN 301a / FREN 241a / LITR 397a, After the War, Novels after 1945, French and German** Rudiger Campe

How to write, how to narrate after war? In this course we read alternately some of the greatest novels and novellas after 1945 (until ca. 1968) from German speaking countries and from France. This can but does not necessarily mean novels about fascism and democracy, aggression and resistance (Sartre, Grass). It also means negotiating radical break and reorientation, politically and ideologically (German "Zero Hour", the absurd, existentialism in France); and the attempt to reinvent literary writing in general ('nouveau roman' in France, Handke and Bernhard in Austria). Further authors include Camus, Duras, Robbe-Grillet, Le Clezio, Koeppen, Wolf, Handke, Bachmann. HU

*** GMAN 331a / FILM 310a / HUMS 281a / LITR 416a, Paper: Material and Medium**
Austen Hinkley

Paper is one of the most ubiquitous and indispensable media of the modern era. Although we are (still) surrounded by it, paper tends to recede into the background, working best when we do not notice it at all. This course sets out to challenge our understanding of paper as a neutral or passive bearer of inscriptions by foregrounding its material quality. Our focus rests in equal parts on the media history of paper and paper works of art—among them many literary texts—that reflect or take advantage of their medium. Studying materials and histories from the early modern period to the present, we uncover paper's status as a commodity bound up in a complex web of economic processes, as an instrument of political power, as a gendered and racialized object, and as a material that can be cut, shuffled, and even eaten. Ultimately, we investigate how paper is still central to our lives, even in the age of tablets and PDFs. Readings include Emily Dickinson's envelope poems, Robert Walser's "Microscripts," and M. NourbeSe Philip's "Zong!" The class makes several visits to the Beinecke Library for hands-on work with paper materials. WR, HU

*** GMAN 344a / FILM 344a, Landscape, Film, Architecture** Fatima Naqvi
Movement through post-1945 landscapes and cityscapes as a key to understanding them. The use of cameras and other visual-verbal means as a way to expand

historical, aesthetic, and sociological inquiries into how these places are inhabited and experienced. Exploration of both real and imaginary spaces in works by filmmakers (Wenders, Herzog, Ottinger, Geyrhalter, Seidl, Ade, Grisebach), architects and sculptors (e.g. Rudofsky, Neutra, Abraham, Hollein, Pichler, Smithson, Wurm, Kienast), photographers (Sander, B. and H. Becher, Gursky, Höfer), and writers (Bachmann, Handke, Bernhard, Jelinek). Additional readings by Certeau, Freytag, J.B. Jackson, L. Burckhardt. HU

*** GMAN 379a / FILM 325a / LITR 374a, German Cinema 1918–1933** Jan Hagens

The years between 1918 and 1933 are the Golden Age of German film. In its development from Expressionism to Social Realism, this German cinema produced works of great variety, many of them in the international avantgarde. This introductory seminar gives an overview of the silent movies and sound films made during the Weimar Republic and situate them in their artistic, cultural, social, and political context between WWI and WWII, between the Kaiser's German Empire and the Nazis' Third Reich. Further objectives include: familiarizing students with basic categories of film studies and film analysis; showing how these films have shaped the history and the language of film; discussing topic-oriented and methodological issues such as: film genres (horror film, film noir, science fiction, street film, documentary film); set design, camera work, acting styles; narration in film; avantgarde cinema; the advent and use of sound in film; Realism versus Expressionism; film and popular mythology; melodrama; representation of women; modern urban life as spectacle; film and politics. Directors studied include: Grune, Lang, Lubitsch, Murnau, Pabst, Richter, Ruttman, Sagan, von Sternberg, Wiene, et al.

WR, HU

GMAN 381a / PHIL 204a, Kant's *Critique of Pure Reason* Paul Franks

An examination of the metaphysical and epistemological doctrines of Kant's *Critique of Pure Reason*. Prerequisite: PHIL 126 or DRST 004. HU

*** GMAN 489b / CLCV 305b / HSAR 489b, Pathos-Figures: Affection-Images in the Visual Arts** Nicola Suthor

Images with high pathos inform our perception of human life and define our stance in the world. The seminar wants to foster a critical awareness of the formative power that pathos figures exert on our moral beliefs concerning human behavior. The course covers the timespan from Antiquity to Modernity in Western culture and deals with historical moments that reflect different attempts to cultivate and temper strong emotions. We discuss the transfer of pathos and how the dissemination of eminent pathos figures of antiquity have shaped the imagery of the Western canon; we tackle with one of the most far-reaching concepts of art history, Aby Warburg's Pathos formula that encourages us to draw in broad strokes connecting lines of affection over centuries and different cultures; we look into the discourse on human suffering in Medieval times and how it has defined the Christian doctrine of the affective image; we have a close look at treatises of the 17th century that worked on theorizing human passions and discuss the Enlightenment perspective that aimed at interiorizing pathos by dint of the discourse of beauty; we discuss the Modern "close-up" and how it unfolds the moment of pure bodily presence as highly affective entity. We ask if we are in need of new pathos images that reflect our current emotional stakes, and how they might look. HU

*** GMAN 492a, The Senior Essay Tutorial** Theresa Schenker
Preparation of an original essay under the direction of a faculty adviser.

Global Affairs (GLBL)

GLBL 121a, Applied Quantitative Analysis Staff

This course is an introduction to statistics and their application in public policy and global affairs research. Throughout the term we cover issues related to data collection (including surveys, sampling, and weighted data), data description (graphical and numerical techniques for summarizing data), probability and probability distributions, confidence intervals, hypothesis testing, measures of association, and regression analysis. QR o Course cr

GLBL 159a / ECON 159a, Game Theory Benjamin Polak

An introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, and signaling are applied to games played in class and to examples drawn from economics, politics, the movies, and elsewhere. After introductory microeconomics. No prior knowledge of game theory assumed. QR, SO o Course cr

GLBL 203a / PLSC 186a, Globalization and Domestic Politics Staff

Examination of the political and institutional conditions that explain why some politicians and interest groups (e.g. lobbies, unions, voters, NGOs) prevail over others in crafting foreign policy. Consideration of traditional global economic exchange (trade, monetary policy and finance) as well as new topics in the international political economy (IPE), such as migration and environmental policy. o Course cr

GLBL 219b / ECON 375b, Monetary Policy William English

Introduction to modern macroeconomic models and how to use the models to examine some of the key issues that have faced monetary policymakers during and after the global financial crisis of 2008–2009. Prerequisites: Intermediate level macroeconomics (ECON 122 or 126) and introductory econometrics. WR, SO o Course cr

*** GLBL 225a, Approaches to International Development** Staff

This course focuses on understanding poverty and economic development. The emphasis is on applying the tools of economics and empirical analysis for thinking critically about the nature, causes and potential policy solutions to poverty. Topics include the measurement of poverty; economic growth; institutions and colonialism; social capital; inequality; migration and forced displacement; rural finance and labor markets; and gender. Enrollment limited to sophomores, juniors, and seniors. Prerequisite: GLBL 121. QR, SO o Course cr

*** GLBL 272b / AFAM 362b / ER&M 272b / FREN 262b / HIST 223b, Black France** Marlene Daut

This course offers an in-depth exploration of the complex history of Black France, tracing its roots from the era of French colonization in the Caribbean and the transatlantic slave trade to its contemporary manifestations across France and its overseas territories. Beginning with an examination of French colonialism in the Caribbean, particularly focusing on the brutal system of slavery and the development of the Code Noir under the reign of Louis XIV, students gain a comprehensive understanding of the origins of race-thinking in France. Students also read about the

pivotal role of French colonies like Saint-Domingue, Martinique, and Guadeloupe in the resistance against slavery, highlighting the Haitian Revolution as a watershed moment in the struggle for freedom and self-determination. Through the lens of this historic event, students analyze the complexities of slave rebellion, the quest for abolition, and the enduring legacy of resistance in Black (francophone) communities. By highlighting the socio-political relationship of the colonial and revolutionary era to the present, students explore the interconnectedness of slavery, colonialism, and power dynamics within the French empire and the enduring impact of this tumultuous history on contemporary conceptions of Blackness in France. Using an interdisciplinary approach that encompasses history, sociology, literary, and cultural studies, students analyze the formation of Black identity, racial ideologies, and the ongoing struggle for recognition and equality within French society. WR, HU

GLBL 275a, Approaches to International Security Staff

Introduction to major approaches and central topics in the field of international security, with primary focus on the principal man-made threats to human security: the use of violence among and within states, both by state and non-state actors. Priority to Global Affairs majors. Non-majors require permission of the instructor. SO o Course cr

GLBL 283a / PLSC 145a, Technology and War Staff

The course explores the international security implications of emerging technologies such as artificial intelligence, cyberweapons, hypersonic missiles, and so-called killer robots. The first half of the course offers a deep dive into the transformative military and civilian technologies of the 20th century, examining how doctrine and culture shaped the development, acquisition, and deployment of key systems like submarines, bomber aircraft, and nuclear bombs, and how these technologies, in turn, shaped international security. In the second half of the course, we apply the lessons of the past to make theoretically guided predictions. What norms will guide the use of new technologies, and what weapons should or should not be developed? Are arms races inevitable? What might improve the prospects for arms control of emerging technologies? SO o Course cr

*** GLBL 299a / EP&E 299a / PLSC 332a, Philosophy of Science for the Study of Politics** Ian Shapiro

An examination of the philosophy of science from the perspective of the study of politics. Particular attention to the ways in which assumptions about science influence models of political behavior, the methods adopted to study that behavior, and the relations between science and democracy. Readings include works by both classic and contemporary authors. SO

*** GLBL 307a / ECON 467a, Economic Evolution of the Latin American and Caribbean Countries** Ernesto Zedillo

Economic evolution and prospects of the Latin American and Caribbean (LAC) countries. Topics include the period from independence to the 1930s; import substitution and industrialization to the early 1980s; the debt crisis and the “lost decade”; reform and disappointment in the late 1980s and the 1990s; exploration of selected episodes in particular countries; and speculations about the future. Prerequisites: intermediate microeconomics and macroeconomics. SO

GLBL 308a / ECON 424a, Central Banking William English

Introduction to the different roles and responsibilities of modern central banks, including the operation of payments systems, monetary policy, supervision and regulation, and financial stability. Discussion of different ways to structure central banks to best manage their responsibilities. Prerequisites: Intermediate Microeconomics, Intermediate Macroeconomics, and Introductory Econometrics.

SO o Course cr

GLBL 309a / EAST 310a / PLSC 357a, The Rise of China Staff

Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy.

SO o Course cr

*** GLBL 310a / ECON 407a, International Finance** Ana Fielor

A study of the implications of increasing integration of the world economy, through international trade, multinational production, and financial markets. Topics include foreign exchange markets, capital flows, trade and current account imbalances, coordination of monetary and fiscal policy in a global economy, financial crises and their links to sovereign debt crises and currency devaluations. Prerequisite: intermediate macroeconomics or equivalent. SO o Course cr

*** GLBL 313a, The United Nations on the Ground** Jessica Faieta

This course explores the role and functioning of the United Nations at the country level from the perspective of the three mandates or pillars of the UN Charter. 1) Peace and Security, and in particular the Peace-keeping operations: how do they work? Who decides to send a UN mission to a country? what do they do in each country? 2) Development: How does the UN help countries achieve the Sustainable Development Goals? Which are the different UN agencies, funds, and programs and how do they work in reducing poverty, advancing gender equality, preventing violence, fighting climate change and protecting the environment or ensuring food security? and 3) Human rights: How does the UN respond to humanitarian crises, such as natural disasters or refugee crisis? What is its role in protecting vulnerable populations such as children, ethnic minorities or indigenous peoples? How does the Organization monitor human rights compliance or help avoid human rights violations? SO

*** GLBL 315a, Economics of the EU** Marnix Amand

The functioning of the economy of the European Union, both from a theoretical perspective (trade theory, monetary union, etc.) and from a practical perspective. Particular emphasis on the recent crises of the last ten years with effort to put these crises in a larger geostrategic context. Prerequisites: ECON 110 or 115 and ECON 111 or 116. SO

*** GLBL 319a, Human Rights and the Climate Crisis** Daniel Wilkinson

As climate change takes a mounting toll on the lives and livelihoods of people around the globe, reducing greenhouse gas emissions and promoting "climate resilience" have become, arguably, the most pressing challenges of our era. This seminar examines the climate crisis through the lens of human rights. How is climate change impacting people's rights? And how can advocacy for people's rights contribute to efforts to address climate change? We explore the scientific, political, and legal bases for attributing responsibility for climate impacts to governments and corporations,

examine how international human rights norms obligate them to address these impacts, and assess the strategies, tactics, and tools employed by rights advocates to compel them to meet these obligations. More broadly, we consider how the exigencies of the climate crisis could ultimately undermine—or actually strengthen—the international human rights regime. Students are encouraged to question and critique positions taken by a range of climate activists, while simultaneously equipping themselves with the knowledge and analytical tools necessary to advocate effectively for ambitious, rights-respecting climate action. SO

*** GLBL 344a / HIST 483Ja / PLSC 161a, Studies in Grand Strategy II** Arne Westad and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. SO

*** GLBL 358a / PLSC 386a, The Geopolitics of the War in Ukraine** Lauren Young

This seminar examines the war in Ukraine with a geopolitical lens focusing on its broader implications for both regional security and democracy. The outbreak of war in Ukraine in February 2022 quickly became a flashpoint in the region. Over two years later, the stakes are high and tensions are rising among transatlantic allies supporting Ukraine, both with arms and sanctions. This course evaluates the historical roots of the war and the fallout from a potential failure to effectively deter an authoritarian state from invading a sovereign neighbor. Our course of study includes the role of international stakeholders and multi-lateral institutions in the conflict, regional political and security dynamics and economic consequences. The humanitarian aspects of the war and its impact on civilian populations, human rights violations and the role of the media in shaping perceptions of the conflict is analyzed. Ultimately, what are the responsibilities of the international community in mitigating the human cost of conflict and the broader economic and policy implications? The aim of this course is both a comprehensive understanding of the conflict and its role in changing and shaping both security and democracy in region and further afield. WR, SO

GLBL 383b / ECON 160b, Games and Information Benjamin Polak and Jidong Zhou

This is designed to be a “second” game theory course. We build on the learnings from introductory game theory courses like ECON 159/GLBL 159, MGT 822 or the SOM core. The course aims to introduce important ideas and tools from game theory, and use them to answer questions in social sciences, law, and business. For instance, how does information get sold and used to persuade? How do we think about the efficiency and equity of allocations? How do sellers decide the best format for an auction to sell a good? Does requiring unanimous verdicts guarantee that the innocent will not be convicted? What causes bank runs? When do we see price wars? The underlying ideas will include games of incomplete information, mechanism design, common knowledge and high-order reasoning, and repeated games. Prerequisite: Any introductory game

theory course, e.g., ECON/GLBL 159, MGT 822 or Game Theory in the SOM Core.
SO RP o Course cr

GLBL 392a, Intelligence, Espionage, and American Foreign Policy Staff

The discipline, theory, and practice of intelligence; the relationship of intelligence to American foreign policy and national security decision-making. Study of the tools available to analyze international affairs and to communicate that analysis to senior policymakers. Case studies of intelligence successes and failures from World War II to the present. o Course cr

*** GLBL 394a / ANTH 409a / ER&M 394a / EVST 422a / F&ES 422a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove

Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities.
WR, SO

*** GLBL 425a, Atrocity Prevention** David Simon

Can atrocities be prevented? This course considers the ways in which episodes of genocide, crimes against humanity, and war crimes might be preventable. It looks at ways in which models of atrocities yield corresponding models of prevention, and then what policies those models, in turn, recommend. We consider a broad number of cases of prevention, devoting attention to the different phases and agents of the prevention efforts in question. We analyze the extent to which prevention efforts at different levels have been successful while being mindful of the costs that accompanied them. We aim to draw conclusions about what strategies key actors can deploy to reduce the incidence of mass atrocities throughout the world. so

GLBL 433a / HIST 433a, The Twentieth Century: A World History Staff

For most people, almost everywhere, the twentieth century was a time of profound and accelerating change. Someone born in the 1890s could, if they lived a long life, have experienced two world wars, a global depression, collapse of empires, the enfranchisement of women and young people, and the rise of the United States to global power. They could have witnessed the first cars, the first planes, the first radios and TVs, and the first computers. They could have been among the first to swear allegiance to one (or several) of 130 new states, almost twice the number that existed in 1900. They would have been certain to witness massive ecological destruction, as well as unparalleled advances in medicine, science, and the arts. The twentieth century was, as one historian puts it, an age of extremes, and in this class we explore some of these aspects of the age. The class is not intended to be a complete history nor is it one that provides an integrative interpretation of historical events. The aim is rather to enable students to know enough to think for themselves about the origins of today's world and about how historical change is created. HU o Course cr

*** GLBL 499a, Senior Capstone Project** Staff

Students work in small task-force groups and complete a one-term public policy project under the guidance of a faculty member. Clients for the projects are drawn from government agencies, nongovernmental organizations and nonprofit groups, and private sector organizations in the United States and abroad. Projects and clients vary from year to year. Fulfills the capstone project requirement for the Global Affairs major.

Global Health Studies (HLTH)

* **HLTH 081a, Current Issues in Medicine and Public Health** Robert Bazell Analysis of issues in public health and medicine that get extensive media attention and provoke policy debates. The Covid-19 pandemic has revealed severe challenges in the communication between science and health experts and the public. Thus, a prime focus is a survey of epidemiology and related topics such as vaccination attitudes. The class covers other topics including (but not limited to) the value of cancer screening, genetic testing, the U.S. role in global health, physician assisted suicide and the cost of health care. Students learn to understand the scientific literature and critique its coverage in popular media—as well as producing science and medical journalism themselves. Enrollment limited to first-year students. Prerequisite: AP Biology or equivalent. SC

* **HLTH 155a / E&EB 106a / MCDB 106a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron

Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

* **HLTH 250a / E&EB 335a, Evolution and Medicine** Brandon Ogbunu

Introduction to the ways in which evolutionary science informs medical research and clinical practice. Diseases of civilization and their relation to humans” evolutionary past; the evolution of human defense mechanisms; antibiotic resistance and virulence in pathogens; cancer as an evolutionary process. Students view course lectures on line; class time focuses on discussion of lecture topics and research papers. Prerequisite: BIOL 101–104. WR, SC

* **HLTH 370a / ER&M 360a / HSHM 432a / SOCY 390a / WGSS 390a, Politics of Reproduction** Rene Almeling

Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality. WR, SO

* **HLTH 425b / ANTH 453b, Global Health: Equity and Policy** Catherine Panter-Brick

Current debates in global health have focused specifically on health disparities, equity, and policy. This *advanced undergraduate seminar class* is designed for students seeking to develop an interdisciplinary understanding of health research, practice, and policy. Each week, we address issues of importance for research and policy, and apply theory, ethics, and practice to global health debates and case studies. The class encourages critical thinking regarding the promotion of health equity. WR, SO

* **HLTH 490a, Global Health Research Colloquium** Staff

This course is designed for Global Health Scholars in their senior year as they synthesize their academic studies and practical experiences during their time in the Global Health Studies MAP. In this weekly seminar, Global Health Scholars analyze

central challenges in global health and discuss methodological approaches that have responded to these pressing global health concerns. In addition to close reading and discussion, students present on a topic of their choosing and contribute to shaping the agenda for innovative methods in global health research and policy. Prerequisite: HLTH 230 or permission of the instructor. This is a required course for Global Health Scholars and enrollment is limited to Global Health Scholars. RP

Hebrew (HEBR)

HEBR 110a, Elementary Modern Hebrew I Dina Roginsky

Introduction to the language of contemporary Israel, both spoken and written. Fundamentals of grammar; extensive practice in speaking, reading, and writing under the guidance of a native speaker. L1 1½ Course cr

HEBR 117a, Elementary Biblical Hebrew I Dina Roginsky

An introduction to biblical Hebrew. Intensive instruction in grammar and vocabulary, supplemented by readings from the Bible. No prior knowledge of Hebrew required. L1

HEBR 120b, Elementary Modern Hebrew II Orit Yeret

Continuation of HEBR 110. Introduction to the language of contemporary Israel, both spoken and written. Fundamentals of grammar; extensive practice in speaking, reading, and writing under the guidance of a native speaker. Prerequisite: HEBR 110 or equivalent. L2 RP 1½ Course cr

HEBR 127b, Elementary Biblical Hebrew II Eric Raymond

Continuation of HEBR 117. Prerequisite: HEBR 117. L2

*** HEBR 130a, Intermediate Modern Hebrew I** Orit Yeret

Review and continuation of grammatical study, leading to a deeper understanding of style and usage. Focus on selected readings and on writing, comprehension, and speaking skills. Prerequisite: HEBR 120 or equivalent. L3 RP 1½ Course cr

HEBR 140b, Intermediate Modern Hebrew II Orit Yeret

Continuation of HEBR 130. Review and continuation of grammatical study leading to a deeper comprehension of style and usage. Focus on selected readings and on writing, comprehension, and speaking skills. Prerequisite: HEBR 130 or equivalent. L4 RP 1½ Course cr

*** HEBR 158a / JDST 305a / MMES 168a, Contemporary Israeli Society in Film** Shiri Goren

Examination of major themes in Israeli society through film, with emphasis on language study. Topics include migration, gender and sexuality, Jewish/Israeli identity, and private and collective memory. Readings in Hebrew and English provide a sociohistorical background and bases for class discussion. Prerequisites: HEBR 140 or permission of instructor. L5, HU RP

*** HEBR 159a / JDST 409a / MMES 159a, Conversational Hebrew: Israeli Media** Shiri Goren

An advanced Hebrew course for students interested in practicing and enhancing conversational skills. Focus on listening comprehension and on various forms of discussion, including practical situations, online interactions, and content analysis. Prerequisite: HEBR 140 or permission of instructor. L5 RP

HEBR 161b / JDST 407b / MMES 156b, Israeli Popular Music Dina Roginsky

Changes in the development of popular music in Israel explored as representations of changing Israeli society and culture. The interaction of music and cultural identity; modern popular music and social conventions; songs of commemoration and heroism; popular representation of the Holocaust; Mizrahi and Arab music; feminism, sexuality, and gender; class and musical consumption; criticism, protest, and globalization. Conducted in Hebrew. Prerequisite: HEBR 140 or equivalent. L5, SO

*** HEBR 164b / JDST 417b / MMES 167b, Biblical to Modern Hebrew for Reading Knowledge** Dina Roginsky

Instruction in the linguistic needs of students who have reading knowledge of Biblical Hebrew but cannot read or converse in Modern Hebrew. Concentration on reading comprehension of Modern Hebrew for research purposes, particularly scholarly texts tailored to students' areas of interest. Two years of Biblical or Modern Hebrew studies, or permission of the instructor. RP

Hindi (HNDI)

*** HNDI 110a, Elementary Hindi I** Swapna Sharma

An in-depth introduction to modern Hindi, including the Devanagari script. A combination of graded texts, written assignments, audiovisual material, and computer-based exercises provides cultural insights and increases proficiency in understanding, speaking, reading, and writing Hindi. Emphasis on spontaneous self-expression in the language. No prior background in Hindi assumed. L1 1½ Course cr

HNDI 130a, Intermediate Hindi I Mansi Bajaj

The first half of a two-term sequence designed to develop proficiency in the four language skills. Extensive use of cultural documents including feature films, radio broadcasts, and literary and nonliterary texts to increase proficiency in understanding, speaking, reading, and writing Hindi. Focus on cultural nuances and Hindi literary traditions. Emphasis on spontaneous self-expression in the language. After HNDI 120 or equivalent. L3 1½ Course cr

*** HNDI 132a, Accelerated Hindi I** Mansi Bajaj

A fast-paced course designed for students who are able to understand basic conversational Hindi but who have minimal or no literacy skills. Introduction to the Devanagari script; development of listening and speaking skills; vocabulary enrichment; attention to sociocultural rules that affect language use. Students learn to read simple texts and to converse on a variety of everyday personal and social topics.

L3

HNDI 150a, Advanced Hindi Swapna Sharma

An advanced language course aimed at enabling students to engage in fluent discourse in Hindi and to achieve a comprehensive knowledge of formal grammar. Introduction to a variety of styles and levels of discourse and usage. Emphasis on the written language, with readings on general topics from newspapers, books, and magazines. Prerequisite: HNDI 140 or permission of instructor. L5

*** HNDI 198a, Advanced Tutorial** Staff

For students with advanced Hindi language skills who wish to engage in concentrated reading and research on material not otherwise offered by the department. Work must be supervised by an adviser and must terminate in a term paper or the equivalent.

Permission to enroll requires submission of a detailed project proposal and its approval by the language studies coordinator. Prerequisite: HNDI 150 or equivalent.

History (HIST)

*** HIST 009a, Yale Engages the World: A History of U.S. Power** David Engerman

This course uses moments in the history of Yale University to shed light on the forms, functions, and trajectory of U.S. global power from the late 19th century through the late 20th century. Students explore the Yale campus through archival, digital, and published primary sources as well as scholarly writing about Yale in particular or aspects of American history more generally. We visit not just written records stored in the archives but also campus sites. The seminar thus provides historical insight into aspects of Yale that are familiar today, from academic programs to student activities to protest movements. It also explores the nature of Yale's longstanding ties to China, the anthropological collections at the Peabody Museum, and how Yale has mobilized for war. Enrollment limited to first-year students. WR, HU

*** HIST 022a, What History Teaches** John Gaddis

An introduction to the discipline of history. History viewed as an art, a science, and something in between; differences between fact, interpretation, and consensus; history as a predictor of future events. Focus on issues such as the interdependence of variables, causation and verification, the role of individuals, and to what extent historical inquiry can or should be a moral enterprise. Enrollment limited to first-year students. WR, HU

*** HIST 024a / CLCV 031a, The Age of Cleopatra** Joseph Manning

This course introduces students to historical method using a pivotal and fascinating period in Mediterranean history. This course goes far beyond the typical framework, mainly from Roman sources, to examine Egypt in the age of Cleopatra, 50–30 BCE and the much wider world. We examine the reception of Cleopatra through the lens of women's history. Enrollment is limited to first-year students. WR, HU

*** HIST 039a / SAST 020a, Bombay/Mumbai: Life in a Megacity** Rohit De

Mumbai as a case study for the transformations brought by urbanization and modernity in Asia. Focus on how Mumbai's residents and its planners navigated the challenges of living in a rapidly growing cosmopolitan city and reflected it in their art and ideas. Themes include capitalism, globalization, British empire, religious pluralism, radical politics, organized crime, and Bollywood. Enrollment limited to first-year students. WR, HU

*** HIST 059a / AMST 099a / ER&M 089a / PHYS 047a, Asian Americans and STEM**
Eun-Joo Ahn

As both objects of study and agents of discovery, Asian Americans have played an important yet often unseen role in fields of science, technology, engineering, and math (STEM) in the U.S. Now more than ever, there is a need to rethink and educate students on science's role in society and its interface with society. This course unites the humanities fields of Asian American history and American Studies with the STEM fields of medicine, physics, and computer science to explore the ways in which scientific practice has been shaped by U.S. histories of imperialism and colonialism, migration and racial exclusion, domestic and international labor and economics, and war. The course also explores the scientific research undertaken in these fields and delves into key

scientific principles and concepts to understand the impact of such work on the lives of Asians and Asian Americans, and how the migration of people may have impacted the migration of ideas and scientific progress. Using case students, students engage with fundamental scientific concepts in these fields. They explore key roles Asians and Asian Americans had in the development in science and technology in the United States and around the world as well as the impact of state policies regarding the migration of technical labor and the concerns over brain drains. Students also examine diversity and inclusion in the context of the experiences of Asians and Asian Americans in STEM. Enrollment limited to first-year students. HU, SC

*** HIST 060b, History of Crime and Punishment** Staff

Changing attitudes and policies towards crime from the ancient world to the present. Topics include explanations of crime as a moral, biological, and social phenomenon; crime in the ancient, medieval, and modern age; alternative “informal” or “non-western” approaches to criminal justice; criminal trials as public spectacles; political trials and war crimes; impact of race and gender hierarchies; debates about death sentence, imprisonment, and corporal punishment. Enrollment limited to first-year students. WR, HU

*** HIST 071a, Nighttime: The Night in History** Maria Jordan

The alterations of day and night created dissimilar imaginaries for these phenomena, day symbolized activity and good, while the night was associated with passivity, evil, and even the dangerous and the horrific. In this seminar, we challenge these static and opposite notions by presenting a more complex, dynamic, and complete view of the night in different moments in history. We approach questions such as how the experience of the night changed, how religious paradigms altered, changes in the lighting technologies, how political and economic forces modified notions, the uses of the experience of the night by different groups, taking into consideration the disparities between rural and pre- and industrial era cities. We also examine the roots of the prejudices toward darkness, explore the reasons of why we fear the night, and examine the process of criminalization, commercialization and even politicization of nocturnal spaces. Nights also offer times for pleasure, transgression and freedom that open the possibility for expressing dissent and opposition to the prevailing standards. In this matter we include themes of gender, sexuality, slavery, students movements, and contemporary street revolts. Enrollment limited to first-year students. WR, HU

*** HIST 072b, The History of World History** Valerie Hansen

How the great historians of ancient Greece, Rome, China, the Islamic world, and nineteenth-century Europe created modern historical method. How to evaluate the reliability of sources, both primary and secondary, and assess the relationship between fact and interpretation. Using historical method to make sense of our world today. Strategies for improving reading, writing, and public speaking skills. Enrollment limited to first-year students. WR, HU

*** HIST 081b, Afterlives of Co-Prosperity: World War Two and Displacement Across Asia** Hannah Shepherd

The global movement of people that occurred in the aftermath of the Second World War is often evoked today. It's used as a benchmark against which the scale and scope of the current global refugee crisis is measured. However, histories of this 'global' post-1945 crisis of displaced people have mainly focused on Europe, especially the aftermath of the Holocaust. This was a global war, but historical work on its aftermath

for those displaced by fighting, genocidal regimes, and wartime mobilization is far less global in scope. Unlike in Europe after 1945, where, as historian Tony Judt writes, “boundaries stayed broadly intact and people were moved instead,” in East Asia, “both people and boundaries moved.” In this seminar, we look at the histories of the wartime and postwar movement of people in Asia, especially those mobilized or displaced by the wartime expansionist Japanese state, its colonial governments, and military forces. Enrollment limited to first-year students. HU

*** HIST 089a / HUMS 090a, Thinking about History** Stuart Semmel

An introduction to the discipline of history. Exploration of influential historical narratives; the philosophy of history; the emergence of historical subdisciplines including history from below, microhistory, the new cultural history, and Big History; and interdisciplinary engagement with anthropology, literary criticism, art history, and psychology. Enrollment limited to first-year students. WR, HU

*** HIST 098b, Little Ice Ages: Climate Crises and Human History** Fabian Drixler

Anthropogenic global warming is one of the defining crises of our time. Before the 20th century, it was cooling and drought that posed the greatest challenges to human flourishing. Temperatures could drop for centuries, such as in the Little Ice Age (ca. 1300–1850). Volcanic winters typically lasted only a year or two but rattled the ecological foundations of many societies. Through a focus on such periods of climatic disruption, this seminar serves as an introduction to the broader study of climate history. This is a rapidly developing field that combines methodologies across many disciplines, from ice core analysis and volcanology to tree rings and the analysis of written records. Our readings are often authored by multi-disciplinary teams, but our focus is on how historians understand the past interactions of human beings and the climate. The scope of the course is global and ranges from the collapse of ancient societies to the prospects for (deliberately) engineering the climate of the future. Our temporal center of gravity is the early modern period—already exquisitely documented but still highly vulnerable to changes in temperature. Enrollment limited to first-year students. WR, HU

HIST 108b, U.S. Colonial Empire Alvita Akiboh

The United States was born from a revolution against an empire. Since then, one of the most cherished pieces of national mythology is that the United States, while an incredibly powerful country, has never itself been an empire. But for over a century, the United States has governed an overseas empire of colonies in the Caribbean and the Pacific. This course places the U.S. colonial empire front and center, and asks: what does U.S. history look like from the perspective of the colonies? The first part of the course looks at the origins of U.S. imperialism in the eighteenth and nineteenth centuries. Next, we look at the pivotal year of 1898, when the United States acquired most of its colonial possessions. Lastly, we examine twentieth century struggles in the U.S. empire, including anticolonial revolutions, wars, and the unfinished project of decolonization. HU o Course cr

HIST 109a / EVST 109a, Climate & Environment in American History: From Columbian Exchange to Closing of the Frontier Staff

This lecture course explores the crucial role that climate and environmental conditions have played in American history from the period of European colonization to the end of the 19th century. Its focus is on the dramatic changes brought about by the encounters among Indigenous, European, and African peoples in this period, the influence of climate and climate change on these encounters, and the environmental

transformations brought about by European colonization and conquest and the creation of new economies and polities (including chattel slavery). The lectures offer a new framework for organizing and periodizing North American history, based on geographical and environmental conditions rather than traditional national and political frameworks. The course provides a historical foundation for understanding contemporary American (and global) climate and environmental issues. HU
o Course cr

*** HIST 110Ja / HSHM 496a, Childbirth in America, 1650–2000** Rebecca Tannenbaum

This course considers the ways childbirth has been conducted in the United States over three centuries. Topics include the connections between childbirth and historical constructions of gender, race, and motherhood, as well as changes in the medical understanding and management of childbirth. WR, HU

*** HIST 112a / AMST 328a / ER&M 357a / HUMS 418a, “None Dare Call It Conspiracy:” Paranoia and Conspiracy Theories in 20th and 21st-Century America** David Walsh

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

HIST 113b, The Un-American Century Beverly Gage

This course explores the political history of the United States in the 20th century through the national contest over communism and anticommunism, a conflict that reshaped American politics and society at every level. Through this subject, the course investigates debates about democracy and extremism, policing and surveillance, civil liberties and civil rights, liberalism, radicalism, and conservatism, foreign and domestic policy. It describes the evolving histories of both the Left and the Right, along with the ways that government institutions responded to their challenges. Subjects include McCarthyism, the civil rights movement, intellectual history, labor, espionage and security, gender and sexuality, and the Cold War. WR, HU

*** HIST 114Ja / AMST 394a / ER&M 404a, Texas Histories** Stephen Pitti

An exploration of topics in Texas history from the 16th century into the contemporary moment. Readings focus on Native American, African American, Latinx, Asian American, and LGBTQ histories, as well as broader political developments and patterns over the last two centuries. WR, HU

*** HIST 115Jb / AFAM 349b / AMST 326b / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

*** HIST 116Jb, A History of American Citizenship: Membership and Exclusion; Rights and Belonging in U.S. History** Brendan Shanahan

This course explores the contested history of American citizenship from the early republic to the age of Trump. It interrogates both the relative inclusion and/or exclusion of disparate immigrant populations into the American citizenry *and* campaigns to expand citizenship status and rights to long-marginalized native-born populations throughout the history of the republic. It especially probes the degree to which policies governing U.S. citizenship have been employed to incorporate access to rights for some while restricting access to others. WR, HU

*** HIST 117b / AMST 307b / ER&M 298b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. WR, HU

HIST 120b / AMST 163b / EVST 120b / HSHM 204b, American Environmental History Paul Sabin

Ways in which people have shaped and been shaped by the changing environments of North America from precolonial times to the present. Migration of species and trade in commodities; the impact of technology, agriculture, and industry; the development of resources in the American West and overseas; the rise of modern conservation and environmental movements; the role of planning and impact of public policies. WR, HU

*** HIST 121Ja / HSHM 416a, Beyond Tuskegee: Histories of Race and Human Subjects Research** Staff

This course explores the history of race, racism, and human subjects research. It examines the history of human subjects research as a scientific practice and how practitioners interpreted the use of living and dead bodies for producing scientific knowledge. It examines how and why certain bodies become eligible for research and experimentation. This course shows how race, class, gender, and disability shape the history of human subjects research, and shows how human subjects were also deliberately selected from vulnerable populations. It focuses on the experiences of

African Americans as research subjects, and consider other vulnerable populations such as children, the disabled, and the incarcerated. WR, HU

*** HIST 123a / AMST 430a / ANTH 430a / ER&M 432a, Muslims in the United States**

Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

*** HIST 123Jb, Reagan’s America** Beverly Gage

This course examines U.S. politics in the 20th century through the life and times of Ronald Reagan. This is not a course about biography. Instead, the course uses the major political events of Reagan’s lifetime—from his years as a New Deal-era labor leader to his presidency in the 1980s—in order to explore the political history of the era. The course emphasizes intersections between domestic and foreign policy, as well as between high politics (the White House, Congress, the Supreme Court) and grassroots social movements. Topics include liberalism, conservatism, civil rights, communism and anticommunism, California politics, presidential power, AIDS activism, abortion politics, immigration, foreign policy, and the Cold War. WR, HU

HIST 127a / EVST 206a / HSHM 201a / HUMS 106a / PHYS 106a, Sustainable

Energy: Physics and History Staff

Students explore the physical logic of energy and power in parallel with the histories of technology for energy exploitation and economic theories of sustainability on the path to modernity. They learn the fundamentals of quantitative analysis of contemporary and historical energy harvesting, its carbon intensity, and climate impact. They also gain an understanding of the historical underpinnings of the current global energy status quo and its relationship to economic theories of sustainability. Mathematical proficiency with algebra is assumed. Students from all academic interests and experiences are welcome in the course. QR, SC, SO o Course cr

*** HIST 132Jb, The United States and the War on Terror** Michael Brenes

The War on Terror is supposedly over, felled by an era of “great-power competition” with China. The United States’ withdrawal from Afghanistan in 2021, Americans were told, represented an end to “endless wars” and a shift in the foreign policy priorities

of the United States away from the Middle East. What have we learned from this history, from the United States' twenty-year War on Terror? This course aims to assess the history of the War on Terror since the 1990s and its meaning for the present.

We explore the War on Terror in both a domestic and international context. We study how the War on Terror evolved over time, how the fight against terrorism went from the priority of a few officials in the Department of Defense to dominating the major decisions made by the United States government after the terrorist attacks of September 11th. As we make our way through this history, we aim to answer the lingering question: is the War on Terror over? WR, HU

*** HIST 133Ja, The Creation of the American Politician, 1789–1820** Joanne Freeman

The creation of an American style of politics: ideas, political practices, and self-perceptions of America's first national politicians. Topics include national identity, the birth of national political parties, methods of political combat, early American journalism, changing conceptions of leadership and citizenship, and the evolving political culture of the early republic. WR, HU

*** HIST 134Ja or b, Yale and America: Selected Topics in Social and Cultural History**

Jay Gitlin

Relations between Yale and Yale people—from Ezra Stiles and Noah Webster to Cole Porter, Henry Roe Cloud, and Maya Lin—and American society and culture. Elihu Yale and the global eighteenth century; Benjamin Silliman and the emergence of American science; Walter Camp, Dink Stover, and the all-American boy; Henry Luce and the information age; faith and ideology in postwar Yale and America. WR, HU

HIST 135a / ECON 182a, American Economic History Staff

The growth of the American economy since 1790, both as a unique historical record and as an illustration of factors in the process of economic development. The American experience viewed in the context of its European background and patterns of industrialization overseas. After introductory microeconomics. WR, SO o Course cr

*** HIST 135Jb, The Age of Hamilton and Jefferson** Joanne Freeman

The culture and politics of the revolutionary and early national periods of American history, using the lives, ideas, and writings of Thomas Jefferson and Alexander Hamilton as a starting point. Topics include partisan conflict, political culture, nation building, the American character, and domestic life. WR, HU

*** HIST 139Ja / HSHM 445a, Fetal Histories: Pregnancy, Life, and Personhood in the American Cultural Imagination** Megann Licskai

In our twenty-first-century historical moment, the fetus is a powerful political and cultural symbol. One's fetal politics likely predicts a lot about how they live their life, vote, worship, and even about how they understand themselves. How, then, has the fetus come to carry the cultural significance that it does? Are there other ways one might think of the fetus? And what is happening in the background when we center the fetus up front? This course examines the many cultural meanings of the fetus in American life: from a clump of cells, to a beloved family member, to political litmus test, and considers the way that these different meanings are connected to questions of human and civil rights, gender relations, bodily autonomy, and political life. We look at the history of our very idea of the fetus and consider how we got here. Each of us may have a different idea of what the fetus is, but every one of those ideas has

a particular history. We work to understand those histories, their contexts, and their possible implications for the future of American political life. WR, HU

HIST 140b / HSHM 215b, Public Health in America, 1793 to the Present Naomi Rogers

A survey of public health in the United States from the yellow fever epidemic of 1793 to AIDS, breast cancer activism, bioterrorism and COVID. Focusing on medicine and the state, topics include epidemics and quarantines, struggles for reproductive and environmental justice, the experiences of healers and patients, and organized medicine and its critics. HU o Course cr

*** HIST 142Ja / HSHM 498a, Collecting Bodies: Historical Approaches to Specimen Collection** Megann Licskai

Why is there a room full of brains in the basement of Yale's medical school, and why does it welcome hundreds of visitors every year? What compels us about the macabre spectacle of human remains, and what is their place in medical history? What kinds of stories can and should a museum space tell, and what are the multivalent functions of a collection like this in a university setting? Using Yale's Cushing Center as a center of discussion, this class examines the ethics of collecting and viewing human specimens. The course ties these practices to histories of colonialism, racism, medicine, anthropology, and natural history while considering the cultural specificity of the collectors and the collected. Students analyze the kinds of stories that museum spaces can tell and imagine possibilities for ethical storytelling through both academic analysis and creative engagement. In doing so, we prioritize hands-on historical work while reading theory to address broader ethical and epistemological questions. This course will, on occasion, meet at 333 Cedar St. to facilitate this hands-on work. WR, HU

HIST 143b, The American Revolution: The Contest for North America Mark Peterson

This lecture course explores the history of eastern North America and the West Indies in the second half of the 18th century, and their relationship with British Imperial authority, in order to determine what was "revolutionary" about this history, as well as what was not. We, of course, examine the causes and consequences of the rebellion staged by thirteen of Britain's American colonies in the 1770s, but we also investigate the broader context in which these events occurred, and consider their reverberations throughout the Atlantic world as well. HU o Course cr

HIST 144a / DEVN 200a, Can It Happen Here Again? Yale, Slavery, the Civil War and Their Legacies Staff

As citizens of the United States and the world, we live in a time of reckoning for the very idea and mission of universities and colleges, as well as primary and secondary schools, curriculums, the freedom to read and learn. Inside and outside the gates of universities, academic freedom, the pursuit of diversity, the faith in universals as we probe ever deeper into particular experiences are all undergoing new pressures of scrutiny. All of this stems from our history even as it emerges in new forms. The Civil War and Reconstruction era lives on in palpable ways in our divided, polarized political and legal culture today. Universities, like the societies and nations in which they live, have histories, and they merit critical, analytical examination, as well as careful, engaging storytelling. This course will consist of three parts. First, we will study the history of Yale University's connections to and entanglements with racial slavery and its afterlives; second, we will explore in some depth the first existential

crisis of the American experiment – the Civil War, emancipation, and Reconstruction as it swept the nation into destruction and rebirth; and third, we will take up the many legacies of that period – political, constitutional, racial, economic, and commemorative – as they have shaped American life and polity ever since. The course is by tradition open to any and all public and community members in the New Haven region. And the course is a regular lecture coffering in history, cross-listed in other departments, for undergraduates. HU o Course cr

*** HIST 149Ja, A History of the Border Wall: From the Frontier to the Border Wall in US History** Greg Grandin

Ever since the US's founding, the idea of an open and ever-expanding frontier has been central to United States identity. Symbolizing a future of endless promise, the frontier made possible the United States' belief in itself as an exceptional nation – democratic, individualistic, forward-looking. Today, the country has a new symbol: the border wall. This course focuses on both the current crisis at the U.S.-Mexican border, which has consumed the country's attention and challenged its public morality and national identity, and the long history that has led to the crisis. After an introductory period focused mostly on the history of the U.S. border (with indigenous peoples, Spain, and Mexico), we alternate between issues pertaining to the current moment and the larger historical context. We read about and discuss events of the moment, related to the immediate causes of migration, the rise of nativism in the U.S., along with calls for building a border wall, family separation and child detention policies, and the activity of the Border Patrol and the Immigration and Customs Enforcement Agency, as we continue to set the current crisis in historical context. HU

*** HIST 150Ja / HSHM 406a, Healthcare for the Urban Underserved** Sakena Abedin
Exploration of the institutions, movements, and policies that have attempted to provide healthcare for the urban underserved in America from the late nineteenth century to the present, with emphasis on the ideas (about health, cities, neighborhoods, poverty, race, gender, difference, etc) that shaped them. Topics include hospitals, health centers, public health programs, the medical civil rights movement, the women's health movement, and national healthcare policies such as Medicare and Medicaid. WR, HU

*** HIST 154Ja, Neighboring Democracies: Representative Politics in the United States and Canada, 1607–Present** Brendan Shanahan

This seminar examines how representative politics have evolved in the United States and Canada from the turn of the seventeenth century to the present. Students learn diverse ways in which forms of liberal democracy – republicanism and constitutional monarchy in particular – have emerged in North America, how processes of democratization have operated, and the degree to which representative governments in Canada and the U.S. borrow from and emerge out of common and/or disparate contexts. Special emphasis is placed on – but is not limited to – the history of suffrage and voting rights in the United States and Canada. WR, HU

*** HIST 157Ja, The United States and the Middle East: The 19th Century to the Present** Daniel Chardell

This seminar invites students to delve into the multifaceted history of relations between the United States and the Middle East from the 19th century to the present. Students explore not only how Americans have imagined, perceived, and represented the Middle East over time, but also how Middle Eastern populations have interpreted, experienced, and debated America's expanding political, cultural, economic, and military power in

their region. We proceed in a roughly chronological fashion, beginning with the arrival of Protestant missionaries on the shores of the Eastern Mediterranean in the early 19th century and concluding with the ongoing Gaza war. To what extent have American and Middle Eastern perceptions of each other evolved in the intervening two hundred years? What has the Middle East meant to Americans, and what has America meant to Middle Eastern populations? Was the relationship between them always destined to be fraught with misunderstanding and antagonism, or were there missed opportunities for alternative futures? If so, are those alternatives still viable today? By juxtaposing American and Middle Eastern perspectives and mining the contested space between them, students weigh answers to these and other historical and historiographical questions throughout the semester. In doing so, they acquire the knowledge, analytical tools, and critical thinking skills to partake in scholarly debates and research on the history of U.S.-Middle East relations. WR, HU

HIST 159a / CLCV 129a / HUMS 129a / NELC 158a / RLST 158a, Jesus to Muhammad: Ancient Christianity to the Rise of Islam Staff

The history of Christianity and the development of Western culture from Jesus to the early Middle Ages. The creation of orthodoxy and heresy; Christian religious practice; philosophy and theology; politics and society; gender; Christian literature in its various forms, up to and including the early Islamic period. HU o Course cr

*** HIST 164Ja, Foxes, Hedgehogs, and History** John Gaddis

Application of Isaiah Berlin's distinction between foxes and hedgehogs to selected historical case studies extending from the classical age through the recent past. WR, HU

*** HIST 167a / PLSC 209a, Congress in the Light of History** David Mayhew

This reading and discussion class offers an overview of U.S. congressional history and politics from 1789 through today, including separation-of-powers relations with the executive branch. Topics include elections, polarization, supermajority processes, legislative productivity, and classic showdowns with the presidency. Emphasized is Congress's participation in a sequence of policymaking enterprises that have taken place from the launch of the nation through recent budget difficulties and handling of climate change. Undergrads in political science and history are the course's typical students, but anyone is welcome to apply. SO

*** HIST 168Ja, Quebec and Canada from 1791 to the Present** Jay Gitlin

The history of Quebec and its place within Canada from the Constitutional Act of 1791 to the present. Topics include the Rebellion of 1837, confederation, the Riel Affair, industrialization and emigration to New England, French-Canadian nationalism and culture from Abbé Groulx to the Parti Québécois and Céline Dion, and the politics of language. Readings include plays by Michel Tremblay and Antonine Maillet in translation. WR, HU

HIST 169a, Early National America: Creating a Nation Staff

An introduction to America's first decades as a nation. Topics include the creation of a national politics, partisan conflict in the states and on a national level, the logistics of democratic politicking, and changes in American society and culture. HU o Course cr

*** HIST 170Jb / JDST 365b, American Jewish Citizenship Politics, From Revolution to Civil Rights** Staff

Through a survey of primary and secondary sources on American Jewish political history, this seminar course studies how Jews theorized and mobilized on behalf of their citizenship rights in the United States, from the colonial era through the early 1970s. Although Jews were legally granted full “emancipation” by the federal government in 1790, constant changes in the size and power of the American state—as well as in the makeup of America’s Jewish population itself—challenged the very meaning of what full citizenship entailed. Over the following two centuries, Jews’ social, economic, and political rights as citizens often remained in flux. As a result, a vast array of different Jewish individuals and organizations mobilized behind different political movements to bolster their continued rights as citizens in America. WR, HU

*** HIST 173Jb, The Ends of History** Samuel Moyn and Daniel Judt

We encounter history every day in the world—in our families, our communities, and our politics. More than that: we use history to make all sorts of arguments, and not just ones about what really happened in the past. We appeal to historical claims to argue about questions of ethics and morality; to advocate for a particular vision of the future; to frame the present in a hopeful or foreboding light. Today in the United States, these uses of history are impossible to escape in our public, political life. Invocations of the legacies of slavery and colonization; warnings about the threat of fascism; appeals to tradition or a return to ‘better’ times: history is everywhere, and it is being put to various, and often conflicting, ends. This seminar invites students to think about the ways we can and should use the practice of history in society. Why does history matter? What can it do for us? What do we use it for, and are we using it for the right things? Is history a science, dedicated to the discovery of the real truth about the past, or is it an unending contest of different interpretations? Can it be both? To investigate these questions, we examine arguments from the recent past about the proper uses of history. Many of these arguments come from historians. We also read philosophers and social theorists, journalists and political actors, all of whom have tried to put history to use in different and conflicting ways. By exploring the ends to which we have put history in the past, we ask what we want history to do for us today.

This is an upper-level seminar intended for sophomores, juniors, and seniors. There are no prerequisites for the course, although some experience with academic history (e.g., having taken a college history class) will be helpful WR, HU

*** HIST 181Jb, Time Machines: Reimagining the Past** John Gaddis

This course explores how representations of the past can help us to reimagine it, and thereby to “travel” there. We explore the concept of time machines and the means by which they might be—or are—constructed. This involves a quick review of the physics involved; some ways historians have used archives to reconstruct times past; the extent to which novelists complement, contradict, or complicate the work of historians; the possibility of “animating” past visual representations, whether through art, film, or computer simulation; and as individual student projects the reading of some digitally available newspaper for some particular place in some particular year. WR, HU

HIST 184a / AFAM 160a / AFST 184a / AMST 160a, History of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

*** HIST 187Ja, Transnational Anti-Apartheid: The United States & South Africa**

Mattie Webb

Centering the apartheid era in South Africa (1948–1994), this course unpacks the multiple ways apartheid and anti-apartheid intersected with the rise of global governance, decolonization, the Cold War, labor movements, and student movements, among other themes central to both U.S. and South African history. Through a close reading of primary and secondary sources, students examine the ways apartheid and anti-apartheid shaped the second half of the 20th century in South Africa and the United States. We grapple with a range of questions, including how transnational connections reveal new perspectives on systems of oppression and resistance in both the United States and South Africa. How did the Cold War and decolonization shape the anti-apartheid movement and African liberation movements? How did ordinary South Africans challenge apartheid? How did the U.S.-based anti-apartheid movement influence official state policy towards South Africa? Since this history is very recent, the legacies of apartheid and the transition to majority rule in 1994 are contested and continue to shape South Africa today. South Africa remains one of the most unequal nations in the world, and faces many compounding crises, including water and electricity shortages, a catastrophically high crime rate, an unrelenting AIDS crisis, and ever-rising unemployment. The enduring relevance of apartheid is evident, both in South Africa and beyond. WR, HU

HIST 188b / AMST 234b / ER&M 243b / RLST 342b, Spiritual But Not Religious

Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

*** HIST 193Jb, Seances & Spirits: Science and the Occult during the Long 19th**

Century Murphy Temple

The 19th century was an age of secularism, rationality, industrialization, urbanization, and scientific and technological innovation—but it was also marked by a popular obsession with the paranormal. People from all walks of life held séances, summoned ghostly apparitions, and performed magic rituals. Why did this interest in the occult persist in the rational modern world? Exploring this paradox, this course focuses on Britain, with occasional forays across the ocean to America. Using a wide variety of fascinating sources like spirit photographs, séance transcripts, and documents in the Yale archives, we examine the origins, spread, and significance of our modern fascination with the “other world.” WR, HU

*** HIST 204Jb / FREN 405b / HSAR 373b / HUMS 453b, Notre-Dame de Paris**

R. Howard Bloch and Paul Freedman

Against the background of Gothic cathedral building in the High Middle Ages, we study from multiple perspectives the building of Notre-Dame within the teaching and preaching culture of the twelfth and thirteenth centuries, with special focus on medieval Paris. Interdisciplinary materials include religious, literary, historical, and philosophic works alongside of music and the visuals—stained glass and sculpture—that are such an integral part of Gothic architecture. We also consider the history of Notre-Dame de Paris since the Middle Ages, especially Viollet-le-Duc’s nineteenth-

century restoration, to be read alongside Victor Hugo's *Notre-Dame of Paris*, and in the context of the rebuilding and reopening after the fire of 2019. WR, HU

*** HIST 210Jb / HUMS 224b, Hobbes and Galileo: Materialism and the Emergence of Modernity** William Klein

Hobbes considered himself a disciple of Galileo, but as a systematic philosopher and ideologue during a period of civil unrest in England, he no doubt produced something that Galileo, a Tuscan astrophysicist and impassioned literary critic, was not entirely responsible for: an absolutist theory of the modern state situated within an eschatological time frame. In this course we will reflect on the relation between Galileo's anti-Aristotelian physics and Hobbes' system by reading key texts by Galileo and Hobbes along with an array of interpretations and criticisms of Hobbes that will serve to situate Hobbes in early modern currents of thought in science, religion and politics, while at the same time situating us in contemporary ideological debates about the origins of modernity. HU

HIST 211b, The Birth of Europe, 1000-1500 Paul Freedman

Europe during the central and late Middle Ages, from the feudal revolution to the age of discoveries. Europe as it came to be defined in terms of national states and international empires. The rise and decline of papal power, church reform movements, the Crusades, contacts with Asia, the commercial revolution, and the culture of chivalry. HU o Course cr

*** HIST 214Ja, History of the Night** Maria Jordan

This seminar is dedicated to the reality and the perception of the night across time and in different cultures. We explore how religious and philosophical beliefs, political and economic forces, changes in technologies of lighting, human biology, and the shift from rural to urban and agrarian to industrial societies affected attitudes toward time in general and the night in particular. These changes influenced the perceptions, uses, and the ways different groups experienced nocturnal time, and how we act, sleep, work, interact, and even dream. The traditional binary view of day and night is questioned by presenting a more complex "and dynamic face" of the night. Nightfall provides multiple opportunities for dissent and rebellion and becomes an ideal space for marginal and subordinate people. Historical analysis, literary texts, medical and scientific writings, and primary sources provide the class with a cross-disciplinary approach to examine how the night became the abode of the ghost, the devil, the witch, and the dead, and how the night became criminalized, commercialized and even politicized. In our time, improvements in lighting changed the nocturnal world, but also had detrimental effects on sleep and dreams, and caused contemporary movements—esthetic and scientific—to "rescue" the night. WR, HU

*** HIST 215Jb, The Art of Biography** John Gaddis

A comparative examination of successful as well as unsuccessful biographies, intended to identify both principles and pitfalls. WR, HU

HIST 219a / ER&M 219a / JDST 200a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings.

Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

*** HIST 220Ja, Grand Strategy and the Origins of the Second World War** Paul Kennedy

A survey of the most important literature and debates concerning the coming of the Second World War in both Europe and the Pacific. Emphasis on the comparative approach to international history and on the interplay of domestic politics, economics, and strategy. Counts toward only European distributional credit within the History major. WR, HU RP

*** HIST 221Ja / RSEE 231a, Russia in the Age of Tolstoy and Dostoevsky, 1850–1905** Sergei Antonov

Russian politics, culture, and society ca. 1850 to 1905. Tsars' personalities and ruling styles, political culture under autocracy. Reform from above and revolutionary terror. Serfdom and its abolition, problem of "traditional" Russian culture. Growth of industrial and financial capitalism, middle-class culture, and daily life. Foreign policy and imperial conquest, including the Caucasus and the Crimean War (1853–56). Readings combine key scholarly articles, book chapters, and representative primary sources. All readings and discussions in English. WR, HU

*** HIST 222Jb / RSEE 222b, Russia and the Eurasian Steppe** Paul Bushkovitch

A study of Russia's interaction with the nomads of the Eurasian steppe. Topics include the Mongol invasion, the Mongol Empire in Asia and the Golden Horde, Islam, nomadic society, and the Russian state. Focus on conquest and settlement. May count toward either European or Asian distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU

*** HIST 223b / AFAM 362b / ER&M 272b / FREN 262b / GLBL 272b, Black France** Marlene Daut

This course offers an in-depth exploration of the complex history of Black France, tracing its roots from the era of French colonization in the Caribbean and the transatlantic slave trade to its contemporary manifestations across France and its overseas territories. Beginning with an examination of French colonialism in the Caribbean, particularly focusing on the brutal system of slavery and the development of the Code Noir under the reign of Louis XIV, students gain a comprehensive understanding of the origins of race-thinking in France. Students also read about the pivotal role of French colonies like Saint-Domingue, Martinique, and Guadeloupe in the resistance against slavery, highlighting the Haitian Revolution as a watershed moment in the struggle for freedom and self-determination. Through the lens of this historic event, students analyze the complexities of slave rebellion, the quest for abolition, and the enduring legacy of resistance in Black (francophone) communities. By highlighting the socio-political relationship of the colonial and revolutionary era to the present, students explore the interconnectedness of slavery, colonialism, and power dynamics within the French empire and the enduring impact of this tumultuous history on contemporary conceptions of Blackness in France. Using an interdisciplinary approach that encompasses history, sociology, literary, and cultural studies, students analyze the formation of Black identity, racial ideologies, and the ongoing struggle for recognition and equality within French society. WR, HU

* **HIST 227a / SPAN 367a, The Spanish Civil War: Words and Images** Noel Valis
 An introduction to the history and cultural and literary impact of the Spanish Civil War (1936–39), through national and international perspective and an analysis of the literature and culture produced during and after the conflict. The course is divided into four sections: the war “from within,” the war “from outside,” women in war, and the memory of war. Authors include George Orwell, Ernest Hemingway, Javier Cercas, Mercè Rodoreda, Julio Llamazares, Ramón J. Sender and others; films: *The Spanish Earth*, *The Good Fight*, *El laberinto del fauno*, *Rojo y negro*; art: *Guernika* (Picasso), *El rostro de la guerra* (Dalí), war posters. In Spanish. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

* **HIST 230a, Twentieth-Century Jewish Political History: Holocaust, Israel, American Jewry** Staff

This course studies Jewish political behavior in response to three key developments of the twentieth century that directly impinged upon Jews: Nazi totalitarianism resulted in the mass murder of Jews, de-colonization resulted in the Jews’ return to sovereignty with the establishment of the State of Israel, and the development America’s post-war “open” society of equality resulted in American Jewry flourishing in perhaps unprecedented ways. This course aims to study the vexed question of Jews’ political behavior in response to these twentieth-century developments. Students write essays about the three events and have the opportunity to undertake original research about one of them. WR, HU o Course cr

* **HIST 232Ja / HUMS 443a / JDST 270a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

* **HIST 234Jb / RLST 234b, History of the Supernatural from Antiquity to Modernity** Carlos Eire

This survey course aims to provide an introduction to ancient, medieval, and early modern Western beliefs in supernatural forces, as manifested in saints, mystics, demoniacs, ghosts, witches, relics, miracles, magic, charms, folk traditions, fantastic creatures, and sacred places. Using a wide range of primary sources and various historical methodologies, our aim is to better understand how beliefs and worldviews develop and change and the ways in which they shape and determine human behavior. This course is not open to students previously enrolled in HIST 299. HU

HIST 236a / HSHM 226a, The Global Scientific Revolution Staff

The material, political, cultural, and social transformations that underpinned the rise of modern science between the 14th and 18th century, considered in global context. Topics include artisanal practices and the empirical exploration of nature; global networks of knowledge and trade, and colonial science; figurative arts and the emersion of a visual language of anatomy, astronomy, and natural history. HU o Course cr

*** HIST 236Ja / HUMS 323a, Truth and Sedition** William Klein

The truth can set you free, but of course it can also get you into trouble. How do the constraints on the pursuit and expression of “truth” change with the nature of the censoring regime, from the family to the church to the modern nation-state? What causes regimes to protect perceived vulnerabilities in the systems of knowledge they privilege? What happens when conflict between regimes implicates modes of knowing? Are there types of truth that any regime would—or should—find dangerous? What are the possible motives and pathways for self-censorship? We begin with the revolt of the Hebrews against polytheistic Egypt and the Socratic questioning of democracy, and end with various contemporary cases of censorship within and between regimes. We consider these events and texts, and their reverberations and reversals in history, in relation to select analyses of the relations between truth and power, including Hobbes, Locke, Kant, Brecht, Leo Strauss, Foucault, Chomsky, Waldron, Zizek, and Xu Zhongrun. WR, HU

HIST 237b / RSEE 390b / RUSS 241b, Russian Culture: The Modern Age Claire

Roosien and Sergei Antonov

An interdisciplinary exploration of Russian cultural history, focusing on literature, art, religion, social and political thought, and film. Conceptions of Russian nationhood; the myths of St. Petersburg; dissent and persecution; the role of social and cultural elites; the intelligentsia; attitudes toward the common people; conflicting appeals of rationality, spirituality, and idealism; the politicization of personal life; the impact of the Bolshevik Revolution and its aftermath. Readings and discussion in English. HU

HIST 238b, Daily life in Greco-Roman Egypt Joseph Manning

This course intends to fill the gap between Ancient History survey courses and areas of more specialized knowledge within the discipline. One of these specialized fields is Papyrology, which examines texts written in both Greek and demotic Egyptian languages evidencing various aspects of ancient life in the most densely-documented place in the ancient Mediterranean world, Egypt. The aim is to introduce the student to the history and culture of Ptolemaic and Roman period Egypt, and to explore the ancient sources themselves and how scholars work with them. Egypt in this period, from roughly 300 BCE to 300 CE, in many ways occupies a pivotal place in world history. Two of the great world religions, Judaism and Christianity, rose to prominence in Egypt during this period; world trade was extended for the first time from the Mediterranean to the Far East through Egyptian ports on the Red Sea; coinage was used in market exchange; and the sciences as well as philosophy were extended and developed. Societies became truly “multi-cultural” for the first time, and we can explore this phenomenon in great depth. We also, again for the first time, are able to study women’s history in fine detail. By the end of the course, students have a sound foundation of the basic facts and the sources of the period and socio-economic trends of the period, which in some ways mark the beginning of the modern world. Students better understand the context of the rise of Rome, the split between the Latin West and the Greek East, the coming of Islam, and ultimately just how intimately bound together we moderns are to those who lived along the Nile two thousand years ago. HU

*** HIST 240b / RLST 347b / SOCY 331b / WGSS 291b, Sexual Minorities from Plato to the Enlightenment** Igor De Souza

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and

sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham. HU

HIST 244a / HSHM 321a, Cultures of Western Medicine Staff

A survey of Western medicine and its global encounters, encompassing medical theory, practice, institutions, and healers from antiquity to the present. Changing concepts of health, disease, and the body in Europe and America explored in their social, cultural, economic, scientific, technological, and ethical contexts. HU o Course cr

*** HIST 244Jb / HUMS 202b / JDST 354b, Modern Jewish Political Thought: Jewish Politics Through Texts, Philosophy, and History** David Sorkin

This course examines the canonical texts of modern Jewish political thinking from the seventeenth to the late twentieth century. Students engage with the major thinkers and major political movements of the period. WR, HU

HIST 249a / JDST 346a, Making European Culture Jewish: Five Media, 1780–1930 Staff

This course studies the ways in which Jewish writers and artists turned European culture into Jewish culture, that is, how a minority group fashioned its own version of the majority culture. As European Jews encountered European culture and society, they had to grapple with a host of fundamental questions. What was Judaism and who were the Jews: a religion, a history, a culture, a nation? We examine the way in which writers and artists struggled with these issues in five media: memoir, theology, history, fiction, and painting, thereby creating Jewish versions first of Enlightenment, Romanticism, and realism (1780–1870) and then of nationalism, positivism, and modernism (1870–1930). WR, HU o Course cr

*** HIST 260Ja / HSHM 468a, Sex, Life, and Generation** Ivano Dal Prete

Theories and practices of life, sex, and generation in Western civilization. Politics and policies of conception and birth; social control of abortion and infanticide in premodern societies; theories of life and gender; the changing status of the embryo; the lure of artificial life. WR, HU

HIST 265a / RSEE 266a, Soviet Russia 1917–1991 Staff

Overview of the rise and fall of the Soviet Union. Topics include political culture and ideology of the Bolshevik/Communist Party; social and economic changes; foreign policy and the role of WWII; major artistic and cultural movements. Paper assignments involve close readings of memoir and oral history accounts. HU o Course cr

*** HIST 268Ja / JDST 351a / PLSC 466a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** HIST 269Ja, History and Holocaust Testimony** Carolyn Dean

The history and memoirs of Holocaust testimony. How victims' experiences are narrated and assessed by historians. Questions regarding memory and history. WR, HU

HIST 280a / ITAL 315a / RLST 160a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

HIST 303a, Japan's Modern Revolution Staff

A survey of Japan's transformation over the course of the nineteenth century from an isolated, traditional society on the edge of northeast Asia to a modern imperial power. Aspects of political, social, and cultural history. WR, HU o Course cr

HIST 304b / EAST 308b, The History of Modern China, 1911–2025 Staff

An introduction to modern Chinese history spanning from the fall of the Qing Empire to the present. Examines the factors that led to the end of China's dynastic system, the political and social divisions that emerged after the Qing Dynasty's collapse, and the various alternative visions for China's future that have arisen from the late nineteenth century onward. Focuses on aspects of political, economic, and social history. HU o Course cr

HIST 308a, History of Southeast Asia Staff

For centuries, Southeast Asia has been a crossroads of cultures, languages, religions, diasporas, and empires. Few parts of the world are more politically and ecologically diverse. In the twenty-first century, Southeast Asia is one of the most economically vibrant regions of the world, but growth has come with rising inequality. Southeast Asian societies are the front line in feeling the impact of climate change, and Southeast Asian waters are a frontier of geopolitical rivalry. Beginning with a glimpse into ancient Southeast Asia, the class focuses on the early modern and modern eras, with plenty of coverage of the recent past. Key underlying themes include the importance of migration, and the role of the environment – and especially of water – in shaping modern Southeast Asia. Throughout the class, we turn to literary, film, and visual

sources to enhance our understanding of cultural change. By the end of the course, students have a broad understanding of modern Southeast Asian societies and politics. They are also able to discern how Southeast Asia's historical experience offers insights and inspiration in relation to universal challenges—how to live with cultural differences, for instance, or how to adapt to rapid environmental change. HU o Course cr

*** HIST 312b / EAST 407b, Modern China's Borderlands** Staff

News headlines and geopolitical debates alike focus on China's policies towards Taiwan, Tibet, Xinjiang, and other areas on its periphery. But how did these areas come to be regarded as borderlands in the first place? Why does the government of the People's Republic of China see these areas as core to its national interests? How does PRC policy continue or break away from the precedents set by the Qing Empire and the Republic of China? This seminar course explores these questions. Throughout the semester, students engage with a variety of primary and secondary sources as they produce a major research paper on a related topic of their choosing. HU

HIST 321a / EAST 220a, China from Present to Past Staff

Underlying causes of current issues facing China traced back to their origins in the premodern period. Topics include economic development, corruption, environmental crises, gender, and Pacific island disputes. Selected primary-source readings in English, images, videos, and Web resources. Preference given to first years and sophomores. WR, HU o Course cr

HIST 325b / ER&M 345b / LAST 325b, Introduction to Latin American History Anne Eller

Critical themes and events in Latin American history from pre-Columbian times to the present. Major formative epochs such as the pre-Columbian era, colonization, independence, and contemporary moments; modern political flashpoints, including Haiti, Cuba, Argentina, and Peru. HU

*** HIST 326Jb / EAST 326b, Yale and Japan** Daniel Botsman

Exploration of Yale's rich historical connections to Japan. Focus on use of the University's museum and library collections to learn about various aspects of the Japanese past, from ancient times to the post-World War II era. Knowledge of Japanese helpful but not required. WR, HU

HIST 340b / AFST 340b, Africa in the Era of the Slave Trade Robert Harms

Examination of the tumultuous changes experienced by African societies during the era of the Atlantic slave trade, approximately 1450–1850. Focus on the complex interaction between the internal dynamics of African societies and the impact of outside forces. HU o Course cr

*** HIST 341Ja / ENGL 368a / SAST 474a, The Novel and the Nation: Reading India in Vikram Seth's *A Suitable Boy*** Priyasha Mukhopadhyay and Rohit De

This course pairs two interconnected phenomena: the rise of the Indian Republic and the birth of the postcolonial novel. Over the course of the semester, we read a single primary text: Vikram Seth's *A Suitable Boy* (1993). Set in the 1950s in the aftermath of India's Independence and Partition, Seth's encyclopaedic novel is the story of four families brought together by a mother's search for a "suitable boy" for her daughter to marry. In the process, it builds a microcosm of an Indian society coming to terms with postcolonial statehood and weighing the aftereffects of British colonialism. Entwined

in its plot about marriage, love, and relationships are some of the most urgent cultural and political concerns facing the new nation: legislative changes and land reforms, the violent aftermath of the Partition, secularism tainted by communal tensions, the disintegration of courtly forms of sociality, the reconstruction of city life, and the fate of the English novel in the postcolonial classroom. We read *A Suitable Boy* as literary critics and historians, pairing close readings of language and literary form with historical scholarship. Over the course of our discussions, we address the following questions: what is the relationship between the nation, the novel, and identity in the postcolonial world? How do we read narratives of “nation building” as literary and cultural constructions? What do we make of “literature” and “history” as disciplinary categories and formations? The seminar introduces students to methods of literary criticism and textual studies, and teaches them how to read a range of primary sources, from legislative debates, bureaucratic reports, newspapers, poetry, cinema, and radio.

HU

*** HIST 344a / AFST 344a, African Independence: A Cup of Plenty or a Poisoned Chalice?** Staff

In every African colony after World War Two there emerged nationalist movements which no longer called for civil rights as in the pre-war years but demanded self-determination. While many of them got it easy, some had to fight long and bloody wars for it. By the 1960s the colonial edifice had crumbled except for the few settler colonies in southern Africa. But even here the winds of change could not be stopped. But what did decolonization and independence mean to Africa? Did Africans get what they wanted? Was independence a cup of plenty or a poisoned chalice? In addressing these questions, this course charts the economic, political, and cultural transformations of postcolonial Africa from the 1960s to the present. The argument is this: there can be no understanding of Africa's challenges today without an inquiry into the nature of what the continent got from the departing colonial powers. HU o Course cr

*** HIST 352Jb / AFST 352b / AKKD 350b, Culture and Politics in Lusophone Africa, 1885–1992** Benedito Machava

The peculiar nature of Portugal as a colonial power produced a very distinct history in the five Portuguese-speaking African countries, namely Angola, Guiné-Bissau (Guinea-Bissau), Moçambique (Mozambique), and the Atlantic islands of Cabo-Verde (Cape Verde) and São Tomé e Príncipe. Lusophone Africa is a loose term that refers to the world created by Portugal's colonialism in Africa. This course explores this distinct history through the lens of culture and politics. Focusing on the long twentieth century, we consider Lusophone Africa as a study unit, dissecting its disparate societies, cultures, and political trajectories, while remaining anchored in the general context of Africa. Military conquest, colonial rule, race/lusotropicalism, nationalism, and liberation struggle are some of the core themes of the course. We begin with a brief assessment of Portugal's efforts to retain its colonial enclaves amid the voracious expansion of British, French, Belgian, and German presence in Africa in the late 19th century. But our focus is on the twentieth century, from the establishment of the colonial administration in the early 1900s to the fall of the Portuguese empire in 1974. We dedicate a good portion of the term to exploring the multiple ways (cultural and political) in which Africans responded to Portugal's encroachment and how they navigated the color bar that came to dictate their social mobility under colonial rule. We end with the multifaceted longings for self-determination that led to the longest and bloodiest liberation wars

in Africa. Our readings include scholarly essays (old and recent), primary sources, literary works (novels, poetry and short stories), photographs, music and films. We become acquainted with Portuguese-speaking African voices, faces, and places. Luís Bernardo Honwana's collection of short stories in *We Killed Mangy Dog and Other Stories* (1964) and Zezé Gamboa's film *The Great Kilapy* (2012) carry us through the important theme of race and race relations. While cautious in situating the discussion of race in its historical context, these and other materials challenge us to think about race relations and emancipation in our time. WR, HU

HIST 361a / LAST 361a, History of Brazil Staff

Brazilian history from European contact to the reestablishment of civilian government in the 1990s. Focus on the multiethnic nature of Brazilian society, the formation of social and political patterns, and the relationship of people to the environment. HU
o Course cr

*** HIST 365Jb, Law and History in China** Maura Dykstra

This seminar takes scholars on a journey through the laws and the history of China. We encounter a series of case studies: scholarly analyses of sets of historical materials from different periods and various contexts that illustrate types of law and ways of writing history. Students read and analyze a wide variety of case materials: legal sources, trial accounts, printed records, and archival materials from different times and places in Chinese history to familiarize themselves with a range of texts used to narrate and analyze histories of law. At the same time, students familiarize themselves with materials used to study the law, and discuss and critique a diverse range of case studies written for various audiences. Working simultaneously with case materials and case studies, students become familiar with both the range of sources and the variety of methods used to study law and history in China. The seminar is open to students with all levels of Chinese language comprehension. WR, HU

*** HIST 366Ja / AFST 368a / EVST 369a, Commodities of Colonialism in Africa**
Robert Harms

This course examines historical case studies of several significant global commodities produced in Africa to explore interactions between world market forces and African resources and societies. Through the lens of four specific commodities—ivory, rubber, cotton, and diamonds—this course evaluates diverse industries and their historical trajectories in sub-Saharan Africa within a global context from ~1870–1990s. Students become acquainted with the historical method by developing their own research paper on a commodity using both primary and secondary sources. WR, HU

*** HIST 367a / AFST 366a / EP&E 305a / PLSC 364a, Bureaucracy in Africa: Revolution, Genocide, and Apartheid** Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

HIST 368a / ER&M 368a / LAST 368a, Political Violence, Citizenship, and Democracy in Latin America Staff

Exploration of how and when definitions of citizenship and democracy have been shaped by violent conflicts; how local and global contexts have influenced individual and collective political action; and the transformation of leadership, ideologies, and utopias in different Latin American contexts. WR, HU o Course cr

*** HIST 370Ja, The Arabic Atlantic** Alan Mikhail

This course begins with advent of colonialism in the Americas in order to rethink the ways in which race and religion comingled in histories of conquest, genocide, and slavery that bridge, but also to sort through the differences between the Atlantic, Caribbean and Mediterranean worlds. The course examines and conceptualizes how the Middle East *figured* in European imperial projects in the Western Hemisphere. It starts with the Papal sanction of Spanish and Portuguese colonial projects in the Americas as a continuation of their expulsion of the Moors from Iberia and proceeds to examine the histories of enslaved Black Muslims. A visit to the Beinecke Library and the Yale Archives to examine Ezra Stiles' collection of Hebrew and Arabic texts and the 'moorish' identity of the boy he enslaved brings our inquiry closer to home. Additional visits to the archives of American missionary societies active in the Middle East, which are housed at the Yale Divinity School, invites students to examine primary sources linking Yale and New Haven to the Middle East. Our class ends in 1887 with Frederick Douglass' visit to Egypt and the concurrent histories of officers in the US Confederacy who served in the Egyptian military. By examining how the Middle East came to appear in European imperial projects in the Americas, we can more critically understand how American and European colonizers, missionaries, and travelers came to appear in the Middle East. Topics include toleration and violence, women and gender, settler colonialism, slavery, ecological and climatic changes, and the birth of financial capitalism. The study of the Mediterranean, Caribbean, and the Americas. WR, HU

*** HIST 372Jb / ER&M 342b / LAST 372b, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

*** HIST 378a / AFAM 375a / AMST 465a / FREN 365a / LITR 377a, Haiti in the Age of Revolutions** Marlene Daut

The Haitian Revolution (1791-1804) was an event of monumental world-historical significance. This class studies the collection of slave revolts and military strikes beginning in August of 1791 that resulted in the eventual abolition of slavery in the French colony of Saint-Domingue and its subsequent independence and rebirth in January of 1804 as Haiti, the first independent and slavery-free nation of the American hemisphere. Considering Haiti's war of independence in the broader context of the Age of Revolutions, we cover topics such as enlightenment thought, natural history, the workings and politics of the printing press, and representations of the Haitian Revolution in art, literature, music, and in various kinds of historical writings and archival documents. Students develop an understanding of the relevant scholarship on the Haitian Revolution as they consider the relationship of this important event to

the way it was written about both as it unfolded and in its long wake leading up to the present day. WR, HU

*** HIST 385b / EAST 423b, Tibet in the Modern World – A 20th-Century History**

Staff

This course delves into Tibet's modern history, covering the late nineteenth century to the present. It situates Tibet's history within the emerging ideological and political landscape shaped by the globalizing force of colonial modernity. By examining pivotal moments in twentieth-century Tibetan history, this course discusses the gradual transformation of the Tibetan world as it encountered new ideas, institutions, and practices from the modern West, often mediated through modern China and colonial and post-colonial India. Emphasizing that the present state of Tibet's future was not predetermined, the course delves into the diverse visions for Tibet's destiny that emerged at the beginning of the twentieth century. By exploring these overlooked and unrealized possibilities, it underscores the contingent and contested nature of Tibet's modern history. As such, this course may particularly interest students exploring themes of modernity, nationalism, colonialism, and exile. Through the incorporation of primary sources, students engage directly with first-hand accounts and historical materials, fostering a more intimate understanding of modern Tibetan history. HU

*** HIST 388Ja, Slavery and the Slave Trade in Africa** Robert Harms

The slave trade from the African perspective. Analysis of why slavery developed in Africa and how it operated. The long-term social, political, and economic effects of the Atlantic slave trade. WR, HU

HIST 396b / SAST 224b, India and Pakistan since 1947 Rohit De

Introduction to the history of the Indian subcontinent from 1947 to the present. Focus on the emergence of modern forms of life and thought, the impact of the partition on state and society, and the challenges of democracy and development. Transformations of society, economy, and culture; state building; economic policy. HU o Course cr

*** HIST 396Ja / AFST 396a, Revolutions and Socialist Experiments in Africa**

Benedito Machava

This seminar explores the contours of Africa's embrace and engagement with the most influential ideology of the twentieth-century. Why, and through which channels, were Africans attracted to socialism? Did particular forms of colonialism and decolonization push African political actors towards revolution and socialist experiments? Is it legitimate, as some scholars have suggested, to speak of genuinely African socialisms? If so, what was the nature of these socialisms and how did they differ from the versions of socialism around the world? What political, social, economic, and cultural ends did socialism serve in Africa? And what were the consequences and legacies of African socialist experiments? The seminar addresses these questions. Our goal is to place Africa in the mainstream of conversations about socialism. We begin with the assumption that, like any doctrine, socialism was the object of multiple interpretations, modification, and appropriation from its inception. In so doing, we challenge orthodox understandings of socialism, which hold the European versions as the pure models and the rest as diluted if not populist façades of the 'true' doctrine. We begin with theoretical readings that help us situate the major debates about socialism in general and socialism in Africa. We then proceed to examine the overall historical context in which African nationalists adopted socialism. We differentiate the first branch of "African Socialism" from the second wave of "Afro-Marxism." We also pay close

attention to issues of decolonization and political imagination; ideas and experiments of development; gender, morality, and social engineering. WR, HU

*** HIST 398Ja / MMES 300a / RSEE 329a / RUSS 329a, Introduction to Modern Central Asia** Claire Roosien

An overview of the history of modern Central Asia—modern-day Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, Uzbekistan, and the Xinjiang Uyghur Autonomous Region of the People's Republic of China. This course shows Central Asia to be a pivotal participant in some of the major global issues of the 20th and 21st centuries, from environmental degradation and Cold War, to women's emancipation and postcolonial nation-building, to religion and the rise of mass society. It also includes an overview of the region's longer history, of the conquests by the Russian and Chinese empires, the rise of Islamic modernist reform movements, the Bolshevik victory, World War II, the *perestroika*, and the projects of post-Soviet nation-building. Readings in history are supplemented by such primary sources as novels and poetry, films and songs, government decrees, travelogues, courtly chronicles, and the periodical press. All readings and discussions in English. HU

*** HIST 403Jb / HSHM 473b, Vaccination in Historical Perspective** Jason Schwartz
For over two centuries, vaccination has been a prominent, effective, and at times controversial component of public health activities in the United States and around the world. Despite the novelty of many aspects of contemporary vaccines and vaccination programs, they reflect a rich and often contested history that combines questions of science, medicine, public health, global health, economics, law, and ethics, among other topics. This course examines the history of vaccines and vaccination programs, with a particular focus on the 20th and 21st centuries and on the historical roots of contemporary issues in U.S. and global vaccination policy. Students gain a thorough, historically grounded understanding of the scope and design of vaccination efforts, past and present, and the interconnected social, cultural, and political issues that vaccination has raised throughout its history and continues to raise today. HU

*** HIST 404a / EDST 281a / HUMS 303a / PLSC 281a, What is the University?**
Mordechai Levy-Eichel

The University is one of the most influential—and underexamined—kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims

of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

*** HIST 412Jb / HUMS 261b / NELC 364b / RLST 264b, The Psalms, A Cultural History of Ancient Prayer** Stephen Davis

This course introduces students to the Book of Psalms and its significant cultural and religious impact in ancient Judaism, Christianity, and Islam. The course is organized in three units. Unit 1 focuses on the text of the Psalms, with special attention to their literary forms, editorial organization, and early ritual context in ancient Israel. Unit 2 focuses on the reception and use of the Psalms in late ancient Judaism, Christianity, and Islam, with special attention to matters of translation, interpretation, worship, prayer, and scriptural authority. Unit 3 focuses on material and sensory encounters with the Psalms from antiquity to the present day within these three religious traditions—case studies related to tactile and visual contact with the physical book, oral and aural engagement through song or chant, and embodied forms of writing, reciting, and enacting the Psalms in the context of ritual practice, including magical spells. The goal of the course is thus to trace the life and afterlife—to write the textual and extra-textual “biography,” as it were—of a major biblical book. HU

*** HIST 417Jb / HSHM 425b, Science Fiction and Prediction: Histories of Utopia, Apocalypse, and the Future** Staff

Climate catastrophe. AI Singularity. Viral mutation. Mars colonization. Everywhere you look today, scientists, journalists, and regular social media users are making predictions about the future. Throughout this course, we take a historical approach to how scientists and science fiction writers have tried to predict the future—or bring about a better one—using the rhetoric and cultural authority of science. Embracing the fuzzy boundaries of between science fiction and science prediction, we survey a variety of speculative utopian plans, dystopian nightmares, and apocalyptic visions of the future, along with secondary literature from historians and scholars of literature. How and why have scientists and scientific ideas been imagined as resources for solving social problems? How can we use predictions about the future to understand the past? This seminar appeals to students interested in the history of science and medicine, literature, politics, technology, and environmental studies. WR, HU

HIST 433a / GLBL 433a, The Twentieth Century: A World History Staff

For most people, almost everywhere, the twentieth century was a time of profound and accelerating change. Someone born in the 1890s could, if they lived a long life, have experienced two world wars, a global depression, collapse of empires, the enfranchisement of women and young people, and the rise of the United States to global power. They could have witnessed the first cars, the first planes, the first radios and TVs, and the first computers. They could have been among the first to swear allegiance to one (or several of 130 new states, almost twice the number that existed in 1900. They would have been certain to witness massive ecological destruction, as well as unparalleled advances in medicine, science, and the arts. The twentieth century was, as one historian puts it, an age of extremes, and in this class we explore some of these aspects of the age. The class is not intended to be a complete history nor is it one that provides an integrative interpretation of historical events. The aim is rather to enable students to know enough to think for themselves about the origins of today’s world and about how historical change is created. HU o Course cr

*** HIST 444Jb / HSHM 418b / WGSS 435b, Queer Science** Joanna Radin and Juno Richards

Why are there so many studies involving trans brain scans? Can facial recognition technology really tell if you're queer? Why is everyone so obsessed with gay penguins? For that matter, how did science come to be the right tool for defining and knowing sex, gender, and sexuality at all? How does that history influence our collective lives in the present, and what are some alternatives? This course gives students a background in the development of sex science, from evolutionary arguments that racialized sexual dimorphism to the contemporary technologies that claim to be able to get at bodily truths that are supposedly more real than identity. It introduces scholarly and political interventions that have attempted to short-circuit the idea that sex is stable and knowable by science, highlighting ways that queer and queering thinkers have challenged the stability of sexual categories. It concludes by asking how to put those interventions into practice when so much of the fight for queer rights, autonomy, and survival has been rooted in categorical recognition by the state, and by considering whether science can be made queer. HU

*** HIST 447Jb / HSHM 467b / WGSS 465b, History of the Body** Ziv Eisenberg
What does it mean to have a “bad hair day?” How should you care for your skin? What happens when you eat a burger and drink wine? How are babies made? What happens when you die? The answers depend not only on who provides them, but also on where and when. This seminar examines historical production of systems of corporeal knowledge and power, as well as the norms, practices, meanings, and power structures they have created, displaced, and maintained. Structured thematically, the course familiarizes students with major topics in the history of the body, health, and medicine, with a particular focus on US history. WR, HU

*** HIST 449Jb / EVST 349b / HSHM 449b / HUMS 446b / URBN 382b, Critical Data Visualization: History, Theory, and Practice** Bill Rankin

Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshopping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

*** HIST 459a / EVST 228a / HUMS 228a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

HIST 465b / EVST 209b / HSHM 209b, Making Climate Knowledge Deborah Coen
This is a course about *how* humans have come to know what we know about our impacts on the earth's climate and our vulnerability to climate change. When did

humans first *know* that their actions, in the aggregate, could transform the planet? Did scientists bear responsibility to warn of these consequences? In what ways has the modern science of climate both appropriated and undermined traditional and indigenous forms of climate knowledge? Students learn to work with the methods of history of science: we analyze science as a social and material process bound to the cultural and epistemological particularities of its historical context, and we examine the political dimensions of historical narratives about the emergence of the theory of global warming. Via hands-on experience with Yale's historical collections, students learn to analyze maps, artifacts, and instruments as historical sources. They also gain familiarity with the methods of environmental history, learning to attend to historical evidence of shifting relationships between humans and non-humans. Finally, students become more attuned to the evidence of climate change around them and more confident in their ability to make climate knowledge for themselves. HU

* **HIST 467Ja / HSHM 422a, Cartography, Territory, and Identity** Bill Rankin
Exploration of how maps shape assumptions about territory, land, sovereignty, and identity. The relationship between scientific cartography and conquest, the geography of statecraft, religious cartographies, encounters between Western and non-Western cultures, and reactions to cartographic objectivity. Students make their own maps. No previous experience in cartography or graphic design required. WR, HU

* **HIST 483Ja / GLBL 344a / PLSC 161a, Studies in Grand Strategy II** Arne Westad and Michael Brenes
The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. SO

* **HIST 490Ja / HSHM 429a, Decolonizing the Mind** Nana Osei Quarshie
This seminar explores the effects of colonialism and post-colonial power relations on the production of scientific, medical, and embodied knowledge about psychiatry. First, we read debates over the geographies of power and distrust in medicine. How have colonialism and post-colonial power relations defined the tasks of non-European psychiatry? What does it mean to decolonize psychiatric practice or culture? Second, we examine the nature of rationality. Is reason singular, plural, or culturally bound or universal? To what extent is spirit possession a rational experience? Third, we explore the relationship between scientific representations, social practices, and local culture. What relationship exists between social practices and culturally shared categories of knowledge? Is psychiatry universalizable? Students learn to analyze and debate these questions by drawing on films, letters, photography, and monographs produced in and about Algeria, Argentina, Brazil, China, Cuba, Indonesia, and Vietnam. WR, HU, SO

* **HIST 494a or b, Individual Writing Tutorial** Daniel Magaziner
For students who wish, under the supervision of a member of the faculty, to investigate an area of history not covered by regular departmental offerings. The course may be used for research or for directed reading. It is normally taken only once. The emphasis

of the tutorial is on writing a long essay or several short ones. To apply for admission, a student should present the following materials to the director of undergraduate studies on the Friday before schedules are due: a prospectus of the work proposed, a bibliography, and a letter of support from a member of the History department faculty who will direct the tutorial. A form to simplify this process is available from the office of the director of undergraduate studies.

*** HIST 495a or b and HIST 496a or b, The Senior Essay** Anne Eller

All senior History majors should attend the mandatory senior essay meeting in early September at a time and location to be announced in the online Senior Essay Handbook. The senior essay is a required one- or two-term independent research project conducted under the guidance of a faculty adviser. As a significant work of primary-source research, it serves as the capstone project of the History major. Students writing the one-term senior essay enroll in HIST 497 (see description), not HIST 495 and 496. The two-term essay takes the form of a substantial article, not longer than 12,500 words (approximately forty to fifty double-spaced typewritten pages). This is a maximum limit; there is no minimum requirement. Length will vary according to the topic and the historical techniques employed. Students writing the two-term senior essay who expect to graduate in May enroll in HIST 495 during the fall term and complete their essays in HIST 496 in the spring term. December graduates enroll in HIST 495 in the spring term and complete their essays in HIST 496 during the following fall term; students planning to begin their essay in the spring term should notify the senior essay director by early December. Each student majoring in History must present a completed Statement of Intention, signed by a department member who has agreed to serve as adviser, to the History Department Undergraduate Registrar by the dates indicated in the Senior Essay Handbook. Blank statement forms are available from the History Undergraduate Registrar and in the Senior Essay handbook. Students enrolled in HIST 495 submit to the administrator in 237 HGS a two-to-three-page analysis of a single primary source, a draft bibliographic essay, and at least ten pages of the essay by the deadlines listed in the Senior Essay Handbook. Those who meet these requirements receive a temporary grade of SAT for the fall term, which will be changed to the grade received by the essay upon its completion. Failure to meet any requirement may result in the student's being asked to withdraw from HIST 495. Students enrolled in HIST 496 must submit a completed essay to 211 HGS no later than 5 p.m. on the dates indicated in the Senior Essay Handbook. Essays submitted after 5 p.m. will be considered as having been turned in on the following day. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade for the first day and one-half letter grade for each of the next two days past the deadline. No essay that would otherwise pass will be failed because it is late, but late essays will not be considered for departmental or Yale College prizes. All senior departmental essays will be judged by members of the faculty other than the adviser. In order to graduate from Yale College, a student majoring in History must achieve a passing grade on the departmental essay.

*** HIST 497a or b, One-Term Senior Essay** Anne Eller

All senior History majors should attend the mandatory senior essay meeting in early September at a time and location to be announced in the online Senior Essay Handbook. The senior essay is a required one- or two-term independent research project conducted under the guidance of a faculty adviser. As a significant work of

primary-source research, it serves as the capstone project of the History major. Seniors writing a two-term senior essay do not register for HIST 497; instead, they register for HIST 495 and HIST 496 (see description). History majors may choose to write a one-term independent senior essay in the first term of their senior year and register for HIST 497; however, students who choose the one-term senior essay option are not eligible for Distinction in the Major. The one-term essay must include a substantial research paper of no more than 6,250 words (approximately twenty-five pages) based on primary sources, along with a bibliographic essay and bibliography. Seniors enroll during the fall term of senior year; only History majors graduating in December may enroll during the spring term (or seventh term of enrollment). In rare circumstances, with the permission of the adviser and the Senior Essay Director, a student enrolled in HIST 497 during the fall term may withdraw from the course according to Yale College regulations on course withdrawal and enroll in the spring term. Each student enrolled in HIST 497 must present a completed Statement of Intention, signed by a department member who has agreed to serve as adviser, to the History Department Undergraduate Registrar by the dates indicated in the Senior Essay Handbook. Blank statement forms are available from the History Undergraduate Registrar and in the Senior Essay Handbook, available on the History department Web site. Additional details about the senior essay, including the submission deadlines are included in the Senior Essay Handbook. Essays submitted after 5 p.m. on the due date will be considered as having been turned in on the following day. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade for the first day and one-half letter grade for each of the next two days past the deadline. No essay that would otherwise pass will be failed because it is late. All senior departmental essays will be judged by members of the faculty other than the adviser. In order to graduate from Yale College, a student majoring in History must achieve a passing grade on the departmental essay. Permission of the departmental Senior Essay Director and of the student's faculty adviser is required for enrollment.

History of Art (HSAR)

* **HSAR 016b / EAST 016b, Chinese Painting and Culture** Quincy Ngan

This course focuses on important works of Chinese painting and major painters from the fourth century CE to the twentieth century. Through close readings of the pictorial contents and production contexts of such works of art, this course investigates the works' formats, meanings, and innovations from social, historical, and art-historical perspectives. In this course, students become familiar with the traditional Chinese world and acquire the knowledge necessary to be an informed viewer of Chinese painting. Discussions of religion, folkloric beliefs, literature, relationships between men and women, the worship of mountains, the laments of scholars, and the tastes of emperors and wealthy merchants also allow students to understand the cultural roots of contemporary China. Enrollment limited to first-year students. HU

* **HSAR 022a / CLCV 022a, Imagining the Invisible in the Roman World** Alexander Ekserdjian

Ancient Mediterranean people were surrounded by images of 'invisible' things — the gods, the dead, and even a few ghosts. Seeing the gods themselves 'in the flesh' happened only rarely for the Romans, but images of those same divinities were everywhere — at home, in the marketplace, and at colossal scale in temples and

sanctuaries. This course analyzes the ways in which Romans imagined these ‘invisible’ beings, excavating their imaginings through texts and objects. The material covered traces ancient imagination of invisible beings from Celtic cauldrons to Roman poets, and marble statues to painted synagogues. By looking at how the ‘invisible’ was represented we may discover much about how these unseen beings were understood, but also something about how Roman art worked as a representational system.

Enrollment limited to first-year students. WR, HU

HSAR 150a / ARCH 272a / RLST 262a, Introduction to the History of Art: Art and Architecture of the Sacred Staff

A wide-ranging, cross-temporal exploration of religious images, objects, and architecture in diverse cultures, from ancient Mesopotamia to modern Manhattan. Buddhist, Christian, Hindu, Jewish, Muslim, and various polytheistic traditions are represented. Thematic threads include the human body; transformations of nature; death, memory, and afterlife; sacred kingship and other forms of political engagement; practices of concealment and revelation; images as embodiments of the divine; the framing and staging of ritual through architecture. HU o Course cr

HSAR 160b, Art and Technology Pamela Lee

This global introductory course broadly surveys the relationship between art and technology from parietal art (the art of prehistoric caves and rock art) to the rise of NFTs (“non-fungible tokens”) within contemporary digital culture. Departing from the notion of “techne” as craftsmanship or art, we consider the ways in which the history of art is always informed by histories of technology; and that histories of technology are often advanced through practices of art making. Topics include technologies for representing space in European and Asian painting and the centrality of Arab science in the development of linear perspective during the Renaissance; histories of textiles as data storage before the advent of the computer; the cybernetic revolution and the rise of computers; biometrics and surveillance; machine learning and art without artists. Objects include textiles, sculpture, painting, prints, photography and video, as well as sound, digital platforms and AI-generated artifacts. The course aims to de-center triumphal and universalist notions of technological achievement and ideologies of “progress” that inform contemporary cultures of media and technology. We pay special attention to the interests of race and gender throughout the semester. This course is open to all, including those with no prior background in art history. Sections may include visits to collections and sites across Yale campus. HU o Course cr

HSAR 210a / EAST 119a, Asian Art and Culture Staff

This introductory course explores the art of India, China, Japan, and Korea from prehistory to the present. We consider major works and monuments from all four regions. Themes include the representation of nature and the body, the intersection of art with spirituality and politics, and everything from elite to consumer culture. All students welcome, including those who have no previous experience with either art history or the study of Asian art. This class makes frequent visits to Yale University Art Gallery. HU o Course cr

*** HSAR 217a / AMST 117a, American Art to 1900** Staff

This course offers a survey of American art from European colonization of the continent to the establishment of a US overseas empire circa 1900. Through paintings, sculpture, prints, drawings, photographs, and material culture, we consider the role of the visual arts in settler colonialism and nation building, in the invention of race and enforcement

of its categories, and in the construction of citizenship. Throughout the term we think about how American art is shaped within wider Atlantic, Pacific, and Caribbean worlds. We look at plantation and “frontier” landscapes, the art of natural history, the cult of presidential images, the emergence of photojournalism, the creation of the modern museum, and the politics of public monuments. The aim of this course is three-fold: to acquire a foundational understanding of the art and visual culture of the United States, to situate the visual in the context of a historical and cultural framework, and to learn how to think and write about objects. The course is open to students at all levels, including those with no prior background in art history. HU o Course cr

HSAR 220a, Introduction to Contemporary Art Staff

Introduction of the pivotal figures, tendencies, and criticism of the art of the last three decades, exploring questions of material, form, media, process, and aesthetics relative to social, political, and economic issues. Popular media depict contemporary art as luxury goods for celebrities, oligarchs, and elites. This class provides a historical and theoretically nuanced picture of recent art and its critical reception. Some art history recommended but not required. HU o Course cr

HSAR 221b / RUSS 220b, Russian and Soviet Art, 1757 to the Present Molly Brunson

The history of Russian and Soviet art from the foundation of the Academy of the Arts in 1757 to the present. Nineteenth-century academicism, romanticism, and realism; the Russian avant-garde and early Soviet experimentation; socialist realism and late- and post-Soviet culture. Readings and discussion in English. HU TR o Course cr

*** HSAR 230a / LAST 230a, Illustrating Andean History: The Work of Guaman Poma**

Catalina Ospina

One of the most famous manuscripts to survive from the Spanish colonial Americas is the 1615 *El primer nueva corónica y buen gobierno* (The First New Chronicle, and Good Government, often called *Nueva corónica* or *New Chronicle*). The author was Indigenous Andean Felipe Guaman Poma de Ayala (c. 1535–c. 1616). This work is one of the most important sources for understanding Inka culture and colonial rule from an Indigenous perspective. It consists of 1,189 pages with 398 full-page ink line drawings. Few illustrated manuscripts survive from this period, and Guaman Poma's has no rival. The *New Chronicle* was written in Peru in Spanish, Quechua, Aymara, and Latin. But one might even consider the many images a fifth, purely visual language that combined Andean and European representation systems. Its images have become the most common illustrations of Andean history. In this course, we delve into the work's history and many-layered subtleties of its images to understand its import and the legacy of this Indigenous author. o Course cr

HSAR 247a / ARCG 161a / CLCV 161a, Art and Myth in Greek Antiquity Staff

Visual exploration of Greek mythology through the study of ancient Greek art and architecture. Greek gods, heroes, and mythological scenes foundational to Western culture; the complex nature of Greek mythology; how art and architecture rendered myths ever present in ancient Greek daily experience; ways in which visual representations can articulate stories. Use of collections in the Yale University Art Gallery. HU o Course cr

HSAR 252a, The Mexican Codices: Art and Knowledge Staff

This lecture course examines painted manuscripts (or codices) among the Nahua, Mixtec, and Maya people of Mexico, from the 15th through 16th centuries. We explore

the Mexican codices as carriers of social, historical, and divinatory knowledge; the role of painted almanacs, histories, and maps in Mesoamerican thought and societies; and how Indigenous and European book traditions shaped the colonial encounter. HU o Course cr

HSAR 257a, Modernism's Social Life Staff

What was the social life of modernism? What might it still be today? This course is an introduction to European and North American modern art through its social networks and structures: gathering spaces, salons, schools, and stomping grounds, along with political solidarities and coalitions. We meet key figures from the history of modernism and the avant-garde (artists such as Pablo Picasso, Henri Matisse, Sophie Taeuber-Arp, Marcel Duchamp, Augusta Savage, and Isamu Noguchi) in the context of their pedagogical, political, and intimate associations. Along the way, lectures introduce a fresh cast of characters whose vision, labor, or material support made possible more familiar narratives of art history. We focus on artworks that ask us to think anew about modern art's collective purpose as well as its communal pleasures. HU o Course cr

HSAR 282b / HSHM 237b / WGSS 282b, Renaissance Bodies: Art, Magic, Science

Marisa Bass

An introduction to issues surrounding the representation of the body in both art and science, spanning from the late Middle Ages to the seventeenth century, and with a particular focus on the Northern Renaissance. Topics include medicine, reproduction, witchcraft, the gender spectrum, torture, race, disability, desire, dreams, and theories of imagination and invention. Sections and assignments will make ample use of the Yale collections. Previous experience with art history welcome but not required. HU

HSAR 286a / ARCH 302a, Renaissance Architecture: A Global History Staff

The period known as the Renaissance (1400–1600) witnessed the rise and spread of ambitious new forms of architecture. During this era, builders pushed an earlier tradition of gothic design toward unprecedented heights of structural daring and ornamental expression. At the same time, they found inspiration in ancient pagan and non-European monuments, which offered alternative models of technical virtuosity, material splendor, and magnificence. Engineers invented fortifications of colossal scale to combat powerful gunpowder weapons, while new media such as print transmitted architectural designs across the globe. This course explores such developments across Europe and its cultural and colonial networks in Asia, Africa, and Latin America. It surveys a wide range of Renaissance building types, from palaces and gardens to churches, civic buildings, and urban infrastructure. Lectures consider how buildings and cities were reshaped by urban elites, absolutist monarchs, religious warfare, paper and print, and global expansion. Along the way, the course equips students with critical visual-technical skills and language to describe and interpret the built environment. Majors and non-majors of all years are welcome. Graduate students may register with advanced coursework. HU o Course cr

HSAR 290b, Arts of the Silk Road Mimi Yiengpruksawan

This course offers a visual history of the art objects and other material goods that people set in motion, physically and imaginatively, across the Silk Roads regions of Eurasia from antiquity through the beginnings of the medieval era. It ranges across a variety of cultural productions and sites encompassing the agrarian and nomadic zones

of Eurasia from the Bronze Age through the 7th-century rise of the first Caliphates in the west and the efflorescence of the Sui-Tang cosmopolis in the east. HU o Course cr

HSAR 315a, Nineteenth-Century French Art Staff

European art produced between the French Revolution and the beginning of the twentieth century. Focus on French painting, with additional discussion of Spanish, English, and German art. Some attention to developments in photography, printmaking, and sculpture. HU o Course cr

HSAR 326a / ARCH 260a, History of Architecture to 1750 Staff

Introduction to the history of architecture from antiquity to the dawn of the Enlightenment, focusing on narratives that continue to inform the present. The course begins in Africa and Mesopotamia, follows routes from the Mediterranean into Asia and back to Rome, Byzantium, and the Middle East, and then circulates back to mediaeval Europe, before juxtaposing the indigenous structures of Africa and America with the increasingly global fabrications of the Renaissance and Baroque. Emphasis on challenging preconceptions, developing visual intelligence, and learning to read architecture as a story that can both register and transcend place and time, embodying ideas within material structures that survive across the centuries in often unexpected ways. HU o Course cr

HSAR 348a, Arts of Japan I Mimi Yiengpruksawan

Survey of major monuments in the visual arts of ancient and early medieval Japan with attention to the conditions and thought worlds of cultural production. Emphasis on the arts practices and philosophies of Buddhism and Shintō in juxtaposition with the courtly arts from narrative handscrolls to integrations of poetry and painting in landscape screens and picture albums. HU o Course cr

*** HSAR 354a / RSEE 309a / RUSS 309a, Art and the Arctic** Molly Brunson

This seminar asks how the arctic took shape as an aesthetically contested ground in the visual art, literature, material culture, and popular media of the nineteenth century. How did national styles make claims on a stateless landscape? In what ways was the circumpolar region gendered and racialized? And how did these questions shape the emergence of a northern modernism too often neglected in histories of art? Questions of whiteness, exploration, and exploitation will be considered in the works of Russian, Nordic, and Sami artists from the nineteenth and early twentieth centuries. HU

*** HSAR 373b / FREN 405b / HIST 204Jb / HUMS 453b, Notre-Dame de Paris**

R. Howard Bloch and Paul Freedman

Against the background of Gothic cathedral building in the High Middle Ages, we study from multiple perspectives the building of Notre-Dame within the teaching and preaching culture of the twelfth and thirteenth centuries, with special focus on medieval Paris. Interdisciplinary materials include religious, literary, historical, and philosophic works alongside of music and the visuals—stained glass and sculpture—that are such an integral part of Gothic architecture. We also consider the history of Notre-Dame de Paris since the Middle Ages, especially Viollet-le-Duc's nineteenth-century restoration, to be read alongside Victor Hugo's *Notre-Dame of Paris*, and in the context of the rebuilding and reopening after the fire of 2019. WR, HU

*** HSAR 401a, Critical Approaches to Art History** Allison Caplan

A wide-ranging introduction to the methods of the art historian and the history of the discipline. Themes include connoisseurship, iconography, formalism, and selected methodologies informed by contemporary theory. WR, HU

*** HSAR 420a / LAST 420a, Techniques of the Body in Latin American Art** Catalina Ospina

In a 1934 article titled “Techniques of the Body,” anthropologist Marcel Mauss argued that culture defines the ways bodies are used and trained. Mauss’s insight has sprung a series of studies on embodiment that examine how bodies are culturally construed. Engaging literature on embodiment from diverse disciplines—including philosophy, anthropology, and cognitive science—this course investigates how cultural understandings of the body inform the meaning of artmaking and art-experiencing practices. Discussions center on artworks from Latin America from the Pre-Hispanic to the Contemporary period—including Nazca lines, Maya ceramics, colonial-era mopa mopa, the early 20th-century Anthropophagy movement in Brazil, Hélio Oiticica’s and Lygia Clark’s works from the 1950s and 1970s, and the works of Beatriz Gonzales and Doris Salcedo from the 1980s and 1990s. Discussing these works, students address questions ranging from super-human scale to the diverse strategies artworks use to invoke bodies metonymically. Comparative artworks from other cultures and periods show the applicability of this methodology beyond Latin American art. The course incorporates hands-on components and employs artifacts from Yale’s museums. HU

*** HSAR 447b / AMST 310b, The American West: Art, Land, Politics** Jennifer Raab
The American West holds a powerful place in the cultural and political imagination of the United States. This seminar considers changing conceptions of the land across media—from maps and guidebooks, to paintings, panoramas, and photographs, to earth art and satellite imagery. We examine the politics of water rights; artists’ engagement with ecological questions; the representation of railroads, National Parks, ghost towns, and highways; the mythology of the frontier; and the visual construction of settler colonialism and indigenous resistance. The course emphasizes close attention to works of art, archival research, and developing term papers that engage with the Beinecke’s extraordinary Western Americana Collection. Classes are held at the Beinecke as well as the Yale University Art Gallery, the Yale Center for British Art, and the Peabody Museum. HU

*** HSAR 455b, Conceptualization of Space** Craig Buckley

Introduction to the discipline of architecture through the elusive concept of space. This course traces key shifts in the conceptualization of space in aesthetics and architectural theory from the eighteenth century through to the present. HU

*** HSAR 456a / MMES 456a, Art and Politics in the Modern Middle East** Kishwar Rizvi

Political ideologies have either unified the modern Middle East, such as Pan-Arabism of the 1960s and Islamism of the 1980s, or caused deep ruptures, such as Zionism and sectarianism. Examination of the art and architectural productions that have gone hand-in-hand with these political developments from the nineteenth century until present day. Poetic, visual, and urban interventions document the profound changes that have defined the countries of this region, while connecting them to political movements throughout the world. WR, HU

*** HSAR 457a, Japanese Gardens** Mimi Yiengpruksawan

Arts and theory of the Japanese garden with emphasis on the role of the anthropogenic landscape from aesthetics to environmental precarity, including the concept of refugium. Case studies of influential Kyoto gardens from the 11th through 15th centuries, and their significance as cultural productions with ecological implications.

HU

*** HSAR 460a / ENGL 419a / HUMS 185a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

*** HSAR 466a, The Technical Examination of Art** Anne Gunnison and Irma Passeri
The primary aim of this course is to develop the skills to closely examine the physical nature of a range of art objects in order to recognize the materials and techniques used at the time of their creation and their layered histories (e.g. use, display, degradation, restoration, and conservation). Understanding techniques and materials can assist in both placing the object in its broader historical context and, in turn, informing that historical context. Students come away from this course with an appreciation for close looking to understand, question, and interpret materials and technique. In seminars taught by conservators from the Art Gallery (YUAG) and other institutions, students examine paintings and objects selected from the Gallery's collections and made available for examination in the Gallery's classrooms, learning about artists materials from ancient to modern. Appropriate methods of examination including microscopy, ultraviolet radiation, infrared imaging, x-radiography, and non-destructive methods of analysis are introduced by instructors, as well as scientists from the Institute for the Preservation of Cultural Heritage (IPCH).

*** HSAR 469b / EAST 469b, Contemporary Art and Culture in China** Quincy Ngan
This course is an introduction to the art and culture of contemporary China, covering the period from 1960s to the present day. It focuses on art objects, performances, propaganda, and exhibitions produced by the government, the business sector, curators, and avant-garde artists in Mainland China. We also look at China's Olympic stadiums, the Three Gorges Dam, and skyscrapers (including those in Hong Kong and Taiwan). Class meetings discuss the required readings and investigate artworks, films, and events that speak to China's political ideologies, society, and economy, as well as its role in globalization and international conflicts. To establish a cross-cultural interpretation, this class also explores how Euro-American artists and filmmakers used their arts to express their views on contemporary China.

*** HSAR 474b, Histories and Critiques of the Art Museum** Tim Barringer

The art museum is an institution with an active ideological and social role, which has a decisive impact on the formation of art historical knowledge. Urgent questions in contemporary museology include: Can we decolonize the museum? How can museums become more inclusive? Should collections be returned to communities of origin? This course examines the recent literature on the history of art museums, opening up theoretical and methodological as well as substantive and historical issues. It also provides a broad survey of the development of the art museum from the French Revolution to the present day. Issues under investigation include: the formation

of histories for art through the hanging of collections; questions of representation of women, ethnic and cultural groups in museum collections; the definition and promulgation of nationalism and ‘schools’ of art; the relationship between the art museum and Modernism; contemporary artists and the museum gallery spaces and the making of publics for art; the processes of acquisition, cataloguing and display by institutions; the social and educational role of the art museum; the relationship between art museums and colonialism; museums in the post-colonial world; museums and race today. Permission of the instructor is required. HU

*** HSAR 476a, Energy Cultures of Modern Architecture** Craig Buckley

It is estimated that the construction and operation of buildings accounts for nearly 40% of carbon emissions globally. If a radical decarbonization of architectural practice stands as the discipline’s central challenge today, this calls not only for new solutions, but for different engagement with architecture’s history. This discussion seminar reinterprets histories of modern architecture through the concept of “energy cultures.” An energy culture (Sheller, 2014; Szeemann and Diamanti, 2019) can be defined as the specific assemblage of fuel, matter, practice, labor, and meaning that have informed architecture’s conceptualization and construction. In contrast to approaches that stress quantitative, technical, and instrumental approaches to energy accounting and energy efficiency, this course looks at how different representations, concepts, and behaviors emerged in response to historic shifts in energy production and consumption. The first portion of the course surveys a range of historical approaches to concepts of energy and environmental justice within and adjacent to architecture. The bulk of the course then turns to case studies, examining particular buildings and projects in order to develop new interpretations and questions about these monuments based on an energy cultures approach. HU

*** HSAR 489b / CLCV 305b / GMAN 489b, Pathos-Figures: Affection-Images in the Visual Arts** Nicola Suthor

Images with high pathos inform our perception of human life and define our stance in the world. The seminar wants to foster a critical awareness of the formative power that pathos figures exert on our moral beliefs concerning human behavior. The course covers the timespan from Antiquity to Modernity in Western culture and deals with historical moments that reflect different attempts to cultivate and temper strong emotions. We discuss the transfer of pathos and how the dissemination of eminent pathos figures of antiquity have shaped the imagery of the Western canon; we tackle with one of the most far-reaching concepts of art history, Aby Warburg’s Pathos formula that encourages us to draw in broad strokes connecting lines of affection over centuries and different cultures; we look into the discourse on human suffering in Medieval times and how it has defined the Christian doctrine of the affective image; we have a close look at treatises of the 17th century that worked on theorizing human passions and discuss the Enlightenment perspective that aimed at interiorizing pathos by dint of the discourse of beauty; we discuss the Modern “close-up” and how it unfolds the moment of pure bodily presence as highly affective entity. We ask if we are in need of new pathos images that reflect our current emotional stakes, and how they might look. HU

*** HSAR 490b / FILM 320b, Close Analysis of Film** Oksana Chefranova

Close study of a range of major films from a variety of periods and places. Apart from developing tools for the close analysis of film, we consider such topics as genre and

mode; the role of sound; cinema as a structure of gazes; remakes and adaptations; approaches to realism; narration and resistance to narration; film in relation to other moving image media; and the relationship of close analysis to historical contextualization and interpretation more generally. Prerequisite: FILM 150. WR, HU

*** HSAR 499a, The Senior Essay** Craig Buckley

Preparation of a research paper (25–30 pages in length) on a topic of the student's choice, under the direction of a qualified instructor, to be written in the fall or spring term of the senior year. In order to enroll in HSAR 499, the student must submit a project statement on the date that their course schedule is finalized during the term that they plan to undertake the essay. The statement, which should include the essay title and a brief description of the subject to be treated, must be signed by the student's adviser and submitted to the DUS. All subsequent deadlines are also strict, including for the project outline and bibliography, complete essay draft, and the final essay itself. Failure to comply with any deadline will be penalized by a lower final grade, and no late essay will be considered for a prize in the department. Senior essay workshops meet periodically throughout the term and are also mandatory. Permission may be given to write a two-term essay after consultation with the student's adviser and the DUS. Only those who have begun to do advanced work in a given area and whose project is considered to be of exceptional promise are eligible. The requirements for the one-term senior essay apply to the two-term essay, except that the essay should be 50–60 pages in length.

History of Science, Medicine, and Public Health (HSHM)

HSHM 201a / EVST 206a / HIST 127a / HUMS 106a / PHYS 106a, Sustainable

Energy: Physics and History Staff

Students explore the physical logic of energy and power in parallel with the histories of technology for energy exploitation and economic theories of sustainability on the path to modernity. They learn the fundamentals of quantitative analysis of contemporary and historical energy harvesting, its carbon intensity, and climate impact. They also gain an understanding of the historical underpinnings of the current global energy status quo and its relationship to economic theories of sustainability. Mathematical proficiency with algebra is assumed. Students from all academic interests and experiences are welcome in the course. QR, SC, SO o Course cr

HSHM 204b / AMST 163b / EVST 120b / HIST 120b, American Environmental

History Paul Sabin

Ways in which people have shaped and been shaped by the changing environments of North America from precolonial times to the present. Migration of species and trade in commodities; the impact of technology, agriculture, and industry; the development of resources in the American West and overseas; the rise of modern conservation and environmental movements; the role of planning and impact of public policies. WR, HU

HSHM 206b, Body Politics: Histories of American Reproductive Rights, Health, and Activism from 1800 Megann Licskai

Are all politics reproductive politics? This course traces the reproductive history of the United States from the early nineteenth century to the present day. Questions about reproduction – and about not reproducing – are deeply tied to questions of

gendered and racial rights; of bodily autonomy; of American expansion and empire; and of who counts as a citizen, or even as a human being. In the past few years, we've encountered new stories about everything from new and restrictive abortion laws, to immigrant women who were sterilized without their consent, to new technologies in male birth control, to the inequitable childcare burden that falls to women during times of hardship, to the racist roots of foster care and residential school systems. In this course, we come to understand the historical changes in American reproduction to better understand the complicated roots of our current moment. By analyzing articles in newspapers and scientific journals, advertisements, film, patient and physician narratives, and exhibitions and material culture, students will understand reproduction as a site for empowerment and activism, as a site of medical professionalization, and as a site of health disparity. We examine reproduction capaciously, including pregnancy and childbirth, birth control and abortion, assistive reproductive technologies, and adoption and foster care. Our analysis is intersectional, and we consider what different identities meant for reproduction historically, as well as in our current moment. HU o Course cr

HSHM 209b / EVST 209b / HIST 465b, Making Climate Knowledge Deborah Coen

This is a course about *how* humans have come to know what we know about our impacts on the earth's climate and our vulnerability to climate change. When did humans first *know* that their actions, in the aggregate, could transform the planet? Did scientists bear responsibility to warn of these consequences? In what ways has the modern science of climate both appropriated and undermined traditional and indigenous forms of climate knowledge? Students learn to work with the methods of history of science: we analyze science as a social and material process bound to the cultural and epistemological particularities of its historical context, and we examine the political dimensions of historical narratives about the emergence of the theory of global warming. Via hands-on experience with Yale's historical collections, students learn to analyze maps, artifacts, and instruments as historical sources. They also gain familiarity with the methods of environmental history, learning to attend to historical evidence of shifting relationships between humans and non-humans. Finally, students become more attuned to the evidence of climate change around them and more confident in their ability to make climate knowledge for themselves. HU

HSHM 215b / HIST 140b, Public Health in America, 1793 to the Present Naomi Rogers

A survey of public health in the United States from the yellow fever epidemic of 1793 to AIDS, breast cancer activism, bioterrorism and COVID. Focusing on medicine and the state, topics include epidemics and quarantines, struggles for reproductive and environmental justice, the experiences of healers and patients, and organized medicine and its critics. HU o Course cr

HSHM 220b, Histories of Confinement: From Atlantic Slavery to Social Distancing Nana Osei Quarshie

This course looks closely at the history of asylums, hospitals, prisons, and schools. It seeks to understand their workings and the interplay between bureaucratic forms, spatial and material organization, and modes of discipline, control, and remediation. It asks, how is institutional power organized, displayed, deployed, and disputed, and what are the limits and contradictions inherent in these efforts? Our readings draw

from a range of contexts and disciplines to consider the relationship between the built environment and institutional life. HU o Course cr

HSHM 226a / HIST 236a, The Global Scientific Revolution Staff

The material, political, cultural, and social transformations that underpinned the rise of modern science between the 14th and 18th century, considered in global context. Topics include artisanal practices and the empirical exploration of nature; global networks of knowledge and trade, and colonial science; figurative arts and the emersion of a visual language of anatomy, astronomy, and natural history. HU o Course cr

HSHM 237b / HSAR 282b / WGSS 282b, Renaissance Bodies: Art, Magic, Science

Marisa Bass

An introduction to issues surrounding the representation of the body in both art and science, spanning from the late Middle Ages to the seventeenth century, and with a particular focus on the Northern Renaissance. Topics include medicine, reproduction, witchcraft, the gender spectrum, torture, race, disability, desire, dreams, and theories of imagination and invention. Sections and assignments will make ample use of the Yale collections. Previous experience with art history welcome but not required. HU

HSHM 321a / HIST 244a, Cultures of Western Medicine Staff

A survey of Western medicine and its global encounters, encompassing medical theory, practice, institutions, and healers from antiquity to the present. Changing concepts of health, disease, and the body in Europe and America explored in their social, cultural, economic, scientific, technological, and ethical contexts. HU o Course cr

*** HSHM 406a / HIST 150Ja, Healthcare for the Urban Underserved** Sakena Abedin
Exploration of the institutions, movements, and policies that have attempted to provide healthcare for the urban underserved in America from the late nineteenth century to the present, with emphasis on the ideas (about health, cities, neighborhoods, poverty, race, gender, difference, etc) that shaped them. Topics include hospitals, health centers, public health programs, the medical civil rights movement, the women's health movement, and national healthcare policies such as Medicare and Medicaid. WR, HU

*** HSHM 416a / HIST 121Ja, Beyond Tuskegee: Histories of Race and Human Subjects Research** Staff

This course explores the history of race, racism, and human subjects research. It examines the history of human subjects research as a scientific practice and how practitioners interpreted the use of living and dead bodies for producing scientific knowledge. It examines how and why certain bodies become eligible for research and experimentation. This course shows how race, class, gender, and disability shape the history of human subjects research, and shows how human subjects were also deliberately selected from vulnerable populations. It focuses on the experiences of African Americans as research subjects, and consider other vulnerable populations such as children, the disabled, and the incarcerated. WR, HU

*** HSHM 418b / HIST 444Jb / WGSS 435b, Queer Science** Joanna Radin and Juno Richards

Why are there so many studies involving trans brain scans? Can facial recognition technology really tell if you're queer? Why is everyone so obsessed with gay penguins? For that matter, how did science come to be the right tool for defining and knowing sex, gender, and sexuality at all? How does that history influence our collective lives in the present, and what are some alternatives? This course gives students a background

in the development of sex science, from evolutionary arguments that racialized sexual dimorphism to the contemporary technologies that claim to be able to get at bodily truths that are supposedly more real than identity. It introduces scholarly and political interventions that have attempted to short-circuit the idea that sex is stable and knowable by science, highlighting ways that queer and queering thinkers have challenged the stability of sexual categories. It concludes by asking how to put those interventions into practice when so much of the fight for queer rights, autonomy, and survival has been rooted in categorical recognition by the state, and by considering whether science can be made queer. HU

*** HSHM 420a, Senior Project Workshop** Megann Licskai

A research workshop for seniors in the HSHM major, intended to move students toward the successful completion of their senior projects and to provide a community for support and for facilitated peer review. Meets periodically throughout the semester for students to discuss stages of the research process, discuss common challenges and practical strategies for addressing them, and to collaboratively support each others' work. The workshop events are structured around the schedule for the fall-to-spring two-term senior project, but students writing one-term projects or spring-to-fall projects also benefit from them, and there will be at least one peer review session to support their key deadlines each semester too. Students must be seniors in the HSHM major and must be signed up for HSHM 490, 491, or 492 to take this course. ½ Course cr

*** HSHM 422a / HIST 467Ja, Cartography, Territory, and Identity** Bill Rankin

Exploration of how maps shape assumptions about territory, land, sovereignty, and identity. The relationship between scientific cartography and conquest, the geography of statecraft, religious cartographies, encounters between Western and non-Western cultures, and reactions to cartographic objectivity. Students make their own maps. No previous experience in cartography or graphic design required. WR, HU

*** HSHM 425b / HIST 417Jb, Science Fiction and Prediction: Histories of Utopia, Apocalypse, and the Future** Staff

Climate catastrophe. AI Singularity. Viral mutation. Mars colonization. Everywhere you look today, scientists, journalists, and regular social media users are making predictions about the future. Throughout this course, we take a historical approach to how scientists and science fiction writers have tried to predict the future—or bring about a better one—using the rhetoric and cultural authority of science. Embracing the fuzzy boundaries of between science fiction and science prediction, we survey a variety of speculative utopian plans, dystopian nightmares, and apocalyptic visions of the future, along with secondary literature from historians and scholars of literature. How and why have scientists and scientific ideas been imagined as resources for solving social problems? How can we use predictions about the future to understand the past? This seminar appeals to students interested in the history of science and medicine, literature, politics, technology, and environmental studies. WR, HU

*** HSHM 429a / HIST 490Ja, Decolonizing the Mind** Nana Osei Quarshie

This seminar explores the effects of colonialism and post-colonial power relations on the production of scientific, medical, and embodied knowledge about psychiatry. First, we read debates over the geographies of power and distrust in medicine. How have colonialism and post-colonial power relations defined the tasks of non-European psychiatry? What does it mean to decolonize psychiatric practice or culture? Second,

we examine the nature of rationality. Is reason singular, plural, or culturally bound or universal? To what extent is spirit possession a rational experience? Third, we explore the relationship between scientific representations, social practices, and local culture. What relationship exists between social practices and culturally shared categories of knowledge? Is psychiatry universalizable? Students learn to analyze and debate these questions by drawing on films, letters, photography, and monographs produced in and about Algeria, Argentina, Brazil, China, Cuba, Indonesia, and Vietnam. WR, HU, SO

*** HSHM 432a / ER&M 360a / HLTH 370a / SOCY 390a / WGSS 390a, Politics of Reproduction** Rene Almeling

Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality. WR, SO

*** HSHM 445a / HIST 139Ja, Fetal Histories: Pregnancy, Life, and Personhood in the American Cultural Imagination** Megann Licskai

In our twenty-first-century historical moment, the fetus is a powerful political and cultural symbol. One's fetal politics likely predicts a lot about how they live their life, vote, worship, and even about how they understand themselves. How, then, has the fetus come to carry the cultural significance that it does? Are there other ways one might think of the fetus? And what is happening in the background when we center the fetus up front? This course examines the many cultural meanings of the fetus in American life: from a clump of cells, to a beloved family member, to political litmus test, and considers the way that these different meanings are connected to questions of human and civil rights, gender relations, bodily autonomy, and political life. We look at the history of our very idea of the fetus and consider how we got here. Each of us may have a different idea of what the fetus is, but every one of those ideas has a particular history. We work to understand those histories, their contexts, and their possible implications for the future of American political life. WR, HU

*** HSHM 449b / EVST 349b / HIST 449Jb / HUMS 446b / URBN 382b, Critical Data Visualization: History, Theory, and Practice** Bill Rankin

Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshopping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

*** HSHM 451a / HUMS 108a / RLST 108a, Introduction to the Occult Sciences** Travis Zadeh

This course provides a comparative history of the occult sciences from antiquity to the present. From Galen's occult properties to Newton's pursuit of alchemy, the notion that there are hidden forces in nature has played an immeasurable role in the development

of religious thought, scientific reasoning, and literary endeavor. The modern impulse to separate religion from science and science from magic can obscure the centrality of an array of practices and beliefs across time and place. Far from a disenchanted present, magic and the occult are woven through the fabric of modernity. From healing crystals to the personalized astrology of Co-Star, tarot cards to New-Age inflected conspiracy theories, fortune tellers to countless films, we are surrounded by appeals to occult powers. Building on case studies from classical antiquity and Jewish, Christian, and Islamic letters, this course traces the development of the occult sciences through an array of historical periods, social contexts, and discursive materials. Topics include: origins of writing, astrology, alchemy, medicine, natural philosophy, divination, automata, talismans, natural magic, letterism, hermeticism, kabbalah, Neoplatonism, recipes for summoning demons and angels, persecution, orientalism, colonialism, mesmerism, spiritualism, disenchantment, modernity, capitalism, consumption, and fantasy. Materials are drawn from an array of sources, including: philosophical dialogues, scientific manuals, illuminated manuscripts, encyclopedias, cosmographies, handbooks of practical magic, collections of stories, and movies. In addition to a panoply of primary sources and contemporary scholarship on theory and method, students are introduced to a variety of archival materials in the Yale collections. HU

*** HSHM 464a / HUMS 382a, Nature and Human Nature** Gary Tomlinson

This course explores the Western conception of the human place in the natural world as it has shifted across four centuries. It features, alongside corollary readings, close study of three classic texts: Galileo's *Dialogue Concerning the Two Chief World Systems* (1632), Giambattista Vico's *New Science* (1744), and Darwin's *Origin of Species* (1859) – fundamental texts locating humans in the cosmos, in society, and in natural history, respectively. It finishes with a new work, Terrence Deacon's *Incomplete Nature* (2011), an attempt to explain the emergence of mind from the natural world. No prerequisites, though the challenging nature of the materials suggests that this course will be aimed mainly at students beyond their first year. HU

*** HSHM 467b / HIST 447Jb / WGSS 465b, History of the Body** Ziv Eisenberg

What does it mean to have a “bad hair day?” How should you care for your skin? What happens when you eat a burger and drink wine? How are babies made? What happens when you die? The answers depend not only on who provides them, but also on where and when. This seminar examines historical production of systems of corporeal knowledge and power, as well as the norms, practices, meanings, and power structures they have created, displaced, and maintained. Structured thematically, the course familiarizes students with major topics in the history of the body, health, and medicine, with a particular focus on US history. WR, HU

*** HSHM 468a / HIST 260Ja, Sex, Life, and Generation** Ivano Dal Prete

Theories and practices of life, sex, and generation in Western civilization. Politics and policies of conception and birth; social control of abortion and infanticide in premodern societies; theories of life and gender; the changing status of the embryo; the lure of artificial life. WR, HU

*** HSHM 469b / AMST 467b / MCDB 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding

the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

HSHM 470a or b, Directed Reading Ivano Dal Prete

Readings directed by members of the faculty on topics in the history of science, medicine, or public health not covered by regular course offerings. Subjects depend on the interests of students and faculty. Weekly conferences; required papers.

*** HSHM 473b / HIST 403Jb, Vaccination in Historical Perspective** Jason Schwartz

For over two centuries, vaccination has been a prominent, effective, and at times controversial component of public health activities in the United States and around the world. Despite the novelty of many aspects of contemporary vaccines and vaccination programs, they reflect a rich and often contested history that combines questions of science, medicine, public health, global health, economics, law, and ethics, among other topics. This course examines the history of vaccines and vaccination programs, with a particular focus on the 20th and 21st centuries and on the historical roots of contemporary issues in U.S. and global vaccination policy. Students gain a thorough, historically grounded understanding of the scope and design of vaccination efforts, past and present, and the interconnected social, cultural, and political issues that vaccination has raised throughout its history and continues to raise today. HU

*** HSHM 490a or b and HSHM 491a or b, Yearlong Senior Project** Megann Liciskai

Preparation of a yearlong senior project under the supervision of a member of the faculty. There will be a mandatory meeting at the beginning of the term for students who have chosen the yearlong senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 490 during the fall term and complete their projects in HSHM 491 in the spring term. December graduates enroll in HSHM 490 in the spring term and complete their projects in HSHM 491 during the following fall term. Majors planning to begin their projects in the spring term should notify the senior project director by the last day of classes in the fall term. Students must meet progress requirements by specific deadlines throughout the first term to receive a temporary grade of SAT for HSHM 490, which will be changed to the grade received by the project upon the project's completion. Failure to meet any requirement may result in the student's being asked to withdraw from HSHM 490. For details about project requirements and deadlines, consult the HSHM Senior Project Handbook. Students enrolled in HSHM 491 must submit a completed project to the HSHM Registrar no later than 5 p.m. on the due date as listed in the HSHM Senior Project Handbook. Projects submitted after 5 p.m. on the due date without an excuse from the student's residential college dean will be subject to grade penalties. Credit for HSHM 490 only on completion of HSHM 491.

*** HSHM 492a, One-Term Senior Project** Megann Liciskai

Preparation of a one-term senior project under the supervision of an HSHM faculty member, or of an affiliated faculty member with approval of the director of undergraduate studies. There will be a mandatory meeting at the beginning of the

term for students who have chosen the one-term senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 492 during the fall term. December graduates enroll in HSHM 492 in the preceding spring term. Students planning to begin their project in the spring should notify the senior project director by the last day of classes in the fall term. Majors must submit a completed Statement of Intention form signed by the faculty member who has agreed to supervise the project to the HSHM administrator on the due date. Blank statement forms are available in the HSHM Senior Project Handbook on the HSHM website. Students enrolled in HSHM 492 must submit a completed senior project to the HSHM administrator as listed in the HSHM Senior Project Handbook no later than 5 p.m. on the due date in the fall term, or no later than 5 p.m. on the due date in the spring term. Projects submitted after 5 p.m. on the due date without an excuse from the student's residential college dean will be subject to grade penalties.

*** HSHM 496a / HIST 110Ja, *Childbirth in America, 1650–2000*** Rebecca Tannenbaum

This course considers the ways childbirth has been conducted in the United States over three centuries. Topics include the connections between childbirth and historical constructions of gender, race, and motherhood, as well as changes in the medical understanding and management of childbirth. WR, HU

*** HSHM 498a / HIST 142Ja, *Collecting Bodies: Historical Approaches to Specimen Collection*** Megann Licskai

Why is there a room full of brains in the basement of Yale's medical school, and why does it welcome hundreds of visitors every year? What compels us about the macabre spectacle of human remains, and what is their place in medical history? What kinds of stories can and should a museum space tell, and what are the multivalent functions of a collection like this in a university setting? Using Yale's Cushing Center as a center of discussion, this class examines the ethics of collecting and viewing human specimens. The course ties these practices to histories of colonialism, racism, medicine, anthropology, and natural history while considering the cultural specificity of the collectors and the collected. Students analyze the kinds of stories that museum spaces can tell and imagine possibilities for ethical storytelling through both academic analysis and creative engagement. In doing so, we prioritize hands-on historical work while reading theory to address broader ethical and epistemological questions. This course will, on occasion, meet at 333 Cedar St. to facilitate this hands-on work. WR, HU

Human Rights Studies (HMRT)

Humanities (HUMS)

*** HUMS 005a / NELC 005a, *The Ancient Egyptian Empire of the New Kingdom*** Nadine Moeller

For most of the duration of the New Kingdom (1550–1069 BCE), the ancient Egyptians were able to establish a vast empire and became one of the key powers within the Near East. This course is an introduction to the history, archaeology and literary sources of one of the most dynamic periods of ancient Egyptian history. We investigate the development of Egyptian foreign policies and military expansion, which affected parts

of the Near East and Nubia to the south. We also examine and discuss topics such as ideology, imperial identity, political struggle and motivation for conquest and control of wider regions surrounding the Egyptian state as well as the relationship to other powers and their perspective on Egyptian rulers, as, for example, described in the famous Amarna letters, the world's earliest diplomatic correspondence. Throughout the semester, we consider the different sources that have survived in the archaeological and textual record for understanding Egypt's first empire within its ancient geopolitical context. All primary texts are read in translation. Enrollment limited to first-year students. HU

*** HUMS 018a, Six Pretty Good Kids** Christopher McGowan

This course considers literary representations of childhood, the family, and education from antiquity to the present by reading across several traditions and genres, such as epic, tragedy, and the novel, especially the “novel of education,” or Bildungsroman. By examining fictional and non-fictional texts, including readings in psychoanalysis, pedagogical theory, contemporary parenting advice, and political and sociological analysis, we seek to understand seemingly natural or eternal aspects of human life (“childhood,” “the family”) as historically and socially constructed and, thus, as sites for political struggle and creative transformation. We conclude by discussing children's literature and film, and the conflicting visions of childhood and “the future” these forms offer to adults and children. Enrollment limited to first-year students. WR, HU
o Course cr

*** HUMS 020a / ITAL 020a, Six Pretty Good Dogs** Simona Lorenzini

We all have heard the phrase “Dogs are man's best friends.” For thousands and thousands of years there has been an indissoluble friendship between man and dog, an unwritten covenant, a symbiotic relationship that has no equal in the animal world. Why do we consider them our ‘best friends’? And is this always true? If not, why do we sometimes fear dogs? What role have dogs played in our understanding of being human? This course explores images of dogs in 20th–21st Italian literature through six main categories: a man and his dog; dogs and inhumanity; dogs and exile; dogs and children; dogs and folktales; dogs and modern bestiary. We discuss and close read a variety of texts, which are representative of different strategies for reflecting on the self and on the ‘other’ by unpacking the unstable relationship between anthropomorphism, personification, and humanization. Hopefully, these texts impel us to understand how profoundly the animal is involved in the human and the human in the animal. This course is part of the “Six Pretty Good Ideas” program. Enrollment limited to first-year students. All readings in English. WR, HU 1½ Course cr

*** HUMS 021a / NELC 007a, Six Pretty Good Heroes** Kathryn Slanski

Focusing on the figure of the hero through different eras, cultures, and media, this course provides first-year students with a reading-and writing-intensive introduction to studying the humanities at Yale. The course is anchored around six transcultural models of the hero that similarly transcend boundaries of time and place: the warrior, the sage, the political leader, the proponent of justice, the poet/singer, and the unsung. Our sources range widely across genres, media, periods, and geographies: from the ancient Near Eastern, *Epic of Gilgamesh* (1500 BCE) to the Southeast Asian *Ramayana*, to the Icelandic-Ukrainian climate activism film, *Woman at War* (2018). As part of the Six Pretty Good suite, we explore Yale's special collections and art galleries to broaden our perspectives on hierarchies of value and to sharpen our skills of observation

and working with evidence. *Six Pretty Good Heroes* is a 1.5 credit course, devoting sustained attention students' academic writing and is an excellent foundation for the next seven semesters at Yale. Required Friday sessions are reserved for writing labs and visits to Yale collections, as well as one-on-one and small-group meetings with the writing instruction staff. Enrollment limited to first-year students. WR, HU o Course cr

*** HUMS 032b / AMST 029b / ENGL 029b, *Henry Thoreau*** Michael Warner
Henry Thoreau played a critical role in the development of environmentalism, American prose, civil rights, and the politics of protest. We read his writing in depth, and with care, understanding it both in its historical context and in its relation to present concerns of democracy and climate change. We read his published writing and parts of the journal, as well as biographical and contextual material. The class makes a field trip to Walden Pond and Concord, learning about climate change at Walden as revealed by Thoreau's unparalleled documentation of his biotic surroundings. Students consider Thoreau's place in current debates about the environment and politics, and are encouraged to make connection with those debates in a final paper. Enrollment limited to first-year students. HU

*** HUMS 034a, *Six Pretty Good Thought Experiments*** Jane Mikkelsen
Scientists, philosophers, visionaries, and creative writers around the world—in all eras, traditions, and cultures—have often turned to a fascinating form of exploratory inquiry that we today call thought experiments. These short, creative, often wildly outlandish scenarios allow people to ponder some of our most urgent and life-changing questions: How is the universe structured? Are there absolute standards of right conduct? Can we be sure that the world around us is actually real—and does that even matter? This course takes students on an expansive tour of the thought experiment genre, ranging across scientific and philosophical texts, films, and speculative fiction. As we explore what thought experiments are and how they work through contextualized close reading, we also consider broader questions: What does the thought experiment's form tell us about how we come to know things? Is the thought experiment a clearly defined genre, and does it have a global history? How do thought experiments harness the work of narrative and metaphor, and what interrelations does this reveal between language, imagination, and knowledge? Does science need fiction, and might imagination play a foundational role in the history of ideas and the progress of knowledge? Enrollment limited to first-year students. WR, HU o Course cr

*** HUMS 065a / EDST 065a, *Education and the Life Worth Living*** Matthew Croasmun
Consideration of education and what it has to do with real life—not just any life, but a life worth living. Engagement with three visions of different traditions of imagining the good life and of imagining education: Confucianism, Christianity, and Modernism. Students will be asked to challenge the fundamental question of the good life and to put that question at the heart of their college education. Enrollment limited to first-year students. HU

*** HUMS 090a / HIST 089a, *Thinking about History*** Stuart Semmel
An introduction to the discipline of history. Exploration of influential historical narratives; the philosophy of history; the emergence of historical subdisciplines including history from below, microhistory, the new cultural history, and Big History;

and interdisciplinary engagement with anthropology, literary criticism, art history, and psychology. Enrollment limited to first-year students. WR, HU

*** HUMS 096a, Collecting History: “Treasures” of Yale** Staff

This course considers the concept of “treasure” by visiting nearly all of Yale’s galleries, museums, and library special collections. We explore questions around how these objects and materials were created, how they came to be at Yale, and the considerations and compromises that make up collections of cultural heritage materials. We learn what these objects say about themselves, their creators, their users, and their collectors. Enrollment limited to first-year students. HU

HUMS 106a / EVST 206a / HIST 127a / HSHM 201a / PHYS 106a, Sustainable Energy: Physics and History Staff

Students explore the physical logic of energy and power in parallel with the histories of technology for energy exploitation and economic theories of sustainability on the path to modernity. They learn the fundamentals of quantitative analysis of contemporary and historical energy harvesting, its carbon intensity, and climate impact. They also gain an understanding of the historical underpinnings of the current global energy status quo and its relationship to economic theories of sustainability. Mathematical proficiency with algebra is assumed. Students from all academic interests and experiences are welcome in the course. QR, SC, SO o Course cr

*** HUMS 108a / HSHM 451a / RLST 108a, Introduction to the Occult Sciences** Travis Zadeh

This course provides a comparative history of the occult sciences from antiquity to the present. From Galen’s occult properties to Newton’s pursuit of alchemy, the notion that there are hidden forces in nature has played an immeasurable role in the development of religious thought, scientific reasoning, and literary endeavor. The modern impulse to separate religion from science and science from magic can obscure the centrality of an array of practices and beliefs across time and place. Far from a disenchanted present, magic and the occult are woven through the fabric of modernity. From healing crystals to the personalized astrology of Co-Star, tarot cards to New-Age inflected conspiracy theories, fortune tellers to countless films, we are surrounded by appeals to occult powers. Building on case studies from classical antiquity and Jewish, Christian, and Islamic letters, this course traces the development of the occult sciences through an array of historical periods, social contexts, and discursive materials. Topics include: origins of writing, astrology, alchemy, medicine, natural philosophy, divination, automata, talismans, natural magic, letterism, hermeticism, kabbalah, Neoplatonism, recipes for summoning demons and angels, persecution, orientalism, colonialism, mesmerism, spiritualism, disenchantment, modernity, capitalism, consumption, and fantasy. Materials are drawn from an array of sources, including: philosophical dialogues, scientific manuals, illuminated manuscripts, encyclopedias, cosmographies, handbooks of practical magic, collections of stories, and movies. In addition to a panoply of primary sources and contemporary scholarship on theory and method, students are introduced to a variety of archival materials in the Yale collections. HU

*** HUMS 127a or b / ENGL 129a or b / LITR 168a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle’s *Poetics* or Homer’s *Iliad*

and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing.

WR, HU

*** HUMS 128a / LITR 200a / NELC 128a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Kathryn Slanski

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and “The Song of Songs,” medieval works, such as *A Thousand and One Nights*, selections from the *Qur’an*, and *Shah-nama: The Book of Kings*, and modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

HUMS 129a / CLCV 129a / HIST 159a / NELC 158a / RLST 158a, Jesus to Muhammad: Ancient Christianity to the Rise of Islam Staff

The history of Christianity and the development of Western culture from Jesus to the early Middle Ages. The creation of orthodoxy and heresy; Christian religious practice; philosophy and theology; politics and society; gender; Christian literature in its various forms, up to and including the early Islamic period. HU o Course cr

*** HUMS 130a / LITR 130a, Fundamentals of Comparison** Ayesha Ramachandran and Marta Figlerowicz

An introduction to the conceptual modes and frameworks for comparative study in the humanities as well as the interdisciplinary and cross-cultural traditions of comparative literature. We investigate how and why cultures come into contact and why we might want to engage in acts of comparison. Topics covered are historical and theoretical in scope involving questions about: historical connections; influence and reception; morphology (similarities, resemblances); circulation and networks; colonialism and its consequences; identity and diaspora; aesthetics; humanisms. Anchored in case studies that help to understand the core challenges of our discipline, we explore the relation of literary study to anthropology, linguistics, religious studies, history, and cognitive science. Texts include: Leo Africanus’s *Description of Africa* with Natalie Zemon Davis’s *Trickster Travels*; Goethe’s *West-östlicher Divan*, its source texts and imitations; Shakespeare’s *Hamlet* alongside Bharadwaj’s *Haider* and Bohannon’s “Shakespeare in the Bush”; Fenollosa, Pound and modernism’s fascination with Chinese poetry; Lu Xun’s engagement with Gogol; Césaire, Glissant and the struggle over créolité; early modern and postcolonial visions of humanism. HU

*** HUMS 132a or b / ENGL 130a or b / LITR 169a or b, Epic in the European Literary Tradition** Staff

The epic tradition traced from its foundations in ancient Greece and Rome to the modern novel. The creation of cultural values and identities; exile and homecoming; the heroic in times of war and of peace; the role of the individual within society; memory and history; politics of gender, race, and religion. Works include Homer’s *Odyssey*, Vergil’s *Aeneid*, Dante’s *Inferno*, Cervantes’s *Don Quixote*, and Joyce’s *Ulysses*.

Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

HUMS 140b / NELC 121b, The Hero in the Ancient Near East Kathryn Slanski

This course is an introduction to of ancient Near Eastern civilization through the prism of its heroes, figures at the intersection of literature, religion, history, and art. While our principle focus is on heroes from ancient Mesopotamia and the Hebrew Bible, students will also have opportunities to compare contemporary heroes to the ANE hero, and to consider if the ANE hero has a modern legacy. HU o Course cr

*** HUMS 160a / FILM 205a / GMAN 205a / LITR 244a, The Question of Technology in Continental Theory** Staff

In Greek mythology, Niobe is the queen of Thebes and mother of six daughters and six sons. She rebelled against the gods and was severely punished for it: her children were killed and she herself was petrified in eternal mourning. In Walter Benjamin's much-discussed essay "On the Critique of Violence," Niobe's fate is a memorial to a mythical violence that has never been overcome. According to Benjamin, this violence today is linked to an instrumental approach to technology. In the seminar, we discuss media and technology philosophical approaches by Benjamin, Heidegger, Simondon, Haraway, Chude-Sokei, among others, but also texts by Kant, in order to explore the question of how we should understand the entanglement of melancholy, violence and an instrumental understanding of technology. Furthermore, we discuss how this link between violence, technology and melancholy can be resolved from the perspective of Benjamin's critique of violence. HU

HUMS 165b / AMST 200b / SOCY 207b / WGSS 200b, Topics in Human Sexuality Joseph Fischel

In 1970, Yale professors and sexuality scholars Lorna and Philip Sarrel introduced what came to be their wildly popular lecture, "Topics in Human Sexuality." The course, offered at the height of the sexual revolution and shortly after Yale University admitted women undergraduates, was multipurpose: to teach students about pressing, contemporary social problems around sex, gender, and sexuality; to help students learn about their bodies, sexualities, and relationships; to direct students to resources and information about their sexual and reproductive health; and to advance the mission of a liberal arts education, namely, the cultivation of well-rounded, critically engaged, curious, participatory young citizens. This iteration of the course is inspired by the Sarrels' ambitions, even if we are unlikely to realize them in full. The course is offered in the spirit of a critical sexuality education, critical as in 1) theory—rather than practicum-driven, but nonetheless 2) urgent. As political movements that endanger transgender children, suppress sexual expression, and rescind reproductive rights gain traction, the course offers candid, careful focus on: abortion, sexual education, queer and trans kids, pornography, university sexual politics, hooking up, and breaking up. Along the way, we watch a season of Netflix's "Sex Education" together. The class (nonexclusively) focuses on social and political problems in the contemporary United States, and examines those problems by drawing upon scholarship in Gender & Sexuality Studies, American Studies, Sociology, Psychology, and Public Law. HU, SO

HUMS 167a / LITR 378a / NELC 135a, Masterpieces of Arabic Literature Shawkat Toorawa

The Arabic literary tradition spans from the 6th-century through to the modern day. In this course, we focus on the first thousand years (600–1600), and read works,

and excerpts from works, regarded as masterpieces of Arabic literature. Our readings include the early poetry of the Arabian peninsula (Imru l-Qays, 'Antarah), the Qur'an, celebrated prose writers, including al-Jahiz, al-Tanukhi, al-Hariri, and al-Tawhidi, and famous poets, including al-Mutanabbi, al-Ma'arri, and Ibn Zaydun. All readings in translation. HU

*** HUMS 171a / GMAN 290a / THST 293a, Politics of Performance** Sophie Schweiger

The stage is, and always has been, a political space. Ever since its beginnings, theatre has offered ways to rethink and criticize political systems, with the stage serving as a “moral institution” (Schiller) but also as a laboratory for models of representation. The stage also delineates the limits of representation for democratic societies (Rousseau), as it offers the space for experimentation and new modes of being together, being *ensemble*. The stage also raises the question of its own condition of possibility and the networks it depends on (Jackson). This course revisits the history of German and German speaking theatre since the Enlightenment, and discusses the stage in its relationship to war, the nation state, the social question, femicide and gender politics, the Holocaust, globalization, and 21st century migration. Readings include works by G.E. Lessing, Friedrich Schiller, Hugo v. Hofmannstahl, Georg Büchner, Peter Weiss, Ida Fink, Dea Lohar, Elfriede Jelinek, Christoph Schlingensief, Heiner Müller, and Elsa Bernstein. HU

*** HUMS 172a / ENGL 312a, Interpretations: George Eliot's Middlemarch** Ruth Yeazell

An intensive study of George Eliot's *Middlemarch* (1871–72)—a work she called a “home epic” and Virginia Woolf declared “one of the few English novels for grown-up people.” Our close reading of *Middlemarch* itself is framed by a brief selection from George Eliot's essays and short fiction, as well as by a more extended study of some critical responses, both Victorian and modern. HU

*** HUMS 178a / THST 388a, Revenge Tragedy and Moral Ambiguity** Toni Dorfman

A study of plays and films variously construed as revenge tragedy that raise aesthetic and ethical issues, including genre, retribution, “just wars,” public vs. private justice, and the possibility of resolution. How questions of crime, punishment, and justice have been posed in drama, from classical Greece through the twentieth century. HU

HUMS 180a / ITAL 310a / LITR 183a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU o Course cr

*** HUMS 185a / ENGL 419a / HSAR 460a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

*** HUMS 186a / FILM 369a / RSEE 244a / RUSS 222a, War Games** Staff

Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries

combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players “perform” war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

HUMS 190b / FILM 240b / LITR 143b, Cinema in the World Moira Fradinger
Development of ways to engage films from around the globe productively. Close analysis of a dozen complex films, with historical contextualization of their production and cultural functions. Attention to the development of critical skills. Includes weekly screenings, each followed immediately by discussion. HU

* **HUMS 200a / ENGL 205a / LITR 195a / MUSI 462a, Medieval Songlines** Ardis Butterfield
Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

HUMS 201b / FREN 240b / LITR 214b, The Modern French Novel Alice Kaplan and Maurice Samuels
A survey of major French novels, considering style and story, literary and intellectual movements, and historical contexts. Writers include Balzac, Flaubert, Proust, Camus, and Sartre. Readings in translation. One section conducted in French. HU TR
o Course cr

* **HUMS 202b / HIST 244Jb / JDST 354b, Modern Jewish Political Thought: Jewish Politics Through Texts, Philosophy, and History** David Sorkin
This course examines the canonical texts of modern Jewish political thinking from the seventeenth to the late twentieth century. Students engage with the major thinkers and major political movements of the period. WR, HU

HUMS 206a / ENGL 191a / LITR 318a / MMES 215a / NELC 201a, The Arabian Nights, Then and Now Robyn Creswell
The medieval cycle of tales known as *The Arabian Nights* or *The Thousand and One Nights* is among the most beloved and influential story collections of world literature. It is an “ocean” of tales that has much to teach us about how stories work, whether they

must come to an end, and our apparently bottomless desire to hear them. We will spend the semester in the company of genies and princes, thieves and slaves, mass murderers, detectives, and orientalist. We will also explore the ways in which the stories of the Nights have been adapted by later writers, such as Djebbar, Stevenson, Conan Doyle, and Mahfouz, as well as by filmmakers such Pasolini and – of course – Walt Disney. The course is intended to introduce students to the major tales of the Nights and to the classical Arabic literary tradition more broadly. It also seeks to develop their skills of close reading and analysis, particularly through a consideration of literary and filmic adaptations. HU TR

*** HUMS 224b / HIST 210Jb, Hobbes and Galileo: Materialism and the Emergence of Modernity** William Klein

Hobbes considered himself a disciple of Galileo, but as a systematic philosopher and ideologue during a period of civil unrest in England, he no doubt produced something that Galileo, a Tuscan astrophysicist and impassioned literary critic, was not entirely responsible for: an absolutist theory of the modern state situated within an eschatological time frame. In this course we will reflect on the relation between Galileo's anti-Aristotelian physics and Hobbes' system by reading key texts by Galileo and Hobbes along with an array of interpretations and criticisms of Hobbes that will serve to situate Hobbes in early modern currents of thought in science, religion and politics, while at the same time situating us in contemporary ideological debates about the origins of modernity. HU

HUMS 225a / ANTH 237a / GMAN 233a / LITR 242a / PHIL 219a, Karl Marx's Capital Staff

A careful reading of Karl Marx's classic critique of capitalism, *Capital* volume 1, a work of philosophy, political economy, and critical social theory that has had a significant global readership for over 150 years. Selected readings also from *Capital* volumes 2 and 3. HU TR o Course cr

*** HUMS 228a / EVST 228a / HIST 459a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

*** HUMS 241a / AFAM 182a / AMST 286a / ENGL 182a, James Baldwin's American Scene** Staff

In-depth examination of James Baldwin's canon, tracking his work as an American artist, citizen, and witness to United States society, politics, and culture during the Cold War, the Civil Rights era, and the Black Arts Movement. HU o Course cr

*** HUMS 253a / ENGL 346a / RLST 233a, Poetry and Faith** Christian Wiman

Issues of faith examined through poetry, with a focus on modern poems from 1850 to the present. Poems from various faith traditions studied, as well as to secular and antireligious poetry. HU

*** HUMS 261b / HIST 412Jb / NELC 364b / RLST 264b, The Psalms, A Cultural History of Ancient Prayer** Stephen Davis

This course introduces students to the Book of Psalms and its significant cultural and religious impact in ancient Judaism, Christianity, and Islam. The course is organized in three units. Unit 1 focuses on the text of the Psalms, with special attention to their literary forms, editorial organization, and early ritual context in ancient Israel. Unit 2 focuses on the reception and use of the Psalms in late ancient Judaism, Christianity, and Islam, with special attention to matters of translation, interpretation, worship, prayer, and scriptural authority. Unit 3 focuses on material and sensory encounters with the Psalms from antiquity to the present day within these three religious traditions—case studies related to tactile and visual contact with the physical book, oral and aural engagement through song or chant, and embodied forms of writing, reciting, and enacting the Psalms in the context of ritual practice, including magical spells. The goal of the course is thus to trace the life and afterlife—to write the textual and extra-textual “biography,” as it were—of a major biblical book. HU

*** HUMS 263a / EP&E 372a / PLSC 329a, Thucydides** Daniel Schillinger

In this seminar, we undertake a careful examination of Thucydides’ so-called History of the Peloponnesian War in its entirety. Central problems include the psychological and structural causes of war, the relation of justice to necessity, the susceptibility of democracy to imperialism and demagoguery, and the experience of war itself. We also engage with the secondary literature on Thucydides. WR, HU

*** HUMS 265a / ENGL 253a, Reading Ulysses: Modernist Classic and Postcolonial Epic** Joe Cleary and Christopher McGowan

An extended reading of James Joyce’s *Ulysses* (1922) as modernist and postcolonial epic. Beginning with considerations of the relationship of modern epic and novel, the class will study Joyce’s re-working of Homeric epic in modern Irish, “World Literature,” Western and postcolonial literary contexts. The seminar will engage with the style, narrative form, and symbolic meaning of Joyce’s work and survey some of the critical controversies and interpretative challenges that *Ulysses* has provoked over the last century. HU

HUMS 270a / CHNS 200a / EALL 200a / EAST 240a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

HUMS 280a, What Matters Most Matthew Croasmun and Ryan McAnnally-Linz

“What is a good life?” is a daunting question. While each of us needs to answer it, it is almost impossible to do so all at once. This course divides the question of the good life into smaller, but still very significant questions, like: Who do we answer to for the shape of our lives? What should we hope for? What is the role of suffering in a good life? Readings and discussion-heavy lectures engage a number of ancient and contemporary voices from a variety of religious, philosophical, ideological, and cultural perspectives. Through a series of small writing assignments, students respond to each

of life's big questions for themselves and synthesize these responses into their own account of what matters and why. WR, HU o Course cr

*** HUMS 281a / FILM 310a / GMAN 331a / LITR 416a, Paper: Material and Medium**

Austen Hinkley

Paper is one of the most ubiquitous and indispensable media of the modern era. Although we are (still) surrounded by it, paper tends to recede into the background, working best when we do not notice it at all. This course sets out to challenge our understanding of paper as a neutral or passive bearer of inscriptions by foregrounding its material quality. Our focus rests in equal parts on the media history of paper and paper works of art—among them many literary texts—that reflect or take advantage of their medium. Studying materials and histories from the early modern period to the present, we uncover paper's status as a commodity bound up in a complex web of economic processes, as an instrument of political power, as a gendered and racialized object, and as a material that can be cut, shuffled, and even eaten. Ultimately, we investigate how paper is still central to our lives, even in the age of tablets and PDFs. Readings include Emily Dickinson's envelope poems, Robert Walser's "Microscripts," and M. NourbeSe Philip's "Zong!" The class makes several visits to the Beinecke Library for hands-on work with paper materials. WR, HU

HUMS 300a, Environmental Digital Humanities Sayan Bhattacharyya

The course seeks to help students develop an integrated understanding of environmental and ecological issues from the point of view of the digital humanities, where the humanities are broadly understood (incorporating literature, the arts, philosophy, and cultural studies) in conjunction with digital technologies. Thus, the course exposes students to an understanding of how two increasingly important issues in the modern world—digital technology and environmental concerns—intersect.

HU

*** HUMS 302a / PLSC 303a, Demagoguery and Democracy** Bryan Garsten

This course offers historical and theoretical perspective on contemporary debates about democratic leadership and political discourse. How can demagoguery be distinguished from healthy forms of popular leadership? Under what conditions do demagogues tend to emerge? What institutional arrangements and political strategies help to manage demagogues? The course traces these themes through a set of conversations that begin in ancient Greek and Roman texts on the art of persuasion and continue through the Renaissance and early modern period and into revolutionary and post-revolutionary thinking about leaders' claims to speak for the people. Contemporary issues including populism and the impact of social media are addressed. HU, SO

*** HUMS 303a / EDST 281a / HIST 404a / PLSC 281a, What is the University?**

Mordechai Levy-Eichel

The University is one of the most influential—and underexamined—kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it.

But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO TR

*** HUMS 314b / GMAN 211b / LITR 441b / PHIL 412b, Marx, Nietzsche, Freud**
Austen Hinkley

The course is designed as an introduction to the thought of these three towering figures in the German-language intellectual tradition and to their contributions to our attempts to understand the human mind and society. We read seminal essays as well as (excerpts from) longer works, including Marx's *Capital*, Nietzsche's *Genealogy of Morality* and *Thus Spake Zarathustra*, and Freud's *Interpretation of Dreams*. But we also look at what came before and after these thinkers, considering—among others—Kant, Ludwig Feuerbach, Melanie Klein, Adorno, and Foucault; and we think about the relevance of Marx, Nietzsche, and Freud for the understanding of our own times. HU

*** HUMS 323a / HIST 236Ja, Truth and Sedition** William Klein

The truth can set you free, but of course it can also get you into trouble. How do the constraints on the pursuit and expression of “truth” change with the nature of the censoring regime, from the family to the church to the modern nation-state? What causes regimes to protect perceived vulnerabilities in the systems of knowledge they privilege? What happens when conflict between regimes implicates modes of knowing? Are there types of truth that any regime would—or should—find dangerous? What are the possible motives and pathways for self-censorship? We begin with the revolt of the Hebrews against polytheistic Egypt and the Socratic questioning of democracy, and end with various contemporary cases of censorship within and between regimes. We consider these events and texts, and their reverberations and reversals in history, in relation to select analyses of the relations between truth and power, including Hobbes, Locke, Kant, Brecht, Leo Strauss, Foucault, Chomsky, Waldron, Zizek, and Xu Zhongrun. WR, HU

*** HUMS 326a, Cultural Studies beyond Earth** Gary Tomlinson

This course is a thought experiment conducted with theory and data drawn from astro- or exobiology, evolutionary science, ethology, and cultural and semiotic theory. Scientists interested in life on other planets understand the need to start their inquiries from the only example of life we know, on earth. They work to extrapolate, from earthly biology, the principles of a universal biology: conditions that must hold anywhere life has arisen. Can we form a universal cultural study, extending their extrapolation toward conditions that enable culture wherever it might arise? We begin with an overview of universal biology, then examine cultures of humans and other animals on earth, and finally approach theoretically the foundations on which they arise, including semiotic theory and questions concerning communication and technics. HU

*** HUMS 340a / ENGL 244a / LITR 344a, The Detective Story: Solving Mysteries from Oedipus to Sherlock** Paul Grimstad

The course looks closely at detective stories, novels and films, with attention to the narrative structure of criminal enigma, logical investigation and denouement (whodunit, howdunit), and considers “genre” more broadly. Starting with the proto-detective story *Oedipus Rex*—in which tragic drama takes the form of a murder mystery—we move on to Edgar Allan Poe’s invention of the genre proper in “The Murders in the Rue Morgue” and “The Purloined Letter.” From there we go to Poe’s “golden age” inheritors Arthur Conan Doyle, G.K. Chesterton, Agatha Christie, and Dorothy Sayers, as well as the adaptation of Doyle’s tales for the BBC series *Sherlock*. We also spend time on American “hard boiled” writers (Dashiell Hammett, *The Maltese Falcon* and John Huston’s 1941 film adaptation of the novel; Chester Himes’ *The Real Cool Killers*); fiction which draws upon the conventions of detective stories without being genre fiction (Nabokov, Borges), non-fiction works which have the structure of a detective story (Freud’s “Wolf Man” case study); neo-noir film (*Chinatown*); works that fuse detective fiction and science-fiction (*Minority Report*) and recent film homage to “golden age” whodunnits (*Knives Out*). Students write essays making interpretive claims and using evidence from works on the syllabus, with emphasis on writing clear prose in support of an original argument. HU

HUMS 363a, AI as Global Cultural Artifact Sayan Bhattacharyya

The course seeks to help develop an understanding of how Artificial Intelligence has been imagined, in global culture, by writers and artists hailing from, or affiliating with, various parts of the globe; and also how, to some extent, human cultural imagination and demands have influenced developments in AI. We address these questions in a global sense as much as we can: while the culture of Western modernity will figure very prominently in the readings and discussion, we take a more enlarged perspective, with some of the readings being about, and/or from, places and imaginaries beyond the West: China, Afrofuturism, and South Asia. Readings consist mostly of imaginative literary works (short stories, and excerpts from longer novels), but also encompasses some non-fiction and graphic fiction. At least two weeks of class also focuses on non-textual culture (theater, film, paintings, and music that is connected to AI). The readings combine with assignments involving both traditional essays (midterm essay and final essay) and short assignments (assigned on a rolling basis, which let students explore the questions addressed in the course to a further extent). HU

*** HUMS 370a / AFAM 354a / ENGL 351a, Fictions of the Harlem Vogue: Novels, Short Stories, and Novellas of the “Harlem Renaissance”** Ernest Mitchell

In this seminar, we examine the major novels, short stories, and novellas of the Harlem Vogue (1923–1934), the first decade of the Negro Renaissance. Key texts by Jessie Fauset, Nella Larsen, Jean Toomer, and Eric Walrond are central, along with lesser-known works by Zora Neale Hurston and Langston Hughes. We consider critical debates about these texts and their standard designation as part of the “Harlem Renaissance.” Careful close reading is emphasized throughout; students are guided through a process of archival research and sustained formal analysis to produce a polished critical essay. WR, HU

*** HUMS 377a / ENGL 341a / EVST 409a / LITR 404a, Nature Poetry, from the Classics to Climate Change** Jonathan Kramnick

Poetry of the natural world, beginning with classical pastoral and ending with lyric responses to climate change. We consider how poetry attempts to make sense of our interaction with the earth at important moments of change, from pre-industrial agriculture to global capitalism and the Anthropocene. WR, HU

*** HUMS 382a / HSHM 464a, Nature and Human Nature** Gary Tomlinson

This course explores the Western conception of the human place in the natural world as it has shifted across four centuries. It features, alongside corollary readings, close study of three classic texts: Galileo's *Dialogue Concerning the Two Chief World Systems* (1632), Giambattista Vico's *New Science* (1744), and Darwin's *Origin of Species* (1859)—fundamental texts locating humans in the cosmos, in society, and in natural history, respectively. It finishes with a new work, Terrence Deacon's *Incomplete Nature* (2011), an attempt to explain the emergence of mind from the natural world. No prerequisites, though the challenging nature of the materials suggests that this course will be aimed mainly at students beyond their first year. HU

*** HUMS 388a / ENGL 289a / LITR 389a / PHIL 385a / RLST 380a, The Force of Life** Nancy Levene and James Wood

The point of departure for this course is a line from James Baldwin in *The Fire Next Time*: “To be sensual, I think, is to respect and rejoice in the force of life, of life itself, and to be *present* in all that one does, from the effort of loving to the breaking of bread.” We study four authors—Virginia Woolf, Franz Kafka, Baldwin, and Jacques Derrida—in light of the values Baldwin expresses and their challenges. Our work between philosophy and fiction involves striving to read each text according to the ideas it itself advances, as well as reading for connections and cross-pollinations. WR, HU TR

*** HUMS 411b, Life Worth Living** Matthew Croasmun

Comparative exploration of the shape of the life advocated by several of the world's normative traditions, both religious and nonreligious. Concrete instantiations of these traditions explored through contemporary exemplars drawn from outside the professional religious or philosophical spheres. Readings from the founding texts of Buddhism, Judaism, Christianity, Islam, Marxism, and utilitarianism. HU

*** HUMS 418a / AMST 328a / ER&M 357a / HIST 112a, “None Dare Call It Conspiracy:” Paranoia and Conspiracy Theories in 20th and 21st-Century America** David Walsh

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU TR

*** HUMS 422a / FILM 333a / LITR 351a, Early Film Theory and Modernity** Francesco Casetti

For a long time, early film theory and criticism have been overlooked and underestimated. However, their recent rediscovery has highlighted their crucial role in framing film as a “modern” invention. While discussing what then was a recent invention, early film theory and criticism tackled some of the main characteristic of modern life: speed, excitement, contingency, openness, subjectivity, circulation, etc. By doing so, they underscored the parallel between modern experience and filmic representations. On the screen—they claimed—spectators do not only see the world in which they live, but also the effects of the political, industrial, and social revolutions on this world. At the same time, early film theory and criticism developed an ideal of “modern” art and “modern” language, through a systematic exploration of filmic style and iconography. According to them, film was the epitome of a “new art” for “new times.” The course explores the idea of modernity as it developed in the Western world between the end of the 19th and the beginning of the 20th centuries. Despite this limitation, we do not meet a uniform landscape; on the contrary, ideological differences and national identities played a major role in defining the perspectives forged by film theorists and critics. While considering texts from France (Delluc, Epstein), Germany (Arnheim, Kracauer), Middle-Europe (Bálahs, Lukács, Tille), Italy (Papini, Thovez), Soviet Union (Eisenstein, Vertov, Pudovkin) and USA (Lindsay, Freeburg, Münsterberg), the course systematically and critically compares them and their traditions. Every week there is a screening with films representative of the time. When possible, we use original prints. HU

*** HUMS 427a or b / ENGL 456a or b / JDST 316a or b / LITR 348a or b, The Practice of Literary Translation** Staff

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation—by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

*** HUMS 428b / ENGL 483b / JDST 343b / LITR 305b, Advanced Literary Translation** Robyn Creswell

A sequel to LITR 348 or its equivalent, this course brings together advanced and seriously committed students of literary translation, especially (but not only) those who are doing translation-related senior theses. Students must apply to the class with a specific project in mind, that they have been developing or considering, and that they will present on a regular basis throughout the semester. Discussion of translations-in-progress are supplemented by short readings that include model works from the world of literary translation, among them introductions and pieces of criticism, as well as reflections by practitioners treating all phases of their art. The class is open

to undergraduates and graduate students who have taken at least one translation workshop. By permission of the instructor. Prerequisite: LITR 348.

*** HUMS 443a / HIST 232Ja / JDST 270a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness – humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

*** HUMS 445a / ENGL 343a / FILM 422a, Modernities: The Aesthetics of Adaptation** Katja Lindskog

Adaptations of literary texts are the bread and butter of visual narrative media like TV and film. Adaptations of certain authors and texts have given rise to entire sub-genres and cottage industries. We consider what adaptations of literary texts, particularly very famous and beloved texts, might help us understand better about the texts themselves, and about the needs and expectations of the audiences of their adaptations. To that purpose, this course explores the purposes and effects of adaptation through a study of a variety of screen versions of adapted texts by authors including Jane Austen, Emily St. John Mandel, and Geoffrey Chaucer. Assigned readings include both literary texts and screen adaptations. HU

*** HUMS 446b / EVST 349b / HIST 449Jb / HSHM 449b / URBN 382b, Critical Data Visualization: History, Theory, and Practice** Bill Rankin

Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshoping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

*** HUMS 452a / EVST 266a / LAST 350a / SPAN 365a, Ecologies of Culture: Latin American Environmental Aesthetics** Santiago Acosta

In the age of rising sea levels, mass extinction, and carbon-driven climate change, can culture and the arts remain unchanged? This course focuses on the intersections between aesthetics and ecological practices in the context of the Anthropocene, a proposed geological epoch wherein humans have become a major geological force shaping the planet. It challenges traditional approaches by examining how culture and the arts can help to understand and respond to environmental crises. Discussions and readings emphasize the role of culture and aesthetics as agents and producers of environmental knowledge, highlighting their potential to challenge socio-ecological relations. Throughout the semester, students explore various themes, including colonialism, anthropocentrism, human-animal relations, fossil capitalism, indigenous ontologies, and the impact of extractive industries on territories and bodies in Latin

America, the Caribbean, and the Latinx world. Students engage with works by established and emerging artists, aiming to produce ecocritical knowledge about the current climate and environmental crisis. The course also offers a panoramic view of Latin American culture by examining some key historical events and authors whose works can shed light on cultural and ideological processes at the root of climate change. By the end of the semester, students can formulate research questions that are critical to the field of Latin American environmental humanities, as well as produce papers that are relevant to a broader debate about culture and ecology. Lastly, the course hopes to motivate students—beyond the classroom—to examine their place in an increasingly warming world. **Taught in Spanish.** L5, HU TR

*** HUMS 453b / FREN 405b / HIST 204Jb / HSAR 373b, Notre-Dame de Paris**

R. Howard Bloch and Paul Freedman

Against the background of Gothic cathedral building in the High Middle Ages, we study from multiple perspectives the building of Notre-Dame within the teaching and preaching culture of the twelfth and thirteenth centuries, with special focus on medieval Paris. Interdisciplinary materials include religious, literary, historical, and philosophic works alongside of music and the visuals—stained glass and sculpture—that are such an integral part of Gothic architecture. We also consider the history of Notre-Dame de Paris since the Middle Ages, especially Viollet-le-Duc's nineteenth-century restoration, to be read alongside Victor Hugo's *Notre-Dame of Paris*, and in the context of the rebuilding and reopening after the fire of 2019. WR, HU

*** HUMS 467a, Interpretations Seminar: Hart Crane** Riley Soles

Before his tragic death at the age of 32, and with a comparatively small total output, Hart Crane produced some of the most astonishing and influential poems of the 20th century. This seminar will focus on close-reading Hart Crane's complete poetic oeuvre, with sustained attention to his volume of poems *White Buildings* and his short epic *The Bridge*. We will locate Crane as a queer American poet in his historical and cultural context in the early 20th century, writing alongside and against his Modernist contemporaries. We will also investigate Crane's relationship to Romanticism by reading his poetry as a continuation and revision of Romantic precursors in both the English and American poetic traditions. Special attention will be paid to Crane's unique poetics of catachresis, as evidenced through his poetry but also as articulated in his letters. Finally, we will consider the religious elements of Crane's poetry and poetics by putting him conversation with hermeticism, Gnosticism, Biblical prophecy, and visionary experience. HU

*** HUMS 471a, Special Studies in the Humanities** Paul Grimstad

For students who wish to pursue a topic in Humanities not otherwise covered. May be used for research or for directed reading under the guidance of one or more faculty advisers. In either case a term paper or its equivalent is required, as are regular meetings with the adviser or advisers. To apply, a student should present a prospectus and a bibliography signed by the adviser or advisers to the director of undergraduate studies. Enrollment limited to juniors and seniors majoring in Humanities.

*** HUMS 480a / GMAN 288a / LITR 482a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean*

Ethics. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.

HU

* **HUMS 491a, The Senior Essay** Paul Grimstad

Independent library-based research under faculty supervision. To register, students must consult the director of undergraduate studies no later than the end of registration period in the previous term. A written plan of study approved by a faculty adviser must be submitted to the director of undergraduate studies. RP

Hungarian (HGRN)

Indonesian (INDN)

INDN 110a, Elementary Indonesian I Indriyo Sukmono

An introductory course in standard Indonesian with emphasis on developing communicative skills through a systematic survey of grammar and graded exercises. Enrollment limited to 15 per section. L1 1½ Course cr

INDN 120b, Elementary Indonesian II Indriyo Sukmono

Continuation of INDN 110. Introduction to reading, leading to mastery of language patterns, essential vocabulary, and basic cultural competence. After INDN 110 or equivalent. Enrollment limited to 15 per section. L2 1½ Course cr

* **INDN 130a, Intermediate Indonesian I** Dinny Aletheiani

Continued practice in colloquial Indonesian conversation and reading and discussion of texts. After INDN 120 or equivalent. Limited enrollment. L3 1½ Course cr

* **INDN 140b, Intermediate Indonesian II** Dinny Aletheiani

Continuation of INDN 130. After INDN 130 or equivalent. Limited enrollment. L4 1½ Course cr

* **INDN 150a, Advanced Indonesian I** Indriyo Sukmono

Development of advanced fluency through discussion of original Indonesian sociohistorical, political, and literary texts and audiovisual sources. Extension of cultural understanding of Indonesia. Prerequisite: INDN 140 or equivalent. May not be taken after INDN 153. L5

* **INDN 160b, Advanced Indonesian II** Dinny Aletheiani

Continuation of INDN 150. Prerequisite: INDN 150 or equivalent. L5

* **INDN 470a, Independent Tutorial** Dinny Aletheiani

For students with advanced Indonesian language skills who wish to engage in concentrated reading and research on material not otherwise offered in courses. The work must be supervised by an adviser and must terminate in a term paper or its equivalent. After INDN 160. Permission to enroll requires submission of a detailed project proposal and its approval by the program adviser.

Italian Studies (ITAL)

* ITAL 020a / HUMS 020a, *Six Pretty Good Dogs* Simona Lorenzini

We all have heard the phrase “Dogs are man’s best friends.” For thousands and thousands of years there has been an indissoluble friendship between man and dog, an unwritten covenant, a symbiotic relationship that has no equal in the animal world. Why do we consider them our ‘best friends’? And is this always true? If not, why do we sometimes fear dogs? What role have dogs played in our understanding of being human? This course explores images of dogs in 20th–21st Italian literature through six main categories: a man and his dog; dogs and inhumanity; dogs and exile; dogs and children; dogs and folktales; dogs and modern bestiary. We discuss and close read a variety of texts, which are representative of different strategies for reflecting on the self and on the ‘other’ by unpacking the unstable relationship between anthropomorphism, personification, and humanization. Hopefully, these texts impel us to understand how profoundly the animal is involved in the human and the human in the animal. This course is part of the “Six Pretty Good Ideas” program. Enrollment limited to first-year students. All readings in English. WR, HU 1½ Course cr

* ITAL 110a, *Elementary Italian I* Staff

A beginning course with extensive practice in speaking, reading, writing, and listening and a thorough introduction to Italian grammar. Activities include group and pairs work, role-playing, and conversation. Introduction to Italian culture through readings and films. Conducted in Italian. L1 1½ Course cr

* ITAL 130a, *Intermediate Italian I* Staff

The first half of a two-term sequence designed to increase students’ proficiency in the four language skills and advanced grammar concepts. Authentic readings paired with contemporary films. In-class group and pairs activities, role-playing, and conversation. Admits to ITAL 140. Conducted in Italian. ITAL 120 or equivalent. L3 1½ Course cr

ITAL 150a, *Advanced Composition and Conversation:* Deborah Pellegrino

Discussion of social, political, and literary issues in order to improve active command of the language. Development of advanced reading skills through magazine and newspaper articles, essays, short stories, films, and a novel; enhancement of writing skills through experiments with reviews, essays, creative writing, and business and informal Italian. Classroom emphasis on advanced speaking skills and vocabulary building. Prerequisite: ITAL 140 or equivalent. L5

* ITAL 159a, *History and Culture of Naples* Anna Iacovella

Historical phenomena and literary and cultural movements that have shaped the city of Naples, Italy, from antiquity to the present. The linguistic richness and diversity that characterizes Naples; political, social, and cultural change; differences between standard Italian and the Neapolitan dialect in literature, film, and everyday life. Prerequisite: ITAL 140 or equivalent. L5, HU

* ITAL 162a, *Introduction to Italian Literature: From the Duecento to the Renaissance* Simona Lorenzini

This is the first course in a sequence studying Italian Literature. The course aims to provide an introduction and a broad overview of Italian literature and culture from the Duecento to the Renaissance, specifically focusing on authors such as Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, and literary and artistic movements such

as Humanism and Renaissance. These authors and their masterpieces are introduced through readings, works of art, listening materials, videos, and films. Great space is left for in-class discussion and suggestions from students who may take an interest in specific authors or subjects. This course is interactive and open, and the authors mentioned here are only indicative of the path that we follow. At the end of the course, students are able to analyze and critique literary works of different genres and time periods. The course is conducted in Italian. Prerequisite: ITAL 140 or equivalent. 15, HU

ITAL 310a / HUMS 180a / LITR 183a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU TR o Course cr

ITAL 315a / HIST 280a / RLST 160a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

*** ITAL 337a / ER&M 236a / LITR 395a / WGSS 364a, Feminism without Women: Modernist and Postcolonial Textual Experiments** Serena Bassi

Antifeminist critics charge the feminist movement with having forgotten "real women" in favor of inaccessible theories rejecting the supposedly incontrovertible fact that there are only two sexes and genders. This seminar turns the charge on its head by exploring a theoretical and literary canon that – by questioning the ontological status of the male/female binary – has transformed feminism into a capacious, radically inclusive, revolutionary 21st-century movement. The texts and the theories that we discuss put pressure on the very category of "woman" as they strive to rethink feminism as a non-identitarian world-making project. The class focuses on two movements that employ art and literature to push back against the idea of "women" as the monolithic subject of feminism: Italian vanguard modernism and Italophone literary postcolonialism. We discuss modernist and postcolonial novels, poems, essays, and performative art pieces together with classics of feminist, queer and postcolonial theory. We push our own political imagination further by asking ever more sophisticated questions about gender, sexuality, ethnicity, race, and the way these intersecting social formations mediate the way we see, experience, and represent our material and social reality. The course is taught entirely in English. No previous knowledge of Italian language, art, or literature required. Students seeking departmental credit for Italian do their writing and reading in the original language, and attend a discussion session in Italian. HU

ITAL 384a / FILM 362a / FREN 384a / JDST 289a / LITR 338a, Representing the Holocaust Maurice Samuels and Millicent Marcus

The Holocaust as it has been depicted in books and films, and as written and recorded by survivors in different languages including French and Italian. Questions of aesthetics and authority, language and its limits, ethical engagement, metaphors and memory, and narrative adequacy to record historical truth. Interactive discussions about films (*Life Is Beautiful*, *Schindler's List*, *Shoah*), novels, memoirs (Primo Levi, Charlotte Delbo,

Art Spiegelman), commentaries, theoretical writings, and testimonies from Yale's Fortunoff Video Archive. WR, HU

*** ITAL 470a and ITAL 471a, Special Studies in Italian Literature** Simona Lorenzini

A series of tutorials to direct students in special interests and requirements. Students meet regularly with a faculty member.

*** ITAL 491a, The Senior Essay** Simona Lorenzini

A research essay on a subject selected by the student in consultation with the faculty adviser.

Japanese (JAPN)

*** JAPN 110a, Elementary Japanese I** Staff

Introductory course for students with no previous background in Japanese.

Development of proficiency in listening, speaking, reading, and writing, including hiragana, katakana, and kanji characters. Introduction to Japanese culture and society. Individual tutorial sessions to improve oral communication skills. L1 RP

1½ Course cr

*** JAPN 120b, Elementary Japanese II** Staff

Continuation of JAPN 110, with additional materials such as excerpts from television shows, anime, and songs. Introduction of 150 additional kanji. After JAPN 110 or equivalent. L2 RP 1½ Course cr

*** JAPN 130a, Intermediate Japanese I** Saori Nozaki

Continued development in both written and spoken Japanese. Aspects of Japanese culture, such as history, art, religion, and cuisine, explored through text, film, and animation. Online audio and visual aids facilitate listening, as well as the learning of grammar and kanji. Individual tutorial sessions improve conversational skills. After JAPN 120 or equivalent. L3 RP 1½ Course cr

*** JAPN 140b, Intermediate Japanese II** Kumiko Nakamura

Continuation of JAPN 130. After JAPN 130 or equivalent. L4 RP 1½ Course cr

*** JAPN 150a, Advanced Japanese I** Kumiko Nakamura

Advanced language course that further develops proficiency in reading, writing, speaking, and listening of Japanese. Discussion topics include a variety of Japanese culture and society, such as food, religion, and pop-culture. Individual tutorial sessions to improve oral communication skills. After JAPN 140 or equivalent. L5 RP

*** JAPN 151b, Advanced Japanese II** Hiroyo Nishimura

Continuation of JAPN 150. After JAPN 150 or equivalent. L5 RP

*** JAPN 156a, Advanced Japanese III** Hiroyo Nishimura

Close reading of modern Japanese writing on current affairs, social science, history, and literature. Development of speaking and writing skills in academic settings, including formal speeches, interviews, discussions, letters, e-mail, and expository writing. Interviews of and discussions with native speakers on current issues. Individual tutorial sessions provide speaking practice. After JAPN 151 or equivalent. L5 RP

*** JAPN 157b, Advanced Japanese IV** Mika Yamaguchi

Continuation of JAPN 156. After JAPN 156 or equivalent. L5

JAPN 170a, Introduction to Literary Japanese Staff

Introduction to the grammar and style of the premodern literary language (*bungotai*) through a variety of texts. After JAPN 151 or equivalent. L5

*** JAPN 171b, Readings in Literary Japanese** Staff

Close analytical reading of a selection of texts from the Nara through the Tokugawa periods: prose, poetry, and various genres. Introduction to *kanbun*. After JAPN 170 or equivalent. L5

Jewish Studies (JDST)

JDST 200a / ER&M 219a / HIST 219a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

*** JDST 270a / HIST 232Ja / HUMS 443a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness – humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

JDST 289a / FILM 362a / FREN 384a / ITAL 384a / LITR 338a, Representing the Holocaust Maurice Samuels and Millicent Marcus

The Holocaust as it has been depicted in books and films, and as written and recorded by survivors in different languages including French and Italian. Questions of aesthetics and authority, language and its limits, ethical engagement, metaphors and memory, and narrative adequacy to record historical truth. Interactive discussions about films (*Life Is Beautiful*, *Schindler's List*, *Shoah*), novels, memoirs (Primo Levi, Charlotte Delbo, Art Spiegelman), commentaries, theoretical writings, and testimonies from Yale's Fortunoff Video Archive. WR, HU

*** JDST 305a / HEBR 158a / MMES 168a, Contemporary Israeli Society in Film** Shiri Goren

Examination of major themes in Israeli society through film, with emphasis on language study. Topics include migration, gender and sexuality, Jewish/Israeli identity, and private and collective memory. Readings in Hebrew and English provide a sociohistorical background and bases for class discussion. Prerequisites: HEBR 140 or permission of instructor. L5, HU RP

*** JDST 316a or b / ENGL 456a or b / HUMS 427a or b / LITR 348a or b, The Practice of Literary Translation** Staff

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of

case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

*** JDST 326a / LITR 317a, Marxist Theory of Literature** Hannan Hever

The role of Marxist thought in understanding literary institutions and texts in the twentieth century. Marx's theory of ideology; Lukacs's theory of literature as the basis for development of Marxist literary theory; the Frankfurt and materialistic schools. Readings include works by Raymond Williams, Catherine Belsey, Walter Benjamin, Pierre Macherey, and Frederic Jameson. HU

*** JDST 343b / ENGL 483b / HUMS 428b / LITR 305b, Advanced Literary Translation**
Robyn Creswell

A sequel to LITR 348 or its equivalent, this course brings together advanced and seriously committed students of literary translation, especially (but not only) those who are doing translation-related senior theses. Students must apply to the class with a specific project in mind, that they have been developing or considering, and that they will present on a regular basis throughout the semester. Discussion of translations-in-progress are supplemented by short readings that include model works from the world of literary translation, among them introductions and pieces of criticism, as well as reflections by practitioners treating all phases of their art. The class is open to undergraduates and graduate students who have taken at least one translation workshop. By permission of the instructor. Prerequisite: LITR 348.

*** JDST 345a / ENGL 431a, Ghostwriting** Staff

This is a class about the process, politics, aesthetics, ethics, and psychology of ghostwriting – that is, writing work that will appear under another person's name. Readings range from works of theory to popular works written by and about ghostwriters. Particular attention is paid to the psychological aspects of ghostwriting, and the resemblance of the ghoster-ghosted relationship to clinical talk therapy. Readings also address the image of the ghost in popular and political culture, including the image of the Jews, women, and the repressed Other. Students are expected to “ghost” passages in the voices of their classmates, as well as in the voices of prominent figures. Secondary topics include the phenomena of collective writing and human-AI collaboration. Academic integrity is enforced according to the rules and regulations established by the Yale College Writing Center. WR, HU

JDST 346a / HIST 249a, Making European Culture Jewish: Five Media, 1780–1930
Staff

This course studies the ways in which Jewish writers and artists turned European culture into Jewish culture, that is, how a minority group fashioned its own version of the majority culture. As European Jews encountered European culture and society, they had to grapple with a host of fundamental questions. What was Judaism and who were the Jews: a religion, a history, a culture, a nation? We examine the way in which writers and artists struggled with these issues in five media: memoir, theology,

history, fiction, and painting, thereby creating Jewish versions first of Enlightenment, Romanticism, and realism (1780–1870) and then of nationalism, positivism, and modernism (1870–1930). WR, HU o Course cr

*** JDST 351a / HIST 268Ja / PLSC 466a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East, and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** JDST 354b / HIST 244Jb / HUMS 202b, Modern Jewish Political Thought: Jewish Politics Through Texts, Philosophy, and History** David Sorkin

This course examines the canonical texts of modern Jewish political thinking from the seventeenth to the late twentieth century. Students engage with the major thinkers and major political movements of the period. WR, HU

*** JDST 356a / GMAN 202 / LITR 342a / MMES 396, Introduction to Jewish Literatures** Hannan Hever

The course will explore Jewish poetics and identities through literary genres like novels, stories, poems, and legends written in Jewish languages such as Hebrew, Yiddish, and Ladino, and also, Jewish literatures written in French, German, Arabic, Russian, and Italian. The course emphasizes the literary and political contexts of the “Jewish Question” by reading texts written by Jews in the Middle East, North Africa, Europe, Israel, and the United States. The course begins with Jeremiah’s prophecies, then explores the Mishnaic “Ethics of Our Fathers” and Hebrew poetry written by Medieval Jewish Spanish poets like Judah ha-Levi and Shmuel HaNagid. Among the authors we will discuss are Franz Kafka, Paul Celan, Edmond Jabès, Primo Levi, Philip Roth, and Israeli writers such as S. Y. Agnon, Shimon Ballas, Dalia Ravikovitz, and A.B. Yehoshua. The poetics of Jewish literatures will be studied alongside religion, ethnicity, class differences, diaspora, and family relationships, as well as gender issues, minorities, and nationalism. HU RP

*** JDST 364b, Translating Judaism** Peter Cole

This course combines elements of a translation workshop and a seminar that focuses on the Jewish history of translation. We consider comparative renderings of key texts and secondary reflections on the process of translation itself—from Scripture (biblical prose and poetry) to medieval literature (religious, philosophical, and belletristic prose as well as poetry), and on to modern and contemporary fiction, non-fiction, religious texts, and poems. Students are required to have competence in at least one foreign (and preferably Jewish) language and to develop semester-long projects that are brought into the workshop part of the class on a regular basis. Competence in at least one

language apart from English. A working knowledge of Hebrew, Yiddish, or any other “Jewish language” is desirable, but not required. HU

*** JDST 365b / HIST 170Jb, American Jewish Citizenship Politics, From Revolution to Civil Rights** Staff

Through a survey of primary and secondary sources on American Jewish political history, this seminar course studies how Jews theorized and mobilized on behalf of their citizenship rights in the United States, from the colonial era through the early 1970s. Although Jews were legally granted full “emancipation” by the federal government in 1790, constant changes in the size and power of the American state—as well as in the makeup of America’s Jewish population itself—challenged the very meaning of what full citizenship entailed. Over the following two centuries, Jews’ social, economic, and political rights as citizens often remained in flux. As a result, a vast array of different Jewish individuals and organizations mobilized behind different political movements to bolster their continued rights as citizens in America. WR, HU

JDST 407b / HEBR 161b / MMES 156b, Israeli Popular Music Dina Roginsky

Changes in the development of popular music in Israel explored as representations of changing Israeli society and culture. The interaction of music and cultural identity; modern popular music and social conventions; songs of commemoration and heroism; popular representation of the Holocaust; Mizrahi and Arab music; feminism, sexuality, and gender; class and musical consumption; criticism, protest, and globalization. Conducted in Hebrew. Prerequisite: HEBR 140 or equivalent. L5, SO

*** JDST 409a / HEBR 159a / MMES 159a, Conversational Hebrew: Israeli Media**
Shiri Goren

An advanced Hebrew course for students interested in practicing and enhancing conversational skills. Focus on listening comprehension and on various forms of discussion, including practical situations, online interactions, and content analysis. Prerequisite: HEBR 140 or permission of instructor. L5 RP

*** JDST 417b / HEBR 164b / MMES 167b, Biblical to Modern Hebrew for Reading Knowledge** Dina Roginsky

Instruction in the linguistic needs of students who have reading knowledge of Biblical Hebrew but cannot read or converse in Modern Hebrew. Concentration on reading comprehension of Modern Hebrew for research purposes, particularly scholarly texts tailored to students’ areas of interest. Two years of Biblical or Modern Hebrew studies, or permission of the instructor. RP

JDST 653a / ANTH 531a / CLSS 815a / EALL 773a / HIST 502a / HSAR 564a / NELC 533a / RLST 803a, Archaia Seminar: Law and Society in China and Rome
Noel Lenski and Valerie Hansen

An introduction to the legal systems of the Roman and post-Roman states and Han- and Tang-dynasty China. Emphasis on developing collaborative partnerships that foster comparative history research. Readings in surviving law codes (in the original or English translation) and secondary studies on topics including slavery, trade, crime, and family. This course serves as an Archaia Core Seminar. It is connected with Archaia’s Ancient Societies Workshop (ASW), which runs a series of events throughout the academic year related to the theme of the seminar. Students enrolled in the seminar must attend all ASW events during the semester in which the seminar is offered.

JDST 695b / HEBR 563b, From Biblical to Modern Hebrew Dina Roginsky

This course aims to support students who have reading knowledge of Biblical Hebrew but cannot read or converse in Modern Hebrew. The course concentrates on reading and aims at enabling students to use Modern Hebrew for research purposes. The texts chosen are tailored to students' particular areas of interest. Prerequisite: two years of Biblical or Modern Hebrew studies, or permission of the instructor. Conducted in English.

JDST 761a / HIST 596a / MDVL 596a / RLST 773a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings.

JDST 845a / RLST 643a, The Global Right: From the French Revolution to the American Insurrection Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East, and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics.

Khmer (KHMR)

*** KHMR 110a, Elementary Khmer I** Staff

Basic structures of modern standard Cambodian introduced through the integration of communicative practice, reading, writing, and listening comprehension. Introduction to Khmer society and culture. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1
1½ Course cr

*** KHMR 120b, Elementary Khmer II** Staff

Basic structures of modern standard Cambodian introduced through the integration of communicative practice, reading, writing, and listening comprehension. Introduction to Khmer society and culture. Prerequisite: KHMR 110. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 1½ Course cr

KHMR 130a, Intermediate Khmer I Staff

This course focuses on learning Khmer (the national language of Cambodia). Students communicate in day-to-day conversation using complex questions and

answers. The course focuses on reading, writing, speaking, and listening to Khmer words, long sentences, and texts. The course also emphasizes grammar, sentence structure and using words correctly. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Prerequisite: KHMR 120 or equivalent. L3 RP 1½ Course cr

KHMR 140b, Intermediate Khmer II Staff

This course focuses on learning Khmer (the national language of Cambodia). Students communicate in every day conversation using complex questions/answers. The course focuses on reading, writing, speaking, and listening to Khmer words, long sentences, and texts. The course also emphasizes grammar, sentence structure and using words correctly. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Prerequisite: KHMR 130 or equivalent. L4 RP 1½ Course cr

Kiswahili (SWAH)

SWAH 110a, Beginning Kiswahili I John Wa’Njogu

A beginning course with intensive training and practice in speaking, listening, reading, and writing. Initial emphasis is on the spoken language and conversation. L1 1½ Course cr

SWAH 130a, Intermediate Kiswahili I Veronica Waweru

Further development of students’ speaking, listening, reading, and writing skills. Prepares students for further work in literary, language, and cultural studies as well as for a functional use of Kiswahili. Study of structure and vocabulary is based on a variety of texts from traditional and popular culture. Emphasis on command of idiomatic usage and stylistic nuance. After SWAH 120. L3 1½ Course cr

SWAH 150a, Advanced Kiswahili I John Wa’Njogu

Development of fluency through readings and discussions on contemporary issues in Kiswahili. Introduction to literary criticism in Kiswahili. Materials include Kiswahili oral literature, prose, poetry, and plays, as well as texts drawn from popular and political culture. After SWAH 140. L5

SWAH 170a, Topics in Kiswahili Literature John Wa’Njogu

Advanced readings and discussion with emphasis on literary and historical texts. Reading assignments include materials on Kiswahili poetry, Kiswahili dialects, and the history of the language. After SWAH 160. L5, HU

Korean (KREN)

* **KREN 110a, Elementary Korean I** Staff

A beginning course in modern Korean. Pronunciation, lectures on grammar, conversation practice, and introduction to the writing system (*Hankul*). L1 1½ Course cr

* **KREN 120b, Elementary Korean II** Staff

Continuation of KREN 110. After KREN 110 or equivalent. L2 RP 1½ Course cr

*** KREN 130a, Intermediate Korean I** Staff

Continued development of skills in modern Korean, spoken and written, leading to intermediate-level proficiency. After KREN 120 or equivalent. L3 RP 1½ Course cr

*** KREN 132a, Intermediate Korean for Advanced Learners I** Angela Lee-Smith

Intended for students with some oral proficiency but little or no training in *Hankul*. Focus on grammatical analysis, the standard spoken language, and intensive training in reading and writing. L3 RP 1½ Course cr

*** KREN 140b, Intermediate Korean II** Staff

Continuation of KREN 130. After KREN 130 or equivalent. L4 RP 1½ Course cr

*** KREN 142b, Intermediate Korean for Advanced Learners II** Angela Lee-Smith

Continuation of KREN 132. After KREN 132 or equivalent. L4 RP 1½ Course cr

KREN 150a, Advanced Korean I: Korean Language and Culture through K-Pop Music

Angela Lee-Smith

An advanced language course with emphasis on developing vocabulary and grammar, practice reading comprehension, speaking on a variety of topics, and writing in both formal and informal styles. Use storytelling, discussion, peer group activities, audio and written journals, oral presentations, and supplemental audiovisual materials and texts in class. After KREN 140 or equivalent. L5

KREN 151b, Advanced Korean II: Korean Language and Culture through Media

Angela Lee-Smith

This course is content and project-based to further develop integrated language skills-spoken and written, including grammar and vocabulary, as well as intercultural competence through Korean media. Through a variety of media, such as print media, publishing, digital media, cinema, broadcasting (radio, television, podcasting), and advertising, students explore and reflect on a wide range of topics and perspectives in Korean culture and society. The course learning activities include interactive, interpretive, and presentational communication; critical analysis; creative and authentic language applications in formal/informal contexts. After KREN 150 or equivalent. L5

KREN 152a, Advanced Korean III: Contemporary Life in Korea Hyunsung Lim

This course is an advanced language course designed to further develop language skills through topics related to contemporary Korea, including lifestyle, society, culture, and literature, supplemented with authentic media materials. This course aims to expand students' understanding of Korea while enhancing their multiliteracy. Intended for both non-heritage speakers and heritage speakers. Prerequisite: After KREN 142 or KREN 151, or equivalent. L5

*** KREN 153b, Advanced Korean IV: Korean Sociocultural Practices and Perspectives**

Staff

This course is an interdisciplinary content-based advanced course in modern Korean. It aims to advance language skills in all four areas and cultural competence to communicate with fluency and accuracy. Students build up wide-ranging vocabulary and grammar, while registering and deepening their understanding of cultural aspects through authentic materials and communicative tasks across a variety of topics, such as social, academic, or career interests. (Previously KREN 152). After KREN 152, or with permission of instructor. L5

*** KREN 154a, Advanced Korean V: History and Society** Seungja Choi

An advanced language course designed to develop reading and writing skills using Web-based texts in a variety of genres. Students read texts independently and complete comprehension and vocabulary exercises through the Web. Discussions, tests, and intensive writing training in class. After KREN 152 or equivalent. L5

Latin (LATN)

LATN 110a, Beginning Latin: The Elements of Latin Grammar Staff

Introduction to Latin. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for LATN 120. No prior knowledge of Latin assumed. L1 1½ Course cr

LATN 120b, Beginning Latin: Review of Grammar and Selected Readings Staff

Continuation of LATN 110. Emphasis on consolidating grammar and on readings from Latin authors. The sequence LATN 110, 120 prepares for 131 or 141. Prerequisite: LATN 110 or equivalent. L2 RP 1½ Course cr

*** LATN 125a, Intensive Beginning Latin** Timothy Robinson

An accelerated course that covers in one term the material taught in LATN 110 and 120. Readings from Latin authors supplement intensive instruction in grammar and vocabulary. Admits to LATN 131 or 141. Not open to students who have completed LATN 110 or 120. L1, L2 RP 2 Course cr

LATN 131a, Latin Prose: An Introduction Staff

Close reading of a major work of classical prose; review of grammar as needed. Counts as L4 if taken after LATN 141 or equivalent, or if placed into L4. L3

LATN 141b, Latin Poetry: An Introduction Staff

An introduction to reading hexameter (epic) poetry in Latin. Readings come primarily from Vergil's Aeneid. Attention is paid both to grammar/syntax and to interpretation of poetic style and content. Counts as L4 if taken after LATN 131 or equivalent, or if placed into L4. L3

*** LATN 390b, Latin Syntax and Stylistics** John Dillon

A systematic review of syntax and an introduction to Latin style. Selections from Latin prose authors are read and analyzed, and students compose short pieces of Latin prose. For students with some experience reading Latin literature who desire a better foundation in forms, syntax, idiom, and style. L5, HU

*** LATN 415a, The City of Rome** Kirk Freudenburg

An advanced Latin course (with L5 credit) focusing on ancient literary depictions of life in Rome, as well as descriptions of the city's landmarks, neighborhoods, built spaces, peoples, and routines, from the Late Republic to the High Empire. We look at how public spaces were encountered, experienced, and described, and how they were codified as 'places for' certain persons, activities, and experiences. Along with primary sources read in Latin, we read various secondary works of modern scholarship on topics of food, dining, status, and Roman identity. Permission of instructor is required. This course is designed to help students bridge the gap between advanced high school Latin, or Latin at the L4 level, to Latin at the L5 level. Yale students should have completed LATN 131 and LATN 141. Students coming from high school should have at least 3 full years of Latin instruction to their credit. L5, HU

*** LATN 421a, Vergil's *Aeneid*** Erika Valdivieso

An in-depth study of Vergil's *Aeneid* within its political context. L5

*** LATN 432b, Seneca: Letters on Ethics** Brad Inwood

Lucius Annaeus Seneca was one of the most distinguished writers of Latin prose and also an important Stoic philosopher. This course focusses on readings in his most important and best known works, the *Epistulae Morales*. Most of the letters we read deal with themes of broad general interest, but some include the more challenging philosophical topics in Stoic ethics that form the culmination of the work. We aim to read the letters included in *Seneca: Selected Letters* ed. Catharine Edwards (Cambridge 2019), which has an excellent literary and philological commentary; a few additional letters are read with the more philosophical commentary found in Brad Inwood *Seneca: Selected Philosophical Letters* (Oxford 2007). Prerequisite: L4 Latin course or advanced high school Latin. L5, HU

*** LATN 448a, Latin Inscriptions and the Roman World** Andrew Johnston

Introduction to Latin epigraphy – the study of Latin inscriptions – and the kinds of questions about the Romans and their world that these textual objects can help illuminate. We will explore a range of different kinds of inscriptions from Rome, Italy, and the provinces, ranging from the archaic period to late antiquity. Emphasis both on the methodology of epigraphy and on close reading of the texts situated in their social, cultural, historical, and monumental contexts. L5

LATN 460a, Petronius John Dillon

Close reading and discussion of the Latin text of Petronius's *Satyricon*, with attention to grammar, syntax, and style, as well as to larger issues of literature and culture in Neronian Rome. L5, HU

*** LATN 494a, Independent Tutorial in Latin Language and Literature** Kirk

Freudenburg

For students with advanced Latin language skills who wish to engage in concentrated reading and research on material not otherwise offered in courses. The work should result in a term paper or examination. A limited number of these courses may be offered toward the major. Offered subject to faculty availability.

Latin American Studies (LAST)

*** LAST 030b / ANTH 030b / ARCG 030b, Inca Culture and Society** Richard Burger

History of the Inca empire of the Central Andes, including the empire's impact on the nations and cultures it conquered. Overview of Inca religion, economy, political organization, technology, and society. Ways in which different schools of research have approached and interpreted the Incas over the last century, including the influence of nationalism and other sources of bias on contemporary scholarship. Enrollment is limited to first-year students. SO

LAST 154a / ER&M 154a / FILM 154a / PORT 154a / WGSS 154a, Advanced Studies: Women Filmmakers and Photographers of the Portuguese-Speaking World

Giseli Tordin

Women Filmmakers and Photographers of the Portuguese-Speaking World is a Portuguese advanced course that delves into the language and culture of the Lusophone world through the lens of women filmmakers and photographers. Organized into three interconnected units, namely, "Diasporas and (De)Territorialities," "Memories They

Told Me,” and “Reframing Other Existences,” students explore how these authors bring forth other perspectives, including those of indigenous people, Afro-Lusophone women, immigrants, and LGBTQIA+ community, among others, challenging societal norms and dominant portrayals. It also explores how their films and photographs reconnect with cultural roots in Africa and Latin America, fragmented by patriarchy, colonialism, and capitalism. By exploring a variety of productions by photographers like Yassmin Forte, Madalena Schwartz, Claudia Andujar, and filmmakers like Anna Muylaert, Carolina Paiva, and Lúcia Murat, among others, students investigate links between identities, memory, and language, enabling them to describe, interpret and make inferences about how cultural environments have been historically constructed and how these artistic productions reshape perceptions of our societies. By the course’s end, students have a deeper understanding of the Portuguese language and diverse cultural aspects within the Lusophone world. Conducted in Portuguese. Portuguese 140 or equivalent. L5, HU

LAST 214a / AFAM 186a / PLSC 378a / SOCY 170a, Contesting Injustice Staff
Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. SO o Course cr

* **LAST 222a / SPAN 222a, Legal Spanish** Mercedes Carreras
An introduction to Spanish and Latin American legal culture with a focus on the specific traits of legal language and on the development of advanced language competence. Issues such as human rights, the death penalty, the jury, contracts, statutory instruments, and rulings by the constitutional courts are explored through law journal articles, newspapers, the media, and mock trials. Enrollment limited to 18. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

* **LAST 223a / SPAN 223a, Spanish in Film: An Introduction to the New Latin American Cinema** Margherita Tortora
Development of proficiency in Spanish through analysis of critically acclaimed Latin American films. Includes basic vocabulary of film criticism in Spanish as well as discussion and language exercises. Enrollment limited to 18. L5

* **LAST 227a / SPAN 227a, Creative Writing** Mayte López
An introduction to the writing of fiction, poetry, and creative nonfiction, with a focus on developing techniques and abilities that are essential for crafting imaginative texts and honing self-expression. Through in-class tasks, substantive discussions on composition and craft, and analyses of contemporary Latinx, Latin American, and Spanish works, students enhance their writing skills and nurture their unique voices as writers. This course takes on the format of a workshop, with students receiving constructive feedback from both the instructor and their fellow writers. Conducted in Spanish. Enrollment limited to 15. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

LAST 228a / ER&M 278a / SPAN 228a, Borders & Globalization in Hispanophone Cultures Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources (including goods, knowledge, information, technologies, etc.). Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that constrain the access of excluded persons to resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts that may include treatises, maps, travel literature, visual culture, material culture (e.g., currency), law, music, and performance art, students investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. More broadly, we explore, describe, and trace the entanglements of bordering, globalizations, and knowledge production in Hispanophone cultures. Some of the questions that will guide our conversations are: What are (social) borders and what are the processes through which they persist? How do the effects of practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? What can we learn from indigenous peoples' responses to bordering process and globalization? Prerequisite: SPAN 140 or 145, or in accordance with placement results. The course is conducted entirely in Spanish. Readings are available electronically through Canvas and the University Library. To be conducted in Spanish. L5, HU

*** LAST 230a / HSAR 230a, Illustrating Andean History: The Work of Guaman Poma** Catalina Ospina

One of the most famous manuscripts to survive from the Spanish colonial Americas is the 1615 *El primer nueva corónica y buen gobierno* (The First New Chronicle, and Good Government, often called *Nueva corónica* or *New Chronicle*). The author was Indigenous Andean Felipe Guaman Poma de Ayala (c. 1535–c. 1616). This work is one of the most important sources for understanding Inka culture and colonial rule from an Indigenous perspective. It consists of 1,189 pages with 398 full-page ink line drawings. Few illustrated manuscripts survive from this period, and Guaman Poma's has no rival. The *New Chronicle* was written in Peru in Spanish, Quechua, Aymara, and Latin. But one might even consider the many images a fifth, purely visual language that combined Andean and European representation systems. Its images have become the most common illustrations of Andean history. In this course, we delve into the work's history and many-layered subtleties of its images to understand its import and the legacy of this Indigenous author. o Course cr

LAST 232a / ANTH 232a / ARCG 232a, Ancient Civilizations of the Andes Richard Burger

Survey of the archaeological cultures of Peru and Bolivia from the earliest settlement through the late Inca state. SO

*** LAST 243a / SPAN 243a, Advanced Spanish Grammar** Lissette Reymundi

A comprehensive, in-depth study of grammar intended to improve students' spoken and written command of Spanish. Linguistic analysis of literary selections; some English-to-Spanish translation. Enrollment limited to 18. L5

*** LAST 261a / SPAN 261a, Critical Contexts in Medieval and Early Modern Iberia**

Jesus Velasco

This course offers a panoramic introduction to Iberian written cultures from the medieval to early modern period (ca. 800–1700). Organized chronologically and guided by the methodology of close reading, we will analyze a wide range of concepts and topics relevant for understanding the multilingual, multireligious contexts in which literary and non-literary works were produced, including knowledge and hospitality; borders and negotiation; authority and power; autobiography and eyewitness narrative accounts; courtly love and love sickness; makeup and cosmetic theory; prostitution and public health; gender dissidence and transgressive bodies; masculinities and misogyny; economic crisis and decline; black Africans and the African diaspora; the Inquisition and religious orthodoxy. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the major in Spanish. L5, HU

*** LAST 266a / SPAN 266a, Critical Contexts in Colonial Latin America** Staff

This course offers a panoramic introduction to the written and visual cultural production of colonial Latin America (ca. 1492–1800). Organized chronologically and guided by the methodology of close reading, we analyze works of various genres and formats whose creators were of Indigenous, African, Spanish, and mestizo descent. We investigate how these texts reveal, critique, reimagine, or participate in the power relations of multiethnic societies founded on conquest, colonization, and slavery. Among our objectives is the development of the skills of critical analysis of texts written in Spanish, which we pursue through class discussion, oral presentations, and written and creative projects. L5, HU

*** LAST 305a / ER&M 285a / SOCY 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia

Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos—numbering more than 60 million in the U.S.—are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the aim of providing students the tools necessary to thoughtfully participate in current debates. SO

LAST 325b / ER&M 345b / HIST 325b, Introduction to Latin American History Anne Eller

Critical themes and events in Latin American history from pre-Columbian times to the present. Major formative epochs such as the pre-Columbian era, colonization, independence, and contemporary moments; modern political flashpoints, including Haiti, Cuba, Argentina, and Peru. HU

*** LAST 344a / SPAN 344a, Narrative and Music in Hispanic Caribbean Culture**

Anibal González-Pérez

The development of the narrative genre in Cuba, the Dominican Republic, and Puerto Rico from its origins in the nineteenth century to the present. Focus on how music is represented and incorporated into the discourse of Hispanic Caribbean novels and stories. Authors include Villaverde, Carpentier, Cabrera Infante, Nicolás Guillén, Ana Lydia Vega, and Luis Palés Matos. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

*** LAST 350a / EVST 266a / HUMS 452a / SPAN 365a, Ecologies of Culture: Latin American Environmental Aesthetics** Santiago Acosta

In the age of rising sea levels, mass extinction, and carbon-driven climate change, can culture and the arts remain unchanged? This course focuses on the intersections between aesthetics and ecological practices in the context of the Anthropocene, a proposed geological epoch wherein humans have become a major geological force shaping the planet. It challenges traditional approaches by examining how culture and the arts can help to understand and respond to environmental crises. Discussions and readings emphasize the role of culture and aesthetics as agents and producers of environmental knowledge, highlighting their potential to challenge socio-ecological relations. Throughout the semester, students explore various themes, including colonialism, anthropocentrism, human-animal relations, fossil capitalism, indigenous ontologies, and the impact of extractive industries on territories and bodies in Latin America, the Caribbean, and the Latinx world. Students engage with works by established and emerging artists, aiming to produce ecocritical knowledge about the current climate and environmental crisis. The course also offers a panoramic view of Latin American culture by examining some key historical events and authors whose works can shed light on cultural and ideological processes at the root of climate change. By the end of the semester, students can formulate research questions that are critical to the field of Latin American environmental humanities, as well as produce papers that are relevant to a broader debate about culture and ecology. Lastly, the course hopes to motivate students—beyond the classroom—to examine their place in an increasingly warming world. **Taught in Spanish.** L5, HU

*** LAST 360a / FILM 363a / LITR 360a, Radical Cinemas of Latin America** Staff

Introduction to the radical New Latin American Cinema movement that started in the sixties, with an emphasis on manifestos that conceived the relation between art and politics for social change and with a corpus of films produced in Brazil, Colombia, Cuba, Argentina, Bolivia, Venezuela, Haiti, and Mexico. Examination of films in their historical and aesthetic aspects, and in light of questions concerning national cinema, “militant cinema,” “political cinema,” and “third cinema.” Discussions about the global sixties at large, and about some Latin American texts that were read globally. Conducted in English; knowledge of Spanish and Portuguese helpful but not required. HU o Course cr

LAST 361a / HIST 361a, History of Brazil Staff

Brazilian history from European contact to the reestablishment of civilian government in the 1990s. Focus on the multiethnic nature of Brazilian society, the formation of social and political patterns, and the relationship of people to the environment. HU o Course cr

LAST 368a / ER&M 368a / HIST 368a, Political Violence, Citizenship, and Democracy in Latin America Staff

Exploration of how and when definitions of citizenship and democracy have been shaped by violent conflicts; how local and global contexts have influenced individual and collective political action; and the transformation of leadership, ideologies, and utopias in different Latin American contexts. WR, HU o Course cr

*** LAST 372b / ER&M 342b / HIST 372Jb, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

*** LAST 420a / HSAR 420a, Techniques of the Body in Latin American Art** Catalina Ospina

In a 1934 article titled “Techniques of the Body,” anthropologist Marcel Mauss argued that culture defines the ways bodies are used and trained. Mauss’s insight has sprung a series of studies on embodiment that examine how bodies are culturally construed. Engaging literature on embodiment from diverse disciplines—including philosophy, anthropology, and cognitive science—this course investigates how cultural understandings of the body inform the meaning of artmaking and art-experiencing practices. Discussions center on artworks from Latin America from the Pre-Hispanic to the Contemporary period—including Nazca lines, Maya ceramics, colonial-era mopa mopa, the early 20th-century Anthropophagy movement in Brazil, Hélio Oiticica’s and Lygia Clark’s works from the 1950s and 1970s, and the works of Beatriz Gonzales and Doris Salcedo from the 1980s and 1990s. Discussing these works, students address questions ranging from super-human scale to the diverse strategies artworks use to invoke bodies metonymically. Comparative artworks from other cultures and periods show the applicability of this methodology beyond Latin American art. The course incorporates hands-on components and employs artifacts from Yale’s museums. HU

*** LAST 491a, The Senior Essay** Ana De La O

Preparation of a research paper about forty pages long under the direction of a faculty adviser, in either the fall or the spring term. Students write on subjects of their own choice. During the term before the essay is written, students plan the project in consultation with a qualified adviser or the director of undergraduate studies. The student must submit a suitable project outline and bibliography to the adviser and the director of undergraduate studies by the third week of the term. The outline should indicate the focus and scope of the essay topic, as well as the proposed research methodology. Permission may be given to write a two-term essay after consultation with an adviser and the director of undergraduate studies and after submission of a project statement. Only those who have begun to do advanced work in a given area are eligible. The requirements for the one-term senior essay apply to the two-term essay, except that the two-term essay should be substantially longer.

LAST 492a, The Senior Project Ana De La O

A project of creative work formulated and executed by the student under the supervision of a faculty adviser in the fall or spring term. Students work on projects of their own choice. Proposals for senior projects are submitted to the adviser and the director of undergraduate studies by the end of the term preceding the last resident

term. An interim project review takes place by the fifth week of the term the project is developed. Permission to complete the senior project can be withdrawn if satisfactory progress has not been made. An exhibition of selected work done in the project is expected of each student. Approval by the DUS and advisor by the end of the term preceding the last resident term.

Linguistics (LING)

* LING 033a / ENGL 033a, **Words, Words, Words: The Structure and History of English Words** Peter Grund

Meggings. Perpendicular. Up. Ain't. Eerily. Bae. The. These are all words in the English language, but, like all words, they have different meanings, functions, and social purposes; indeed, the meaning and function may be different for the same word depending on the context in which we use it (whether spoken or written). In this course, we explore the wonderful world of words. We look at how we create new words (and why), how we change the meaning of words, and how words have been lost (and revived) over time. As we do so, we look at debates over words and their meanings now (such as the feeling by some that *ain't* is not a word at all) and historically (such as the distaste for *subpeditals* for 'shoes' in the sixteenth century), and how words can be manipulated to insult, hurt, and discriminate against others. We look at a wide range of texts by well-known authors (such as Shakespeare) as well as anonymous online bloggers, and we make use of online tools like the Google Ngram viewer and the Corpus of Historical American English to see how words change over time. At the end of the course, I hope you see how we make sophisticated use of words and how studying them opens up new ways for you to understand why other people use words the way they do and how you can use words for various purposes in your own speech and writing. Enrollment limited to first-year students. HU

* LING 107a / ER&M 207a, **Language Endangerment and Revitalization** Edwin Ko
Introduction to language endangerment and language revitalization. This course explores a range of theories and practices that provide the basis by which linguists and language activists aim to revitalize endangered languages in communities around the world. Beginning with surveying the various ways in which the world's linguistic diversity and language ecologies can be assessed and discussing the serious threats to that diversity, why this might be a matter of concern, and the principle of linguistic human rights, the course will narrow toward individual student projects to investigate a minority language in some depth and report on its status with respect to the range of issues discussed in class. WR, SO

* LING 109b / ENGL 149b, **History of the English Language** Peter Grund

The story of the English language is a remarkable one. During its 1,500-year history, English has gone through striking changes. For example, in the early Middle Ages, the word *take* did not exist in English; it was later borrowed from the language of the Vikings. When a person in the 16th century claimed that someone was *nice*, they meant that the person was foolish. In the 17th century, *her* could be spelled *har*, *her*, *hor*, *hur*, and *hyr* by people living in the same community. And more recently we see how *like* has taken on new functions, especially in quotations. We will explore how and why these, and other developments took place. We look at how major historical events have spurred changes in the English language, and how people from all walks of life (from well-known authors like Shakespeare and Austen to anonymous scribes

and letter writers) influence the path of change. Exploring these questions will also force us to consider whether we should more appropriately be talking about “histories of Englishes” rather than “the history of English.” By the end of the course, you see how the English you use has been shaped by people and forces over several centuries, and how you yourself contribute to the continuing change of the English language. HU

LING 110a, Language: Introduction to Linguistics Staff

This is a course about language as a window into the human mind and language as glue in human society. Nature, nurture, or both? Linguistics is a science that addresses this puzzle for human language. Language is one of the most complex of human behaviors, but it comes to us without effort. Language is common to all societies and is typically acquired without explicit instruction. Human languages vary within highly specific parameters. The conventions of speech communities exhibit variation and change over time within the confines of universal grammar, part of our biological endowment. The properties of universal grammar are discovered through the careful study of the structures of individual languages and comparison across languages. This course introduces analytical methods that are used to understand this fundamental aspect of human knowledge. In this introductory course students learn about the principles that underly all human languages, and what makes language special. We study language sounds, how words are formed, how humans compute meaning, as well as language in society, language change, and linguistic diversity. SO o Course cr

LING 112b, Historical Linguistics Edwin Ko

Introduction to language change and language history. How do people use language, and how does that lead to language change over time: sound change, analogy, syntactic and semantic change, borrowing. Techniques for recovering earlier linguistic stages: philology, internal reconstruction, the comparative method. The role of language contact in language change. Evidence from language in prehistory (doing archaeology with language); language change in individuals, and language in society. WR, HU, SO

*** LING 115a / SKRT 110a, Introductory Sanskrit I** Aleksandar Uskokov

An introduction to Sanskrit language and grammar. Focus on learning to read and translate basic Sanskrit sentences in Devanagari script. No prior background in Sanskrit assumed. LI 1½ Course cr

LING 116b / CGSC 216b / PSYC 116b, Cognitive Science of Language Staff

The study of language from the perspective of cognitive science. Exploration of mental structures that underlie the human ability to learn and process language, drawing on studies of normal and atypical language development and processing, brain imaging, neuropsychology, and computational modeling. Innate linguistic structure vs. determination by experience and culture; the relation between linguistic and nonlinguistic cognition in the domains of decision making, social cognition, and musical cognition; the degree to which language shapes perceptions of color, number, space, and gender. SO

LING 119b, How to Create a Language: Constructed Language and Natural Language
Staff

This course explores how languages get invented, drawing inspiration both from well-known constructed/invented languages like Klingon, Dothraki, and Esperanto, as well as from natural languages. Students learn about the primary linguistic aspects of natural language—Phonetics, Phonology, Morphology, Syntax, and Semantics—

and learn how those aspects of grammar are used in various constructed languages. Students, working in small groups, create and describe a new language (or at least a fragment of a new language) over the course of the semester, using the principles learned in class. SO

LING 131a, Languages of Africa Staff

Introduction to the almost 2000 languages of the African continent; phonology (sound systems), grammar and syntax, lexicon (words and word structure), semantics (word meanings); linguistic diversity and culture; language endangerment and planning, writing systems, and resources in natural language processing SO

LING 138a / SKRT 130a, Intermediate Sanskrit I Aleksandar Uskokov

The first half of a two-term sequence aimed at helping students develop the skills necessary to read texts written in Sanskrit. Readings include selections from the *Hitopadesa*, *Kathasaritsagara*, *Mahabharata*, and *Bhagavadgita*. After SKRT 120 or equivalent. L3

*** LING 150a / ENGL 150a, Old English** Emily Thornbury

An introduction to the language, literature, and culture of earliest England. A selection of prose and verse, including riddles, heroic poetry, meditations on loss, a dream vision, and excerpts from *Beowulf*, which are read in the original Old English. HU

LING 167a, Meaning: What, How, Why Veneeta Dayal

This course centers around the following questions: What are the meaningful units of language—words, or units that are smaller/larger than words? How can we describe the meanings that we intuitively associate with these units? Why is it important to have a precise way of studying meaningful aspects of language? It places the study of meaning within a general approach to the scientific study of language by approaching it through the lens of empirical phenomena that students can relate to in their own use of language. At the end of the course students, working in small groups, make a poster presentation showcasing their understanding of some aspect of natural language meaning. This provides them the opportunity to receive and respond to feedback from their peers as well as graduate students and faculty. SO RP

*** LING 200b, Experimentation in Linguistics** Maria Pinango

Principles and techniques of experimental design and research in linguistics. Linguistic theory as the basis for framing experimental questions. The development of theoretically informed hypotheses, notions of control and confounds, human subject research, statistical analysis, data reporting, and dissemination. Prerequisite: LING 110, 117, 220, CGSC 110, or PSYC 110, or permission of instructor. SO

*** LING 211b, Grammatical Diversity in U.S. English** Raffaella Zanuttini

Language as a system of mental rules, governing the sound, form, and meaning system. The (impossible) distinction between language and dialect. The scientific study of standard and non-standard varieties. Social attitudes toward prestige and other varieties; linguistic prejudice. Focus on morpho-syntactic variation in North-American English: alternative passives ("The car needs washed"), personal datives ("I need me a new printer"), negative inversion ("Don't nobody want to ride the bus"), "drama SO" ("I am SO not going to study tonight"). SO

*** LING 212a, Linguistic Change** Edwin Ko

How languages change, how we study change, and how language relates to other areas of society. This seminar is taught through readings chosen by instructor and students, on topics of interest. Prerequisite: LING 112 or equivalent. WR, SO

LING 217a / EDST 237a / PSYC 317a, Language and Mind Maria Pinango

The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

LING 219b / ANTH 380b, The Evolution of Language and Culture Edwin Ko

Introduction to cultural and linguistic evolution. How human language arose; how diversity evolves; how innovations proceed through a community; who within a community drives change; how changes can be “undone” to reconstruct the past. Methods originally developed for studying evolutionary biology are applied to language and culture. WR, SO o Course cr

LING 220a / PSYC 318a, Phonetics I Natalie Weber

Each spoken language composes words using a relatively small number of speech sounds, a subset of the much larger set of possible human speech sounds. This course introduces tools to describe the complete set of speech sounds found in the world's spoken languages. It covers the articulatory organs involved in speech production and the acoustic structure of the resulting sounds. Students learn how to transcribe sounds using the International Phonetic Alphabet, including different varieties of English and languages around the world. The course also introduces sociophonetics, how variation in sound patterns can convey social meaning within a community, speech perception, and sound change. SO o Course cr

LING 227a / PSYC 327a, Language and Computation I Tom McCoy

This course introduces the design and analysis of computational models of language. There are many properties of language that make it challenging to handle computationally: First, language is ambiguous—a given word or sentence can have many possible meanings. Second, our linguistic experience is sparse—many aspects of language (e.g., certain sentence structures) occur very rarely, posing a challenge for computational systems that learn from data. Third, language has an enormous amount of hidden structure—words and other linguistic units can have complex relationships with each other that are not apparent on the surface. In this course, we explore the computational approaches that can overcome these challenges. Topics include finite state tools, neural networks, Bayesian approaches, computational morphology and phonology, grammar and parsing, lexical semantics, and the use of linguistic models in applied problems. Prerequisite: prior programming experience or permission of instructor. QR, SO

LING 231b / PSYC 331b, Neurolinguistics Maria Pinango

The study of language as a cognitive neuroscience. The interaction between linguistic theory and neurological evidence from brain damage, degenerative diseases (e.g., Alzheimer's disease), mental illness (e.g., schizophrenia), neuroimaging, and neurophysiology. The connection of language as a neurocognitive system to other

systems such as memory and music. At least one class that introduces students to linguistic theory and linguistic argumentation from at least one perspective, including any of the following: (1) LING 217 Language and Mind, (2) LING 110 Intro to linguistics, (3) LING 253 Syntax 1, (4) LING 112 Historical Linguistics, (5) LING 232 Phonology 1, (6) LING 220 General Phonetics, or (7) Instructor permission. SC, SO or Course cr

*** LING 232b, Phonology I** Natalie Weber

Why do languages sound distinct from one another? Partly it is because different languages use different sets of sounds (in spoken languages) or signs (in signed languages) from one another. But it is also because those sounds and signs have different distributional patterns in each language. Phonology is the study of the systematic organization and patterning of sounds and signs. Students learn to describe the production of sounds and signs (articulatory phonetics), discuss restrictions on sound and sign distribution (morphemic alternation, phonotactics), and develop a model of the phonological grammar in terms of rules and representations. Throughout the course, we utilize datasets taken from a variety of the world's languages. General Phonetics (Ling 220) or a B or higher in Introduction to Linguistics (Ling 110). SO

*** LING 234a, Quantitative Linguistics** Staff

This course introduces statistical methods in linguistics, which are an increasingly integral part of linguistic research. The course provides students with the skills necessary to organize, analyze, and visualize linguistic data using R, and explains the concepts underlying these methods, which set a foundation that positions students to also identify and apply new quantitative methods, beyond the ones covered in this course, in their future projects. Course concepts are framed around existing linguistic research, to help students design future research projects and critically evaluate academic literature. Assignments and in-class activities involve a combination of hands-on practice with quantitative tools and discussion of analyses used in published academic work. The course also include brief overviews of linguistic topics as a foundation for discussing the statistical methods used to investigate them. QR, SO

*** LING 235a, Phonology II** Natalie Weber

Topics in the architecture of a theory of sound structure. Motivations for replacing a system of ordered rules with a system of ranked constraints. Optimality theory: universals, violability, constraint types and their interactions. Interaction of phonology and morphology, as well as the relationship of phonological theory to language acquisition and learnability. Opacity, lexical phonology, and serial versions of optimality theory. Prerequisite: LING 232 or permission of instructor. SO RP

*** LING 241b, Field Methods** Claire Bower

Principles of phonetics, phonology, morphology, syntax, and semantics applied to the collection and interpretation of novel linguistic data. Data are collected and analyzed by the class as a group, working directly with a speaker of a relatively undocumented language. Discussion of ethics, linguistic diversity, and endangerment. Open to majors and graduate students in Linguistics, and to others with permission of instructor. Students should have taken LING 232 or LING 220 and one other linguistics class. SO

LING 253a, Syntax I Raffaella Zanuttini

If you knew all the words of a language, would you be able to speak that language? No, because you'd still need to know how to put the words together to form all and only

the grammatical sentences of that language. This course focuses on the principles of our mental grammar that determine how words are put together to form sentences. Some of these principles are shared by all languages, some differ from language to language. The interplay of the principles that are shared and those that are distinct allows us to understand how languages can be very similar and yet also very different at the same time. This course is mainly an introduction to syntactic theory: it introduces the questions that the field asks, the methodology it employs, some of the main generalizations that have been drawn and results that have been achieved. Secondly, this course is also an introduction to scientific theorizing: what it means to construct a scientific theory, how to test it, and how to choose among competing theories. so o Course cr

LING 254b, Syntax II Jim Wood

This course continues the development of the “principles and parameters” approach to grammatical theory in Government-Binding theory and the Minimalist Program. We begin with a brief review of the architecture of syntactic theory, move on to an extended exploration of the mechanisms of dependency formation in syntax (including displacement, agreement, control, scope and anaphora), and conclude with a discussion of the nature of syntactic representation (constituency in double object constructions, the mapping between structure and thematic relations, the role of functional categories). Throughout, a major goal of the course is to engage in foundational issues by reading primary literature in syntax and applying theoretical concepts to novel data. Prerequisite: LING 253. WR, SO

LING 263a, Semantics I Simon Charlow

Introduction to truth-conditional compositional semantics. Set theory, first- and higher-order logic, and the lambda calculus as they relate to the study of natural language meaning. Some attention to analyzing the meanings of tense/aspect markers, adverbs, and modals. Prerequisites: One course in linguistics, philosophy of language, logic, computer science or permission of instructor. QR, SO o Course cr

*** LING 264b, Semantics II** Veneeta Dayal

The model-theoretic approach to semantics and its treatment of core linguistic phenomena. Topics include quantification; tense, aspect, and modality; context and interpretation; and the semantics-pragmatics interface. Prerequisite: LING 263 or permission of instructor. QR, SO

LING 271b / PHIL 271b, Philosophy of Language Jason Stanley

An introduction to contemporary philosophy of language, organized around four broad topics: meaning, reference, context, and communication. Introduction to the use of logical notation. HU o Course cr

*** LING 280a, Morphology** Jim Wood

What is a word? Do the things we put spaces around when we write correspond to anything in our mental grammars? How does morphology relate to phonology, and to other areas of grammar, such as syntax and semantics? To what extent do the principles governing the structures and forms of words need to be boxed off from other areas of grammar, and to what extent are they symptomatic of deeper principles which hold of the language faculty as a whole? This course aims to answer these and other questions by examining morphological phenomena from across the world’s languages, including English and languages which are (at least superficially) very different from it

Prerequisites: LING 232 (Phonology I) and 253 (Syntax I), or permission of instructor.
SO

*** LING 291b, Topics: Events, Distributivity, Durational Modifiers** Veneeta Dayal and Simon Charlow

This course bridges introductory courses (LING 263, LING 264) and advanced seminars in semantics. It explores selected topics in some detail, allowing students to appreciate the nuances of semantic argumentation while at the same time emphasizing the foundational issues involved. The goal of this course is to allow students, within a structured format, to become comfortable engaging with open-ended problems and to gain confidence in proposing original solutions to such problems. Topics vary across semesters. Prerequisite: LING 263 / LING 663 or permission of Instructor SO

*** LING 344b, Topics in Phonology: Prosody-Syntax Structure Correspondence** Natalie Weber

This course explores how languages organize sounds into domains arranged within a hierarchical structure. Research over the past 40 years has shown that this prosodic structure often matches syntactic and syllabic structure, but mismatches can arise due to phonological pressures and restructuring. We examine several theories of the relationship between syntactic and prosodic structure by discussing primary literature and data from a range of languages. The course culminates in an original research paper on a topic chosen by the student. Prerequisites: LING 232 and LING 253, or permission of instructor. Ling 235 is recommended, but not required. WR, SO

*** LING 352b, Tocharian** Claire Bownen

Study of Tocharian B language, an ancient language of what is now Western China, in its historical and material context. Students learn to read the language and the place of Tocharian within the Indo-European family. Tocharian was spoken in the Tarim Basin and is known from texts dating from roughly the 4th to 8th centuries. We will study the writing system, sound system, and grammar (morphology and syntax). After finishing this class, students will have read a number of original works in Tocharian and be familiar with the grammar of the language and how it relates to other languages in the family and region. None, though some familiarity with an ancient or (non-English) Indo-European language would be helpful. HU

*** LING 375a / CGSC 375a / PSYC 375a, Linguistic Meaning and Conceptual Structure** Maria Pinango

The meaning of a word or sentence is something in the human mind that has specific properties: it can be expressed (written/signed/spoken forms); it can be combined with other meanings; its expression is not language dependent; it connects with the world; it serves as a vehicle for inference; and it is hidden from awareness. The course explores these properties in some detail and, in the process, provides the students with technical vocabulary and analytical tools to further investigate them. The course is thus intended for those students interested in undertaking a research project on the structure of meaning, the nature of lexico-conceptual structure, that is, the structure of concepts which we refer to as "word meanings," and how they may be combined through linguistic and non-linguistic means. Its ultimate objective is to bridge models of conceptual structure and models of linguistic semantic composition, identify their respective strengths and weaknesses and explore some of the fundamental questions that any theory of linguistic meaning composition must answer. Evidence discussed will emerge from naturalistic, introspectional, and

experimental methodologies. Prerequisites: LING 110, CGSC 110, LING 217, or LING 263. SO

*** LING 376b / PHIL 445b, Implicature and Pragmatic Theory** Laurence Horn

This seminar explores theoretical and experimental approaches to conversational implicature, focusing on scalar implicature. We examine the role that pragmatic inference plays in the determination of what is said and of the delineation of at-issue and non-at-issue content within neo-Gricean pragmatics and competing theories. Readings, presentations, and discussion draw on the available evidence from linguistic diagnostics, corpora, and especially a range of experimental studies on the acquisition, processing, and diversity of scalar implicature, negative strengthening, and exhaustivity in focus constructions. In particular, we review current work on the effects of discourse context, politeness and “face” considerations, and lexical semantics in constraining when and how pragmatic inferences are—and aren’t—drawn. Another focus is on the explosion of recent work re-examining the role played by scalar implicature and other factors in the universal resistance to the lexicalization of concepts corresponding to **nall* (= ‘not all’), **nand* (= ‘or not’), and **noth* (= ‘not both’) vis-à-vis *none*, *nor*, *neither*. We also consider the application of the what is said/what is implicated distinction to the characterization of lying vs. misleading in and out of the courtroom. Time and interest permitting, we also touch on recent developments in rational speech act theory and intention- vs. commitment-based approaches to assertion and implicature. Our goal in this seminar is to explore the landscape of scalar implicature, and conversational implicature more generally, and to develop the empirical tools for investigating this landscape. Prerequisite: At least one course in semantics, pragmatics, or philosophy of language; or permission of instructor. SO RP

*** LING 377b, Topics in Syntax: Intensifiers and Degree Phrases** Jim Wood

In this course, we take a detailed look at our current understanding of an area of natural language syntax and open questions in that area. This semester, we focus on the syntax of degree expressions and the nebulous category of intensifiers. We examine evaluative readings of intensifiers, cross-linguistic/cross-dialectal variation in co-occurrence restrictions in the degree phrase, and the syntax of comparative and superlative constructions. LING 253 Syntax I, or equivalent experience SO

*** LING 380a, Topics in Computational Linguistics: Neural Network Models of Linguistic Structure** Robert Frank

An introduction to the computational methods associated with “deep learning” (neural network architectures, learning algorithms, network analysis). The application of such methods to the learning of linguistic patterns in the domains of syntax, phonology, and semantics. Exploration of hybrid architectures that incorporate linguistic representation into neural network learning. Prerequisites: Python programming, basic calculus and linear algebra, introduction to linguistic theory (LING 106, 110, 116, 217 or equivalent). QR, SO

*** LING 393a, Topics: Dynamic Semantics** Simon Charlow

Dynamic aspects of meaning have recently been reconceptualized in analogy with the ‘side effects’ of programming languages. As these theories gained ground, a robust dissenting literature offered counter-programming. Was dynamic semantics really necessary to treat the phenomena in question, or could they be handled satisfactorily in a more austere, truth-conditional setting? This seminar provides in-depth exploration of issues in natural language meaning, with topics varying in different semesters. One

goal of this course is to become conversant with the literature on dynamics, to learn about different dynamic frameworks. Another goal is to develop an understanding of what it means for a semantic theory to be dynamic. Prerequisite: LING 263/LING 663 or permission of the instructor SO

*** LING 396a / LING 796a, Semantic Investigations in an Unfamiliar Language**
Veneeta Dayal

This course introduces students to semantic fieldwork. It chooses a language that is likely not known to any student in the class and has no substantive semantic literature. Students are introduced to a phenomenon in the language on which there is some syntactic literature, either in that language or in one or more related language. This provides a starting point for students to articulate questions to investigate that are primarily semantic nature. Working with a native speaker consultant, students elicit data that answer these initial questions but very likely lead to further questions to investigate. To keep the elicitation focused, these investigations are restricted to topics related to the primary phenomenon discussed, while allowing some margin for individual interests. In addition to the syntactic and semantic literature on the chosen topic or topics, students also read material on fieldwork methodologies for linguistics generally as well as those specifically for semantics. Students work in small groups to fulfill part of the requirements. Prerequisites: LING 253, LING 263 or permission of the instructor SO

*** LING 471a or b, Special Projects** Claire Bowerin

Special projects set up by students with the help of a faculty adviser and the director of undergraduate studies to cover material not otherwise offered by the department. The project must terminate with at least a term paper or its equivalent and must have the approval of the director of undergraduate studies. Only one term may be offered toward the major; two terms may be offered toward the bachelor's degree.

*** LING 490a, Research Methods in Linguistics** Raffaella Zanuttini

Development of skills in linguistics research, writing, and presentation. Choosing a research area, identifying good research questions, developing hypotheses, and presenting ideas clearly and effectively, both orally and in writing; methodological issues; the balance between building on existing literature and making a novel contribution. Prepares for the writing of the senior essay.

*** LING 491b, The Senior Essay** Jason Shaw

Research and writing of the senior essay under the guidance of a faculty adviser. Students present research related to their essays in a weekly colloquium. Prerequisite: LING 490.

Mathematics (MATH)

*** MATH 107a, Mathematics in the Real World** Meghan Anderson

The use of mathematics to address real-world problems. Applications of exponential functions to compound interest and population growth; geometric series in mortgage payments, amortization of loans, present value of money, and drug doses and blood levels; basic probability, Bayes's rule, and false positives in drug testing; elements of logic. Permission of instructor required. Enrollment limited to 25 students who have not previously taken a high school or college calculus course. QR

*** MATH 110a, Introduction to Functions and Calculus I** John Hall

Comprehensive review of precalculus, limits, differentiation and the evaluation of definite integrals, with applications. Precalculus and calculus topics are integrated. Emphasis on conceptual understanding and problem solving. Successful completion of MATH 110 and 111 is equivalent to MATH 112. No prior acquaintance with calculus is assumed; some knowledge of algebra and precalculus mathematics is helpful. The course includes mandatory weekly workshops, scheduled at the beginning of term. Placement into MATH 110 on the Mathematics placement exam is required. Enrollment in MATH 110 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

*** MATH 111b, Introduction to Functions and Calculus II** John Hall

Continuation of MATH 110. Comprehensive review of precalculus, limits, differentiation and evaluation of definite integrals, with applications. Precalculus and calculus topics are integrated. Emphasis on conceptual understanding and problem solving. Successful completion of both MATH 110 and 111 is equivalent to MATH 112. The course includes mandatory weekly workshops, scheduled at the beginning of term. Prerequisite: MATH 110. Enrollment in MATH 111 is through preference selection. QR

*** MATH 112a or b, Calculus of Functions of One Variable I** Staff

This course introduces the notions of derivative and of definite integral for functions of one variable, with some of their physical and geometrical motivation and interpretations. Emphasis is placed on acquiring an understanding of the concepts that underlie the subject, and on the use of those concepts in problem solving. This course also focuses on strategies for problem solving, communication and logical reasoning. Placement into MATH 112 on the Mathematics placement exam is required. No prior acquaintance with calculus or computing assumed. May not be taken after MATH 111. Enrollment in MATH 112 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

*** MATH 115a or b, Calculus of Functions of One Variable II** Brett Smith

A continuation of MATH 112, this course develops concepts and skills at the foundation of the STEM disciplines. In particular, we introduce Riemann sums, integration strategies, series convergence, and Taylor polynomial approximation. We use these tools to measure lengths of parametric curves, areas of polar regions and volumes of solids of revolution, and we explore applications of calculus to other disciplines including physics, economics, and statistics. MATH 115 also focuses on strategies for problem solving, communication, and logical reasoning. Prerequisite: MATH 111 or MATH 112, or placement into MATH 115 on the Mathematics placement exam. May not be taken after MATH 116. Enrollment in MATH 115 is through preference selection, except during April registration (in this case sections are open to everyone who has placement in the course). QR

*** MATH 116a, Mathematical Models in the Biosciences I: Calculus Techniques** Staff

Techniques and applications of integration, approximation of functions by polynomials, modeling by differential equations. Introduction to topics in mathematical modeling that are applicable to biological systems. Discrete and continuous models of population, neural, and cardiac dynamics. Stability of fixed points and limit cycles of differential

equations. Prerequisite: MATH 112, or placement into MATH 115/116 on the Mathematics placement exam. May not be taken after MATH 115. QR

*** MATH 118a or b, Introduction to Functions of Several Variables** Staff

A combination of linear algebra and differential calculus of several variables. Matrix representation of linear equations, Gauss elimination, vector spaces, independence, basis and dimension, projections, least squares approximation, and orthogonality. Three-dimensional geometry, functions of two and three variables, level curves and surfaces, partial derivatives, maxima and minima, and optimization. Intended for students in the social sciences, especially Economics. May not be taken after MATH 120 or 222. Prerequisite: MATH 112. QR

*** MATH 120a or b, Calculus of Functions of Several Variables** Staff

Analytic geometry in three dimensions, using vectors. Real-valued functions of two and three variables, partial derivatives, gradient and directional derivatives, level curves and surfaces, maxima and minima. Parametrized curves in space, motion in space, line integrals; applications. Multiple integrals, with applications. Divergence and curl. The theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or 116, or placement into MATH 120 on the Mathematics placement exam. May not be taken after MATH 121. Enrollment in MATH 120 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

*** MATH 121b, Mathematical Models in the Biosciences II: Advanced Techniques**
Staff

Mathematical modeling for the biosciences, with a strong focus on multivariable calculus techniques. Applications may include epidemiological models, mathematical foundations of virus and antiviral dynamics, ion channel models and cardiac arrhythmias, and evolutionary models of disease. Prerequisite: MATH 115 or 116, or placement into MATH 120/121 on the Mathematics placement exam. May not be taken after MATH 120. QR

*** MATH 160b / AMTH 160b / S&DS 160b, The Structure of Networks** Staff

Network structures and network dynamics described through examples and applications ranging from marketing to epidemics and the world climate. Study of social and biological networks as well as networks in the humanities. Mathematical graphs provide a simple common language to describe the variety of networks and their properties. QR

MATH 222a or b / AMTH 222a or b, Linear Algebra with Applications Staff

Matrix representation of linear equations. Gauss elimination. Vector spaces. Linear independence, basis, and dimension. Orthogonality, projection, least squares approximation; orthogonalization and orthogonal bases. Extension to function spaces. Determinants. Eigenvalues and eigenvectors. Diagonalization. Difference equations and matrix differential equations. Symmetric and Hermitian matrices. Orthogonal and unitary transformations; similarity transformations. Students who plan to continue with upper level math courses should instead consider MATH 225 or 226. After MATH 115 or equivalent. May not be taken after MATH 225 or 226. QR

MATH 225a or b, Linear Algebra Staff

An introduction to the theory of vector spaces, matrix theory and linear transformations, determinants, eigenvalues, inner product spaces, spectral theorem.

The course focuses on conceptual understanding and serves as an introduction to writing mathematical proofs. For an approach focused on applications rather than proofs, consider MATH 222. Students with a strong mathematical background or interest are encouraged to consider MATH 226. Prerequisite: MATH 115 or equivalent. May not be taken after MATH 222, 226, or 231. QR

*** MATH 226a, Linear Algebra (Intensive)** Ebru Toprak

A fast-paced introduction to the theory of vector spaces, matrix theory and linear transformations, determinants, eigenvalues, inner product spaces, spectral theorem. Topics are covered at a deeper level than in MATH 225, and additional topics may be covered, for example canonical forms or the classical groups. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is recommended. For a less intensive course, consider MATH 225. For an approach focused on applications, consider MATH 222. Prerequisite: MATH 115 or equivalent. May not be taken after MATH 222, 225, or 231. QR

MATH 232b / AMTH 232b, Advanced Linear Algebra with Applications Ian Adelstein

This course is a natural continuation of MATH 222. The core content includes eigenvectors and the Spectral Theorem for real symmetric matrices; singular value decomposition (SVD) and principle component analysis (PCA); quadratic forms, Rayleigh quotients and generalized eigenvalues. We also consider a number of applications: optimization and stochastic gradient descent (SGD); eigen-decomposition and dimensionality reduction; graph Laplacians and data diffusion; neural networks and machine learning. A main theme of the course is using linear algebra to learn from data. Students complete (computational) projects on topics of their choosing. Prerequisites: MATH 120 and MATH 222, 225, or 226. This is not a proof-based course. May not be taken after MATH 340 (previously MATH 240). QR

MATH 241a / S&DS 241a, Probability Theory Harrison Zhou

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic modeling. After or concurrently with MATH 120 or equivalent. QR

MATH 242b / S&DS 242b, Theory of Statistics Zhou Fan

Study of the principles of statistical analysis. Topics include maximum likelihood, sampling distributions, estimation, confidence intervals, tests of significance, regression, analysis of variance, and the method of least squares. Some statistical computing. After S&DS 241 and concurrently with or after MATH 222 or 225, or equivalents. QR

MATH 244a or b / AMTH 244a or b, Discrete Mathematics Staff

Basic concepts and results in discrete mathematics: graphs, trees, connectivity, Ramsey theorem, enumeration, binomial coefficients, Stirling numbers. Properties of finite set systems. Prerequisite: MATH 115 or equivalent. Some prior exposure to proofs is recommended (ex. MATH 225). QR

MATH 246a or b, Ordinary Differential Equations Staff

First-order equations, second-order equations, linear systems with constant coefficients. Numerical solution methods. Geometric and algebraic properties of differential equations. After MATH 120 or equivalent; after or concurrently with MATH 222 or 225 or 226 or equivalent. QR

MATH 247b / AMTH 247b, Intro to Partial Differential Equations Staff

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 222 or 225 or 226, MATH 246 or ENAS 194 or equivalents. QR

MATH 251b / EENG 434b / S&DS 351b, Stochastic Processes Ilias Zadik

Introduction to the study of random processes including linear prediction and Kalman filtering, Poisson counting process and renewal processes, Markov chains, branching processes, birth-death processes, Markov random fields, martingales, and random walks. Applications chosen from communications, networking, image reconstruction, Bayesian statistics, finance, probabilistic analysis of algorithms, and genetics and evolution. Prerequisite: S&DS 241 or equivalent. QR

MATH 255a or b, Analysis 1 Staff

Introduction to Analysis. Properties of real numbers, limits, convergence of sequences and series. Power series, Taylor series, and the classical functions. Differentiation and Integration. Metric spaces. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is assumed, and is further developed in the course. Prerequisite: MATH 115 or equivalent, and MATH 225 or 226. May not be taken after MATH 256, 300, or 301. QR

*** MATH 256b, Analysis 1 (Intensive)** Staff

Fast-paced introduction to Analysis. Properties of real numbers, limits, convergence of sequences and series. Power series, Taylor series, and the classical functions. Differentiation and Integration. Metric spaces. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is assumed, and is further developed in the course. Prerequisite: MATH 115 or equivalent, and MATH 225 or 226. May not be taken after MATH 255, 300, or 301. QR

MATH 270b, Set Theory Meghan Anderson

Algebra of sets; finite, countable, and uncountable sets. Cardinal numbers and cardinal arithmetic. Order types and ordinal numbers. The axiom of choice and the well-ordering theorem. After MATH 120 or equivalent. QR

MATH 302a or b, Vector Analysis and Integration on Manifolds Staff

A rigorous treatment of the modern toolkit of multivariable calculus. Differentiation and integration in \mathbb{R}^n . Inverse function theorem. Fubini's theorem. Multilinear algebra and differential forms. Manifolds in \mathbb{R}^n . Generalized Stokes' Theorem. The course focuses on conceptual structure and proofs, and serves as a gateway to more advanced courses which use the language of manifolds. Prerequisites: MATH 225 or 226, and MATH 255 or 256. QR

MATH 305b, Analysis 2: Lebesgue Integration and Fourier Series Sebastian Hurtado-Salazar

The Lebesgue integral, Fourier series, applications to differential equations. Prerequisites: MATH 225 or 226, and MATH 255 or 256 or 301. With permission of instructor, may be taken after MATH 225 or 226, and MATH 231 or 250. QR

MATH 310a, Introduction to Complex Analysis Ka Ho Wong

An introduction to the theory and applications of functions of a complex variable. Differentiability of complex functions. Complex integration and Cauchy's theorem.

Series expansions. Calculus of residues. Conformal mapping. Prerequisites: MATH 225 or 226 or 231, and MATH 255 or 256 or 230 or 250, and MATH 302 or 120. QR

*** MATH 315b, Intermediate Complex Analysis** Richard Kenyon

Continuation of MATH 310. Topics may include argument principle, Rouché's theorem, Hurwitz theorem, Runge's theorem, analytic continuation, Schwarz reflection principle, Jensen's formula, infinite products, Weierstrass theorem. Functions of finite order, Hadamard's theorem, meromorphic functions. Mittag-Leffler's theorem, subharmonic functions. After MATH 310. QR

*** MATH 320a, Measure Theory and Integration** Charles Smart

Construction and limit theorems for measures and integrals on general spaces; product measures; L_p spaces; integral representation of linear functionals. After MATH 305 or equivalent. QR

*** MATH 325b, Introduction to Functional Analysis** Hanwen Zhang

Hilbert, normed, and Banach spaces; geometry of Hilbert space, Riesz-Fischer theorem; dual space; Hahn-Banach theorem; Riesz representation theorems; linear operators; Baire category theorem; uniform boundedness, open mapping, and closed graph theorems. After MATH 320, or after MATH 305 with permission of instructor. QR

MATH 330a / S&DS 400a, Advanced Probability Sekhar Tatikonda

Measure theoretic probability, conditioning, laws of large numbers, convergence in distribution, characteristic functions, central limit theorems, martingales. Some knowledge of real analysis assumed. QR

MATH 340b, Advanced Linear Algebra Staff

The course continues the study of linear algebra from MATH 225 or MATH 230/231. It discusses several aspects of linear algebra that are of crucial importance for the subject and its applications to abstract algebra, geometry and number theory. Topics include generalized eigenspaces and Jordan normal form theorem, dual vector spaces, bilinear and hermitian forms, symmetric and hermitian operators, Hom spaces and tensor products. Previously MATH 240. After MATH 225 or 226 or 231. Two semesters of proof-based mathematics courses are recommended.

*** MATH 345a, Modern Combinatorics** Staff

Recent developments and important questions in combinatorics. Relations to other areas of mathematics such as analysis, probability, and number theory. Topics include probabilistic method, random graphs, random matrices, pseudorandomness in graph theory and number theory, Szemerédi's theorem and lemma, and Green-Tao's theorem. Prerequisite: MATH 244. QR

MATH 350a or b, Introduction to Abstract Algebra Staff

Group theory: isomorphism theorems, subgroups and quotient groups, group actions, Sylow theorems, direct and semidirect products. Ring theory: ideals and quotient rings, Euclidean domains, principal ideal domains, unique factorization domains. Prerequisites: one term of linear algebra and two terms of proof-based mathematics courses. (For example, MATH 225 and 255, or MATH 225 and 244.) QR

MATH 353b, Introduction to Representation Theory Igor Frenkel

An introduction to basic ideas and methods of representation theory of finite groups and Lie groups. Examples include permutation groups and general linear groups. Connections with symmetric functions, geometry, and physics. After MATH 350.

MATH 360a, Introduction to Lie Groups Yair Minsky

Lie groups as the embodiment of the idea of continuous symmetry. The exponential map on matrices and applications; spectral theory; examples and structure of Lie groups and Lie algebras; connections with geometry and physics. After MATH 350 and MATH 302. With permission of instructor, may be taken after Math 350 and Math 231 or 250. QR

MATH 370b, Fields and Galois Theory Miki Havlickova

Galois theory studies the correspondence between group theory and the theory of fields. The topics will include finite and infinite fields, their extensions and automorphisms, as well as applications such as solvability of equations by radicals or constructions with ruler and compass. The course is a direct continuation of MATH 350. After MATH 350. QR

MATH 380a, Algebra Junliang Shen

The course serves as an introduction to commutative algebra and category theory. Topics include commutative rings, their ideals and modules, Noetherian rings and modules, constructions with rings, such as localization and integral extension, connections to algebraic geometry, categories, functors and functor morphisms, tensor product and Hom functors, projective modules. Other topics may be discussed at instructor's discretion. After MATH 350 and 370. QR

MATH 430b, Introduction to Topology Staff

The theory of fundamental groups and covering spaces, with particular reference to two-dimensional manifolds. Prerequisites: MATH 350, and MATH 255 or 256 or 300 or 301. QR

MATH 447a / AMTH 447a, Partial Differential Equations John Schotland

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 305

MATH 470a or b, Individual Studies Miki Havlickova

Individual investigation of an area of mathematics outside of those covered in regular courses, involving directed reading, discussion, and either papers or an examination. A written plan of study approved by the student's adviser and the director of undergraduate studies is required. The course may normally be elected for only one term.

MATH 475a or b, Senior Essay Miki Havlickova

Interested students may write a senior essay under the guidance of a faculty member, and give an oral report to the department. Students wishing to write a senior essay should consult the director of undergraduate studies at least one semester in advance of the semester in which they plan to write the essay.

*** MATH 480a or b, Senior Seminar: Mathematical Topics** Staff

A number of mathematical topics are chosen each term—e.g., differential topology, Lie algebras, mathematical methods in physics—and explored in one section of the seminar.

Students give several presentations on the chosen topic. Available for credit only to seniors majoring in Mathematics, Economics and Mathematics, or Mathematics and Philosophy, for the purpose of fulfilling the senior requirement.

*** MATH 481b, Senior Seminar: Topics in Economics and Mathematics** Pei-Chun Su and Dirk Bergemann

A number of topics at the intersection of economics and mathematics are chosen each term—e.g., the theory of networks, market design and equilibrium, information economics and probability—and explored in the seminar. Students present several talks on the chosen topic. This section is devoted to topics of interest to majors in Economics or Mathematics majors, and in particular to students in the joint major Economics and Mathematics. The seminar is co-taught by a member of the Economics Department. Available for credit only to seniors majoring in Mathematics, Economics and Mathematics, or Mathematics and Philosophy, for the purpose of fulfilling the senior requirement.

*** MATH 482a, Senior Seminar: Math Education Topics** Miki Havlickova

The goal of the seminar is to explore topics of mathematics education at the college level, and work on presentation and teaching skills that can be useful in the classroom and in other settings. Everyone has several opportunities to practice teaching in the seminar, with guidance about explaining new material, choosing examples, implementing active learning strategies, and other skills. In other lessons, we discuss papers on pedagogy and classroom case studies. We also have sessions on public speaking, belonging in math, grading, and other topics relevant to mathematics instruction. The course is open to students in any major. It cannot be used as a mathematics elective. Seniors majoring in Mathematics or Mathematics + Philosophy may use the seminar to fulfill the senior requirement. In the pilot year, enrollment will be limited to 12 students, selected through an application process during April registration. MATH 225 or MATH 226, and MATH 255 or MATH 256

Mechanical Engineering (MENG)

MENG 185a or b, Mechanical Design Staff

A course designed for potential majors in mechanical engineering, with units on design methodology, statics, mechanics of materials, and machining. Includes a design project. Prerequisite: physics at the level of PHYS 180, or permission of instructor. SC
O Course cr

MENG 211a or b, Thermodynamics for Mechanical Engineers Staff

Study of energy and its transformation and utilization. First and Second Laws for closed and open systems, equations of state, multicomponent nonreacting systems, auxiliary functions (H , A , G , and the chemical potential and conditions of equilibrium. Engineering devices such as power and refrigeration systems and their efficiencies. Prerequisites: PHYS 180 or 200, and MATH 115. QR, SC

MENG 280a, Mechanical Engineering I: Strength and Deformation of Mechanical Elements Diana Qiu

Elements of statics; mechanical behavior of materials; equilibrium equations, strains and displacements, and stress-strain relations. Elementary applications to trusses, bending of beams, pressure vessels, and torsion of bars. Prerequisites: PHYS 180 or 200, and MATH 115. QR, SC RP

MENG 285a, Introduction to Materials Science Jan Schroers

Study of the atomic and microscopic origin of the properties of engineering materials: metals, glasses, polymers, ceramics, and composites. Phase diagrams; diffusion; rates of reaction; mechanisms of deformation, fracture, and strengthening; thermal and electrical conduction. Prerequisites: elementary calculus and background in basic mechanics (deformation, Hooke's law) and structure of atoms (orbitals, periodic table).
QR, SC RP

MENG 286La or b, Solid Mechanics and Materials Science Laboratory Staff

This course introduces undergraduate students to a variety of microstructure characterization and mechanical testing techniques for engineering materials. It offers hands-on laboratory projects that enable students to investigate the relationship between the mechanical behavior of materials and their microstructure. Topics include bending and hardness tests, processing of materials, and fracture. The course uses several characterization methods, including scanning electron microscopy, atomic force microscopy, x-ray diffraction, differential scanning calorimetry, nanomechanical testing, and tensile testing. Prerequisite: MENG 285 SC RP

MENG 287a, Intermediate Mechanical Design Joran Booth

This is a hands-on, project-based course in mechanical design. Students work on design projects that expose them to a variety of manufacturing techniques, including laser cutting, 3D printing, machining, and soldering. Completing these projects gives students the opportunity to hone many practical skills, including computer-aided design, parametric modeling, creating webpages, and programming microcontrollers. Throughout the semester, students create a design portfolio that showcases their projects. Prerequisite: MENG 185.

*** MENG 320b / ENRG 320b / ENVE 320b, Energy, Engines, and Climate** Staff

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the "big picture" on how to tackle future energy needs. The course is designed for juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

*** MENG 325a, Machine Elements and Manufacturing Processes** Joran Booth

This course provides students a working knowledge of two fundamental topics related to mechanical design: machine elements and manufacturing processes. *Machine elements* refer one or more of a range of common design elements that transmit power and enable smooth and efficient motion in mechanical systems with moving parts. This course introduces the most common of these elements and gives students the tools to

systems design with them. Topics include common linkages, gearing, bearings, springs, clutches, brakes, and common actuators such as DC motors. *Manufacturing processes* are necessary for the mechanical design engineer to effectively perform her or his duties; they provide an understanding of how the parts and systems that they design are fabricated, allowing “Design for Manufacturing” principles to be taken into account in the product development process. Students learn the basics of common commercial manufacturing processes for mechanical systems, including low-volume processes such as machining to high-volume processes such as casting (metal parts), molding (plastic parts), and stamping (sheet metal parts). Prerequisites: Extensive CAD experience. MENG 185 and MENG 280 recommended.

MENG 361a, Mechanical Engineering II: Fluid Mechanics Mitchell Smooke
Mechanical properties of fluids, kinematics, Navier-Stokes equations, boundary conditions, hydrostatics, Euler’s equations, Bernoulli’s equation and applications, momentum theorems and control volume analysis, dimensional analysis and similitude, pipe flow, turbulence, concepts from boundary layer theory, elements of potential flow. Prerequisites: ENAS 194 or equivalent, and physics at least at the level of PHYS 180. QR, SC RP

* **MENG 363Lb, Fluid Mechanics and Thermodynamics Laboratory** Amir Pahlavan
Hands-on experience in applying the principles of fluid mechanics and thermodynamics. Integration of experiment, theory, and simulation to reflect real-world phenomena. Students design and test prototype devices. Prerequisites: MENG 211 and 361. WR, SC o Course cr

MENG 365b, Chemical Propulsion Systems Alessandro Gomez
Study of chemical propulsion systems. Topics include review of propulsion fundamentals; concepts of compressible fluid flow; development and application of relations for Fanno and Rayleigh flows; normal and oblique shock systems to various propulsion system components; engine performance characteristics; fundamentals of turbomachinery; liquid and solid rocket system components and performance. MENG 361 or permission of instructor. QR, SC RP

MENG 383a, Mechanical Engineering III: Dynamics Ahalya Prabhakar
Kinematics and dynamics of particles and systems of particles. Relative motion; systems with constraints. Rigid body mechanics; gyroscopes. Prerequisites: PHYS 180 or 200, and MATH 120 or ENAS 151. QR, SC

MENG 387b, Analysis of Structures Cong Su
RP

MENG 389b, Mechanical Engineering IV: Fluid and Thermal Energy Science Staff
Fundamentals of mechanical engineering applicable to the calculation of energy and power requirements, as well as transport of heat by conduction, convection, and radiation. Prerequisites: MENG 211, 361, and ENAS 194; or permission of instructor. QR, SC

MENG 390b, Mechatronics Laboratory Ian Abraham
Hands-on synthesis of control systems, electrical engineering, and mechanical engineering. Review of Laplace transforms, transfer functions, software tools for solving ODEs. Review of electronic components and introduction to electronic instrumentation. Introduction to sensors; mechanical power transmission

elements; programming microcontrollers; PID control. Prerequisites: ENAS 194 or equivalent, ENAS 130, and EENG 200; or permission of instructor. QR RP

MENG 400a or b, Computer-Aided Engineering Staff

Aspects of computer-aided design and manufacture (CAD/CAM). The computer's role in the mechanical design and manufacturing process; commercial tools for two- and three-dimensional drafting and assembly modeling; finite-element analysis software for modeling mechanical, thermal, and fluid systems. Prerequisite: ENAS 130 or permission of instructor. QR

MENG 404b / BENG 404b, Medical Device Design and Innovation Daniel Wiznia

The engineering design, project planning, prototype creation, and fabrication processes for medical devices that improve patient conditions, experiences, and outcomes. Students develop viable solutions and professional-level working prototypes to address clinical needs identified by practicing physicians. Some attention to topics such as intellectual property, the history of medical devices, documentation and reporting, and regulatory affairs. o Course cr

MENG 405b / EENG 442b, Introduction to Embedded Robotic Systems Ahalya Prabhakar

This project-based course gives students an introduction to concepts useful for a robotics engineer working with practical embedded systems, as well as experience with a variety of sensors and software tools needed for working with robots. Students are provided an overview of the different components of robotic systems, including planning, estimation, and control. Topics such as kinematics, dynamics (for robotics), frame transforms, twists, and wrenches will be introduced in the course. In addition, students learn how to use the Robot Operating System (ROS 2) to connect concepts and components relevant to robotic systems. Furthermore, they learn how to write software and simulations to interface sensors and actuators, and to integrate different components in a system, including planning, estimation, and control. By the end of the course, students complete a project using a real robot. Experience with mechatronics (MENG 390) and a basic understanding in dynamics is required. Coding experience required, specifically have a basic understanding of Python and C++.

MENG 425b, Advanced Design and Analysis of Machines Eric Dieckman

There are many useful, classic mechanisms that require a single actuator to operate. These include four-bar mechanisms, slider-cranks, cam-followers, and scotch-yokes. In this course, students learn to design (synthesize) classic mechanisms. They also learn how to analyze the kinematics and kinetics of important machines. While systems based on single actuators are common, the course then introduces the dynamics of multiple degree-of-freedom machines such as robotic actuators. This course focuses on planar systems and students learn to write equations of motion of robots that can roll forward with multiple articulating linkages. Students design and analyze using SolidWorks and solve equations with Matlab. A project is designed, analyzed, built, and tested utilizing a microcontroller and 3D printer. Prerequisites: ENAS 130, MENG 325.

MENG 440b / ENAS 440b, Applied Numerical Methods for Algebraic Systems, Eigensystems, and Function Approximation Beth Anne Bennett

The derivation, analysis, and implementation of various numerical methods. Topics include root-finding methods, numerical solution of systems of linear and nonlinear equations, eigenvalue/eigenvector approximation, polynomial-based interpolation,

and numerical integration. Additional topics such as computational cost, error analysis, and convergence are studied in several contexts throughout the course. Prerequisites: MATH 115, and 222 or 225, or equivalents; ENAS 130 or some experience with Matlab, C++, or Fortran programming. QR

*** MENG 450a / APHY 450a / ENAS 450a, Advanced Synchrotron Techniques and Electron Spectroscopy of Materials** Charles Ahn

Introduction to concepts of advanced x-ray and electron-based techniques used for understanding the electronic, structural, and chemical behavior of materials. Students learn from world-leading experts on fundamentals and practical applications of various diffraction, spectroscopy, and microscopy methods. Course highlights the use of synchrotrons in practical experiments. Prerequisites: physics and quantum mechanics/physical chemistry courses for physical science and engineering majors, or by permission of instructor. QR, SC

MENG 463b, Theoretical Fluid Dynamics Juan de la Mora

Derivation of the equations of fluid motion from basic principles. Potential theory, viscous flow, flow with vorticity. Topics in hydrodynamics, gas dynamics, stability, and turbulence. Prerequisite: MENG 361 or equivalent. QR, SC RP

MENG 464b, Forces on the Nanoscale Udo Schwarz

Modern materials science often exploits the fact that atoms located at surfaces or in thin layers behave differently from bulk atoms to achieve new or greatly altered material properties. The course provides an in-depth discussion of intermolecular and surface forces, which determine the mechanical and chemical properties of surfaces. In the first part, we discuss the fundamental principles and concepts of forces between atoms and molecules. Part two generalizes these concepts to surface forces. Part three then gives a variety of examples. The course is of interest to students studying thin-film growth, surface coatings, mechanical and chemical properties of surfaces, soft matter including biomembranes, and colloidal suspensions. Some knowledge of basic physics, mathematics, chemistry, and thermodynamics is expected. SC o Course cr

MENG 466a, Engineering Acoustics Eric Dieckman

Wave propagation in strings, membranes, plates, ducts, and volumes; plane, cylindrical, and spherical waves; reflection, transmission, and absorption characteristics; sources of sound. Introduction to special topics such as architectural, underwater, psychological, nonlinear, and musical acoustics, noise, and ultrasonics. Prerequisite: ENAS 194.

*** MENG 469a, Aerodynamics** Juan de la Mora

Review of fluid dynamics. Inviscid flows over airfoils; finite wing theory; viscous effects and boundary layer theory. Compressible aerodynamics: normal and oblique shock waves and expansion waves. Linearized compressible flows. Some basic knowledge of thermodynamics is expected. Prerequisite: MENG 361 or permission of instructor. QR, SC

*** MENG 471a and MENG 472b, Special Projects I** Staff

Faculty-supervised one- or two-person projects with emphasis on research (experiment, simulation, or theory), engineering design, or tutorial study. Students are expected to consult the course instructor, director of undergraduate studies, and/or appropriate faculty members to discuss ideas and suggestions for topics. Focus on development of professional skills such as writing abstracts, prospectuses, and technical

reports as well as good practices for preparing posters and delivering presentations. Permission of advisor and director of undergraduate studies is required. Students are required to attend a 75-minute section once per week.

*** MENG 473a and MENG 474b, Special Projects II** Staff

Faculty-supervised one- or two-person projects with emphasis on research (experiment, simulation, or theory), engineering design, or tutorial study. Students are expected to consult the course instructor, director of undergraduate studies, and/or appropriate faculty members to discuss ideas and suggestions for topics. These courses may be taken at any time during the student's career and may be taken more than once. Prerequisites: MENG 471 or 472; permission of adviser and director of undergraduate studies.

MENG 475a / ENAS 475a, Fluid Mechanics of Natural Phenomena Amir Pahlavan

This course draws inspiration from nature and focuses on utilizing the fundamental concepts of fluid mechanics and soft matter physics to explain these phenomena. We study a broad range of problems related to i) nutrient transport in plants, slime molds, and fungi and the adaptation of their networks in dynamic environments, ii) collective behavior and chemotaxis of swimming microorganisms, and iii) pattern formation in nature, e.g. icicles, mud cracks, salt polygons, dendritic crystals, and Turing patterns. We also discuss how our understanding of these problems could be used to develop sustainable solutions for the society, e.g. designing synthetic trees to convert CO₂ to oxygen, developing micro/nano robots for biomedical applications, and utilizing pattern formation and self-assembly to make new materials. Prerequisite: MENG 361.

MENG 487La, Mechanical Design: Process and Implementation I Eric Dieckman

This course is the first half of the capstone design sequence (students take MENG 488 in the spring semester of the same academic year) and is a unique opportunity to apply and demonstrate broad and detailed knowledge of engineering in a team effort to design, construct, and test a functioning engineering system. The lecture portion of the class provides guidance in planning and managing your project, as well other topics associated with engineering design. This course sequence requires quality design; analyses and experiments to support the design effort; and the fabrication and testing of the engineered system; as well as proper documentation and presentation of results to a technical audience. Prerequisites: MENG 280, MENG 325, MENG 361. MENG 185 and MENG 390 are strongly suggested. RP

MENG 488Lb, Mechanical Design: Process and Implementation II Eric Dieckman

This course is the second half of the capstone design sequence (students take MENG 487 in the fall semester of the same academic year) and is a unique opportunity to apply and demonstrate broad and detailed knowledge of engineering in a team effort to design, construct, and test a functioning engineering system. The lecture portion of the class provides guidance in planning and managing your project, as well other topics associated with engineering design. This course sequence requires quality design; analyses and experiments to support the design effort; and the fabrication and testing of the engineered system; as well as proper documentation and presentation of results to a technical audience. Prerequisites: MENG 487, MENG 280, and MENG 361. MENG 185 and MENG 325 are strongly suggested. ½ Course cr

MENG 493b, Introduction to Soft Robotics Rebecca Kramer-Bottiglio

An introduction to soft robotics. Course topics include: robot kinematics, soft robot fabrication and design, conductive composites, soft and stretchable sensors, variable stiffness materials, responsive material actuators, simple controllers, elastic materials models, and soft robot simulation. The course also includes a semester-long soft robotics design project or literature review.

Modern Greek/Hellenic Studies (MGRK)

MGRK 110a, Elementary Modern Greek I Maria Kaliambou

An introduction to modern Greek, with emphasis on oral expression. Use of communicative activities, graded texts, written assignments, grammar drills, audiovisual material, and contemporary documents. In-depth cultural study. L1
1½ Course cr

MGRK 120b, Elementary Modern Greek II Maria Kaliambou

Continuation of MGRK 110. Prerequisite: MGRK 110. L2 1½ Course cr

*** MGRK 130a, Intermediate Modern Greek I** Maria Kaliambou

Further development of oral and written linguistic skills, using authentic readings and audiovisual materials. Continued familiarization with contemporary Greek culture. Prerequisite: MGRK 120 or equivalent. L3 1½ Course cr

*** MGRK 140b, Intermediate Modern Greek II** Maria Kaliambou

Further development of listening, speaking, reading, and writing skills in modern Greek. Presentation of short research projects related to modern Greece. Prerequisite: MGRK 130 or equivalent. L4 1½ Course cr

*** MGRK 216a / CLCV 216a / LITR 239a / WGSS 209a, Dionysus in Modernity**

George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

*** MGRK 238a / FILM 341a / WGSS 233a, Weird Greek Wave Cinema** George Syrimis

The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term “weird Greek wave” applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers' expectations of national stereotypes of classical luminosity—the proverbial “Greek light”—Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its ‘quaint’ people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness and violence, aggression, corporeality, and xenophobia). The course also pays particular attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. HU

*** MGRK 306b / AMST 307b / ER&M 298b / HIST 117b / LITR 375b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. WR, HU

Modern Middle East Studies (MMES)

MMES 149a / ER&M 219a / HIST 219a / JDST 200a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

MMES 156b / HEBR 161b / JDST 407b, Israeli Popular Music Dina Roginsky

Changes in the development of popular music in Israel explored as representations of changing Israeli society and culture. The interaction of music and cultural identity; modern popular music and social conventions; songs of commemoration and heroism; popular representation of the Holocaust; Mizrahi and Arab music; feminism, sexuality, and gender; class and musical consumption; criticism, protest, and globalization. Conducted in Hebrew. Prerequisite: HEBR 140 or equivalent. L5, SO

*** MMES 159a / HEBR 159a / JDST 409a, Conversational Hebrew: Israeli Media** Shiri Goren

An advanced Hebrew course for students interested in practicing and enhancing conversational skills. Focus on listening comprehension and on various forms of discussion, including practical situations, online interactions, and content analysis. Prerequisite: HEBR 140 or permission of instructor. L5 RP

*** MMES 167b / HEBR 164b / JDST 417b, Biblical to Modern Hebrew for Reading Knowledge** Dina Roginsky

Instruction in the linguistic needs of students who have reading knowledge of Biblical Hebrew but cannot read or converse in Modern Hebrew. Concentration on reading comprehension of Modern Hebrew for research purposes, particularly scholarly texts tailored to students' areas of interest. Two years of Biblical or Modern Hebrew studies, or permission of the instructor. RP

*** MMES 168a / HEBR 158a / JDST 305a, Contemporary Israeli Society in Film** Shiri Goren

Examination of major themes in Israeli society through film, with emphasis on language study. Topics include migration, gender and sexuality, Jewish/Israeli identity, and private and collective memory. Readings in Hebrew and English provide a sociohistorical background and bases for class discussion. Prerequisites: HEBR 140 or permission of instructor. L5, HU RP

MMES 171a / NELC 132a, The Islamic Near East from Muhammad to the Mongol Invasion Kevin van Bladel

The shaping of society and polity from the rise of Islam to the Mongol conquest of Baghdad in 1258. The origins of Islamic society; conquests and social and political assimilation under the Umayyads and Abbasids; the changing nature of political legitimacy and sovereignty under the caliphate; provincial decentralization and new sources of social and religious power. HU o Course cr

*** MMES 172a / ARBC 178a, Yemeni Literature & Culture** Muhammad Aziz

This seminar introduces students to a variety of Yemeni novels, short stories, poetry, history, movies, songs, and culture. We delve deeply into the major Arabic literary styles, in their forms of poetry, prose, movies, and series. A general sense of the transitional period between past and present in the modern era. Students are expected to read the material at home and prepare for class discussions. Students grasp some sense of Yemeni history as well as literature in general. Prerequisite: ARBC 151. L5

*** MMES 177b / ARBC 171b / ARBC 527b, Hunger in Eden: Mohamed Choukri's Narratives** Jonas Elbousty

A survey of the work of Mohamed Choukri, one of the most prominent Moroccan, if not Arab, writers to have shaped the modern Arabic literary canon. His influence has been instrumental in forming a generation of writers and enthusiastic readers, who fervently cherish his narratives. Students dive deeply into Choukri's narratives, analyzing them with an eye toward their cultural and political importance. The class looks to Choukri's amazing life story to reveal the roots of his passion for writing and explores the culture of the time and places about which he writes. Through his narratives, students better understand the political environment within which they were composed and the importance of Choukri's work to today's reader regarding current debates over Arab identity. This class surveys the entirety of his work, contextualizing within the sphere of Arabic novelistic tradition. Prerequisite: ARBC 151 or completion of the placement test. L5, HU

MMES 215a / ENGL 191a / HUMS 206a / LITR 318a / NELC 201a, The Arabian Nights, Then and Now Robyn Creswell

The medieval cycle of tales known as The Arabian Nights or The Thousand and One Nights is among the most beloved and influential story collections of world literature. It is an "ocean" of tales that has much to teach us about how stories work, whether they must come to an end, and our apparently bottomless desire to hear them. We will spend the semester in the company of genies and princes, thieves and slaves, mass murderers, detectives, and orientalists. We will also explore the ways in which the stories of the Nights have been adapted by later writers, such as Djebbar, Stevenson, Conan Doyle, and Mahfouz, as well as by filmmakers such as Pasolini and—of course—Walt Disney. The course is intended to introduce students to the major tales of the Nights and to the classical Arabic literary tradition more broadly. It also seeks to develop their skills of

close reading and analysis, particularly through a consideration of literary and filmic adaptations. HU

*** MMES 300a / HIST 398Ja / RSEE 329a / RUSS 329a, Introduction to Modern Central Asia** Claire Roosien

An overview of the history of modern Central Asia – modern-day Kazakhstan, Kyrgyzstan, Turkmenistan, Turkmenistan, Tajikistan, Uzbekistan, and the Xinjiang Uyghur Autonomous Region of the People's Republic of China. This course shows Central Asia to be a pivotal participant in some of the major global issues of the 20th and 21st centuries, from environmental degradation and Cold War, to women's emancipation and postcolonial nation-building, to religion and the rise of mass society. It also includes an overview of the region's longer history, of the conquests by the Russian and Chinese empires, the rise of Islamic modernist reform movements, the Bolshevik victory, World War II, the *perestroika*, and the projects of post-Soviet nation-building. Readings in history are supplemented by such primary sources as novels and poetry, films and songs, government decrees, travelogues, courtly chronicles, and the periodical press. All readings and discussions in English. HU

*** MMES 342a / HIST 232Ja / HUMS 443a / JDST 270a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness – humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

*** MMES 389a / AFST 389a / ER&M 417a, Comparative settler geographies** Leslie Gross-Wyrtzen

This advanced undergraduate seminar delves into theories and comparative studies of recent and contemporary settler colonial geographies to ask the following questions: 1) What are the key characteristics of settler colonial geographies and (how) are they distinct from colonial geographies? 2) What are the intellectual and political stakes of applying settler colonialism as an analytical lens? 3) How does comparative analysis deepen or disrupt concepts such as sovereignty, race, and I/indigeneity, especially in a majority world context? 4) How do Indigenous or and/or occupied peoples contest settler cartographies through placemaking and other strategies? In this seminar, we read key theoretical texts in colonial, postcolonial, settler, Native, and Indigenous studies with an emphasis on global and Southern intervention. Alongside theoretical texts, we focus on four case studies that, to a greater or lesser degree, push the boundaries of settler colonial definitions and concepts: South Africa, Morocco/Western Sahara, Israel/Palestine, and southwestern China and Tibet. Where possible, we invite scholars with expertise in the cases to speak to the class. SO

*** MMES 430a / ANTH 441a / WGSS 430a, Gender and Citizenship in the Middle East** Eda Pepi

This seminar explores the complex interplay between gender, sexuality, and citizenship in the Middle East and North Africa. We examine how they are both shaped by and shape experiences of nationality, migration, and statelessness. Highlighting how gender and sexual minorities, and the gendered regulation of life, more broadly, both animate

and contest colonial legacies tied to a racialized notion of “modernity.” Through ethnography, history, and literature, students confront a political economy of intimacies that continuously reshape what it means to be or not to be a citizen. Our approach extends beyond borders and laws to include the everyday acts of citizenship that rework race, religion, and ethnicity across transnational fronts. We discuss how people navigate their lives in the everyday, from the ordinary poetry of identity and belonging to the spectacular drama of war and conflict. Our goal is to challenge orientalist legacies that dismiss theoretical insights from scholarship on and from this region by labeling it as focused on exceptional cases instead of addressing “universal” issues. Instead, we take seriously that the specific historical and social contexts of the Middle East and North Africa reveal how connections based on gender and sexuality within and across families and social classes are deeply entwined with racial narratives of state authority and political sovereignty on a global scale. so

*** MMES 447b / ANTH 447b, Culture and Politics in the Contemporary Middle East**

Marcia Inhorn

In the decade since the 2011 Arab uprisings, the challenges facing the Middle East have been profound. They include various forms of war and displacement, political and economic instability, social upheaval and societal rupture. Indeed, by 2015, millions of Middle Eastern men, women, and children had been driven from their homes by conflict. This advanced undergraduate/graduate seminar is designed to explore some of the most important contemporary cultural and political shifts that are shaping life across the Middle East and North Africa (MENA). The course aims for broad regional coverage, with particular focus on a variety of important Middle Eastern nation-states (e.g., Egypt, Lebanon, Palestine, Saudi Arabia, Turkey, Iran). Students should emerge from the course with a keener sense of Middle Eastern regional histories and contemporary social issues, as described by a new generation of leading scholars in the field of Middle East Studies and particularly Middle East Anthropology. This course is thus designed for students in Anthropology, Modern Middle East Studies, and Global Affairs, but also from the disciplines of Sociology, History, Political Science, Near Eastern Languages and Cultures, and the like. The course is also intended for students in the CMES Graduate Certificate Program. so

*** MMES 456a / HSAR 456a, Art and Politics in the Modern Middle East**

Kishwar Rizvi

Political ideologies have either unified the modern Middle East, such as Pan-Arabism of the 1960s and Islamism of the 1980s, or caused deep ruptures, such as Zionism and sectarianism. Examination of the art and architectural productions that have gone hand-in-hand with these political developments from the nineteenth century until present day. Poetic, visual, and urban interventions document the profound changes that have defined the countries of this region, while connecting them to political movements throughout the world. WR, HU

Modern Tibetan (MTBT)

Molecular Biophysics and Biochemistry (MB&B)

MB&B TBD-3a / CBIO 603a / MCDB 603a, Seminar in Molecular Cell Biology

Megan King

A graduate-level seminar in modern cell biology. The class is devoted to the reading and critical evaluation of classical and current papers. The topics are coordinated with the CBIO 602 lecture schedule. Thus, concurrent enrollment in CBIO 602 is required. Prerequisites: Any undergraduates wishing to enroll must have already taken MCDB 205. In addition, undergraduates are strongly encouraged to reach out to the course directors prior to enrollment.

*** MB&B 050b, Topics in Cancer Biology** Sandy Chang

Introduction to cancer as a genetic disease, with a focus on major discoveries in cancer biology that offer mechanistic insights into the disease process. A brief history of cancer; influence of the genomic revolution on cancer diagnostics; molecular defects underlying specific cancers; current and future cancer therapeutics. Patient case studies highlight specific molecular pathways and treatment strategies. Enrollment limited to first-year students with a strong background in biology and/or chemistry, typically demonstrated by a score of 5 on Advanced Placement examinations. WR, SC

MB&B 105a or b / MCDB 105a or b, Biology, the World, and Us Staff

This course is for non-science majors who wish to gain an understanding of modern biology by examining the scientific basis of current issues. We'll consider issues related to: i) pandemics and global infectious disease; ii) the climate crisis; iii) the future of genetics and the new green revolution. Many of the topics have an increasingly large impact on our daily lives. The issues are both social and biological, and it's crucial that social debate be based on a clear understanding of the underlying science. The instructors will explain the scientific foundation beneath each issue. We'll emphasize the nature of science as a process of inquiry rather than a fixed body of terminology and facts. The course is not intended to be a comprehensive survey of biology. SC
o Course cr

*** MB&B 107b / EDST 107b / PHYS 107b, Being Human in STEM** Andrew Miranker

A collaboratively designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant peer-reviewed literature and popular-press articles. OpEd writing project and design and implementation of an intervention project focusing on improving belonging in Yale STEM communities. SO

*** MB&B 121La / PHYS 121La, Introduction to Physics in Living Systems I:**

Observation and Analysis Katherine Schilling and Caitlin Hansen

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice. Topics include detection of light, basic circuit building, sterile technique in biology and physics, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 122L. Priority is given to first-year students looking to fulfill medical school

application requirements and students seeking to join research labs at Yale. SC
½ Course cr

*** MB&B 122La / PHYS 122La, Introduction to Physics in Living Systems: Observation and Analysis II** Katherine Schilling and Caitlin Hansen

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice, focusing on building models from experimental data. Topics included electrical circuits, magnetism, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. Taking MB&B/PHYS 121L prior to this class is required, as the material builds on itself. Priority is given to first-year students looking to fulfill medical school application. ½ Course cr

*** MB&B 123Lb / PHYS 123Lb, Introduction to Physics in Living Systems III: Mechanics** Katherine Schilling

A hands-on introduction to the physics that enables life and human measurement of living things. The course focuses on the principles of mechanics at work in the biological sciences. This lab builds student knowledge, centering diffusion as an emergent phenomenon from elastic collisions, from which statistical mechanics is introduced. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. Priority for this 1/2 credit course is given to first-year students looking to fulfill medical school application requirements. It is helpful to take this course in the same semester as MB&B 124L. ½ Course cr

*** MB&B 124Lb / PHYS 124Lb, Introduction to Physics in Living Systems Laboratory IV: Electricity, Magnetism, and Radiation** Katherine Schilling

Introduction to the physics that enables life and human measurement of living things. This lab introduces principles of electricity, magnetism, light and optics at work in the biological sciences. The syllabus emphasizes electric dipoles as a model for biomolecules, electric fields such as those across cell membranes, electric current, and magnetic fields. Light is developed in terms of electromagnetic radiation, ray optics and photons. The interaction of light with biomolecules to understand basic biological research and medical diagnostics are also covered. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 123L. May not be taken after PHYS 166L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC o Course cr

*** MB&B 200a or b / MCDB 300a or b, Biochemistry** Staff

An introduction to the biochemistry of animals, plants, and microorganisms, emphasizing the relations of chemical principles and structure to the evolution and regulation of living systems. Introductory biology coursework (BIOL 101, BIOL 102, BIOL 103) or equivalent performance on the corresponding biological sciences placement examination; one term of organic chemistry (CHEM 174 or CHEM 220); or with permission of instructor. Note for MB&B majors: this course does not substitute for MB&B 300 and MB&B 301. SC o Course cr

*** MB&B 251La or b / MCDB 301La or b, Laboratory for Biochemistry** Staff

An introduction to current experimental methods in molecular biology, biophysics, and biochemistry. Limited enrollment. Prerequisite: BIOL 101. SC ½ Course cr

*** MB&B 268b, Identity, Society, and STEM** Lilian Kabeche

Matters of personal and group identity underpin the development of science as a discipline, the lived experience of its practitioners, and the achievement of excellence by diverse cultures collaborating on research, teaching in schools, treating the sick, promoting business, and setting government policy. Yale STEM students who are actively engaged in the study of any aspect of identity and society, whether contemporary or historical, learn how STEM is intertwined with these interests. To achieve this goal, students in this course must be simultaneously enrolled in a full-credit, humanities course at Yale. Instructor permission is required and is based on a proposal (250 words) that makes a compelling case for exploring STEM's engagement with the concurrent humanities course. Students use knowledge from the humanities course to develop a unique project that can include anecdotal sources, but must also include elements of formal scholarship learned in class. Primary scientific literature and publicly available data relevant to students' projects in any given semester are engaged and discussed during seminar-styled class meetings. Dissemination of projects take several forms including one appropriate for the public or popular press, a flash talk presentation open to the Yale community, and lastly a formal term-paper. Prerequisite: BIOL 101 (or permission of the instructor). ½ Course cr

MB&B 275a, Biology at the Molecular Level Enrique De La Cruz and Allison

Didychuk

An introductory course for students to learn the key concepts from physics and physical chemistry that govern the structure and function of biomolecules in biology and medicine. Emphasis is placed on atomic-scale biomolecular motions, energy, reaction rates and mechanisms; core elements that underpin the exquisite specificity and regulated control of life processes. This course prepares students for upper level course content where these concepts are revisited. Connections to medicine and research are made through the use of practical examples, laboratory-based activities and training in biologically relevant areas of math, statistics and computer programming. This course is open to all Yale students. For MB&B majors, this course is accepted as fulfillment of one semester of MB&B's two-semester requirement in physical chemistry. Prerequisites: BIOL 101–102, MATH 112 (or equivalent), college level General Chemistry, and high school Physics. SC

MB&B 300a, Principles of Biochemistry I Staff

Discussion of the physical, structural, and functional properties of proteins, lipids, and carbohydrates, three major classes of molecules in living organisms. Energy metabolism and hormone signaling as examples of complex biological processes whose underlying mechanisms can be understood by identifying and analyzing the molecules responsible for these phenomena. Prerequisites: After BIOL 101 and CHEM 174 or CHEM 220. SC 0 Course cr

MB&B 301b, Principles of Biochemistry II Christian Schlieker, Karla Neugebauer, and Franziska Bleichert

Building on the principles of MB&B 300 through study of the chemistry and metabolism of DNA, RNA, and proteins. Critical thinking emphasized by exploration of experimental methods and data interpretation, from classic experiments in

biochemistry and molecular biology through current approaches. Prerequisite: MB&B 300 or permission of instructor. SC

MB&B 330a / BENG 230a / MCDB 330a / NSCI 324a, Modeling Biological Systems I

Thierry Emonet and Kathryn Miller-Jensen

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101–104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

MB&B 361b / BENG 465b / MCDB 361b / NSCI 325b, Modeling Biological Systems II

Thierry Emonet

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

*** MB&B 364a / MCDB 364a, Light Microscopy: Techniques and Image Analysis**

Joseph Wolenski and Joe Howard

A rigorous study of principles and pertinent modalities involved in modern light microscopy. The overall course learning objective is to develop competencies involving advanced light microscopy applications common to multidisciplinary research. Laboratory modules coupled with critical analysis of pertinent research papers cover all major light microscope methods—from the basics (principles of optics, image contrast, detector types, fluorescence, 1P and 2P excitation, widefield, confocal principle, TIRF), to more recent advances, including: superresolution, lightsheet, FLIM/FRET, motion analysis and force measurements. This course is capped at 8 students to promote interactions and ensure a favorable hands-on experience. Priority for enrollment is given to students who are planning on using these techniques in their independent research. Prerequisites: MCDB 205, PHYS 170/171 or above, either CHEM 161/165 or above; with CHEM 134L, 136L or permission from the instructor. SC

MB&B 365b / EVST 372b, Biochemistry and Our Changing Climate Karla

Neugebauer

Climate change is impacting how cells and organisms grow and reproduce. Imagine the ocean spiking a fever: cold-blooded organisms of all shapes, sizes and complexities struggle to survive when water temperatures go up 2–4 degrees. Some organisms adapt

to extremes, while others cannot. Predicted and observed changes in temperature, pH and salt concentration do and will affect many parameters of the living world, from the kinetics of chemical reactions and cellular signaling pathways to the accumulation of unforeseen chemicals in the environment, the appearance and dispersal of new diseases, and the development of new foods. In this course, we approach climate change from the molecular point of view, identifying how cells and organisms—from microbes to plants and animals—respond to changing environmental conditions. To embrace the concept of “one health” for all life on the planet, this course leverages biochemistry, cell biology, molecular biophysics, and genetics to develop an understanding of the impact of climate change on the living world. We consider the foundational knowledge that biochemistry can bring to the table as we meet the challenge of climate change. Prerequisites: MB&B 300/301 or MB&B 200/MCDB 300 or permission of the instructor. Can be taken concurrently with MB&B 301. SC o Course cr

MB&B 420a, Macromolecular Structure and Biophysical Analysis Yong Xiong, Joe Howard, Shaogeng Tang, and Franziska Bleichert

Analysis of macromolecular architecture and its elucidation using modern methods of structural biology and biochemistry. Topics include architectural arrangements of proteins, RNA, and DNA; practical methods in structural analysis; and an introduction to diffraction and NMR. Prerequisites: MBB 301 and 302. SC

*** MB&B 425a / MCDB 425a, Basic Concepts of Genetic Analysis** Jun Lu

The universal principles of genetic analysis in eukaryotes. Reading and analysis of primary papers that illustrate the best of genetic analysis in the study of various biological issues. Focus on the concepts and logic underlying modern genetic analysis. Prerequisite: MCDB 202 or pre-approval of instructor. SC

MB&B 435a, Quantitative Methods in Biology Nikhil Malvankar, Julien Berro, and Yong Xiong

An introduction to quantitative methods relevant to analysis and interpretation of **biological** data. Topics include statistical testing, data presentation, and error analysis; introduction to artificial intelligence-based data analysis tools, Alpha Fold Tutorial, introduction to mathematical modeling of biological dynamics; and Fourier analysis in signal/image processing and macromolecular structural studies. Instruction in basic programming skills and data analysis using MATLAB; study of real data from MB&B research groups. Prerequisites: MATH 120 and MB&B 300 or equivalents, or with permission of instructors. QR, SC

MB&B 443b, Advanced Eukaryotic Molecular Biology Mark Hochstrasser, Matthew Simon, and Franziska Bleichert

Selected topics in regulation of chromatin structure and remodeling, mRNA processing, mRNA stability, translation, protein degradation, DNA replication, DNA repair, site-specific DNA recombination, and somatic hypermutation. Prerequisites: MB&B 300 and 301, or permission of instructor. SC RP

*** MB&B 445b, Methods and Logic in Molecular Biology** Julien Berro and Andrew Miranker

An examination of fundamental concepts in molecular biology through analysis of landmark papers. Development of skills in reading the primary scientific literature and in critical thinking. Prerequisites: MB&B 300 and 301. SC RP

MB&B 449a, Medical Impact of Basic Science Joan Steitz, Abhijit Patel, Sandy Chang, Karla Neugebauer, Seyedtaghi Takyar, George Miller, Andrew Miranker, David Schatz, and Daniel DiMaio

Examples of recent discoveries in basic science that have elucidated the molecular origins of disease or that have suggested new therapies for disease. Readings from the primary scientific and medical literature, with emphasis on developing the ability to read this literature critically. Prerequisites: MB&B 300 and 301 or equivalents, or permission of instructor. SC

MB&B 452b / MCDB 452b / S&DS 352b, Biomedical Data Science, Mining and Modeling Mark Gerstein and Matthew Simon

Techniques in data mining and simulation applied to bioinformatics, the computational analysis of gene sequences, macromolecular structures, and functional genomics data on a large scale. Sequence alignment, comparative genomics and phylogenetics, biological databases, geometric analysis of protein structure, molecular-dynamics simulation, biological networks, microarray normalization, and machine-learning approaches to data integration. Prerequisites: MB&B 301 and MATH 115, or permission of instructor. SC

*** MB&B 459a / ENGL 459a / EVST 215a, Writing about Science, Medicine, and the Environment** Carl Zimmer

Advanced non-fiction workshop in which students write about science, medicine, and the environment for a broad public audience. Students read exemplary work, ranging from newspaper articles to book excerpts, to learn how to translate complex subjects into compelling prose. Admission by permission of the instructor only. Applicants should email the instructor at carl@carlzimmer.com with the following information:

1. One or two samples of nonacademic, nonfiction writing. (No fiction or scientific papers, please.) Indicate the course or publication, if any, for which you wrote each sample. 2. A note in which you briefly describe your background (including writing experience and courses) and explain why you'd like to take the course. WR RP

*** MB&B 470a and MB&B 471b, Research in Biochemistry and Biophysics for the Major** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the date that course schedules are due. Students are expected to commit at least ten hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. Students receive a letter grade. Up to 2 credits of MB&B 470/471 may be counted toward the MB&B major requirements. Enrollment limited to MB&B majors. Prerequisite: MB&B 251L or permission of the instructor.

*** MB&B 472a and MB&B 473b, Research in Biochemistry and Biophysics** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the date that course schedules are due. Students are expected to commit at least ten hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. Students are graded pass/fail.

Taken after students have completed two credits of MB&B 470 and 471. These courses do not count toward the major requirements. Prerequisites: MB&B 470, 471 and 251L or permission of the instructor.

*** MB&B 478a and MB&B 479b, Intensive Research in Biochemistry and Biophysics for the Major** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the day that course schedules are due. Students are expected to commit at least twenty hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. No more than two course credits count as electives toward the B.S. degree. Enrollment limited to senior MB&B majors. Prerequisite: MB&B 251L or 360L. 2 Course cr per term

*** MB&B 490a or b, The Senior Literature Essay** Katherine Schilling and Nikhil Malvankar

This course fulfills the MB&B senior requirement for BA/BS majors and may be taken in either the fall or spring term of senior year. Students complete an independent project by reading primary literature and writing a critical review on a topic chosen by the student in any area of molecular biophysics and biochemistry. The chosen topic cannot draw directly on the student's research experiences while enrolled at Yale. For topics drawing directly from a student's research experience, students should enroll in MB&B 491: Senior Research Essay. The course structure first assists the student to identify a topic and then identifies a member of the MB&B faculty with appropriate expertise. The member of faculty meets regularly with the student as the topic is researched, drafted, and submitted at a quality appropriate for publication. A departmental poster session at the end of the semester gives the student the opportunity to disseminate their work to the broader MB&B and Yale community.

MB&B 491a or b, The Senior Research Essay Katherine Schilling

In this class, students complete an independent project by reading primary literature and writing a critical review on a topic chosen by the student in any area of molecular biophysics and biochemistry. The chosen topic must be related to the student's research experiences while enrolled at Yale. For topics that do not draw from a student's research experience, students should enroll in MB&B 490: Senior Literature Essay. The course structure first assists the student to identify a topic and then identifies a member of the MB&B faculty with appropriate expertise. The faculty member, if a member of MB&B, can be the student's research supervisor. The member of faculty meets regularly with the student as the topic is researched, drafted, and submitted at a quality appropriate for publication. A departmental poster session at the end of the semester gives the student the opportunity to disseminate their work to the broader MB&B and Yale community.

Molecular, Cellular, and Developmental Biology (MCDB)

*** MCDB 050a, Immunity and Microbes** Paula Kavathas

In this interdisciplinary course students learn about immunology, microbiology, and pandemics. Fundamentals of the immune system are presented, including how the

system recognizes and responds to specific microbes. Microbes that cause illness such as influenza, coronaviruses, HIV, and HPV are discussed as well as how we live in harmony with microbes that compose our microbiome. Readings include novels and historical works on pandemics, polio, AIDS, and smallpox. Enrollment limited to first-year students. SC

*** MCDB 065a, The Science and Politics of HIV/AIDS** Robert Bazell

Study of the basic virology and immunology of HIV/AIDS, along with its extraordinary historical and social effects. Issues include the threat of new epidemics emerging from a changing global environment; the potential harm of conspiracy theories based on false science; and how stigmas associated with poverty, gender inequality, sexual preference, and race facilitate an ongoing epidemic. For all first-year students regardless of whether they are considering a science major. Prerequisite: AP Biology or equivalent. Enrollment limited to first-year students. SC

*** MCDB 103b, Cancer** Alexia Belperron

The main purpose of this course is the development of an understanding of the biology of cancer, with emphasis on understanding the core biological principles and how an understanding of these principles is essential to understanding how cancer develops, how it can be treated, and how we can try to prevent its development. Topics include genetics, biochemistry, immunity, infection agents, and challenges for prevention and treatment. Intended for non-science majors and preference is given to first years and sophomores. Prerequisite: High school biology is required. SC

MCDB 105a or b / MB&B 105a or b, Biology, the World, and Us Staff

This course is for non-science majors who wish to gain an understanding of modern biology by examining the scientific basis of current issues. We'll consider issues related to: i) pandemics and global infectious disease; ii) the climate crisis; iii) the future of genetics and the new green revolution. Many of the topics have an increasingly large impact on our daily lives. The issues are both social and biological, and it's crucial that social debate be based on a clear understanding of the underlying science. The instructors will explain the scientific foundation beneath each issue. We'll emphasize the nature of science as a process of inquiry rather than a fixed body of terminology and facts. The course is not intended to be a comprehensive survey of biology. SC
o Course cr

*** MCDB 106a / E&EB 106a / HLTH 155a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron

Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

*** MCDB 109b, Immunity and Contagion** Staff

This interdisciplinary course is for students that want to learn about infectious diseases, pandemics, and the immune system. The immune system evolved to fight pathogens while maintaining homeostasis with our microbiome. The first part of the course is on how the immune system works; this is followed by discussion of different microbes and associated pandemics. This includes flu (1918 pandemic), HIV (AIDS), human

papillomavirus (link to cancer), and coronaviruses (COVID-19). Other topics include the human microbiome, cancer immunotherapy and vaccines. Artwork and relevant history are included with a class at the Yale Art Gallery and a class at the medical school. SC o Course cr

MCDB 200b, Molecular & Biochemical Principles of Gene Function Staff

The way we think about our health, our material world, and even our national economy, is undergoing radical change because of the revolution in biology. In this course, students learn the basic concepts that drive this revolution to become active and informed participants. Specifically, this course provides a comprehensive overview of modern molecular biology and its applications. Topics include the structure, function, and chemical behavior of biological macromolecules (DNA, RNA, and protein), chromosome and genome organization, replication and maintenance of the genome, genome editing, transcriptional and translational regulation, structure and function of regulatory noncoding RNAs, RNA splicing, editing and modification and first principles of synthetic biology. Upon completion of the course, students understand the molecular basis for regulated gene expression and the many implications for medicine, biotechnology, and biological engineering. Prerequisites: CHEM 161 or 163, and BIOL 101 (or placement out of BIOL 101 via BIOL 101 placement exam, or via AP5 or IB7HL with permission of core course instructor). SC o Course cr

MCDB 201Lb, Molecular Biology Laboratory Staff

Basic molecular biology training in a project-based laboratory setting. Experiments analyze gene function through techniques of PCR, plasmid and cDNA cloning, DNA sequence analysis, and protein expression and purification. Instruction in experimental design, data analysis, and interpretation. Concurrently with or after MCDB 200, or with permission from instructor. For freshmen and sophomores interested in research integrated laboratory experience. Special registration procedures apply. Interested students must contact the instructor and attend an organizational meeting during the first week of classes. WR, SC o Course cr

MCDB 202a, Genetics Staff

An introduction to classical, molecular, and population genetics of both prokaryotes and eukaryotes and their central importance in biological sciences. Emphasis on analytical approaches and techniques of genetics used to investigate mechanisms of heredity and variation. Topics include transmission genetics, cytogenetics, DNA structure and function, recombination, gene mutation, selection, and recombinant DNA technology. Prerequisite: BIOL 103 or equivalent performance on the corresponding biological sciences placement examination. SC o Course cr

*** MCDB 203La, Laboratory for Genetics** Staff

Introduction to laboratory techniques used in genetic analysis. Genetic model organisms – bacteria, yeast, *Drosophila*, and *Arabidopsis* – are used to provide practical experience with various classical and molecular genetic techniques including cytogenetics; complementation, epistasis, and genetic suppressors; mutagenesis and mutant analysis, recombination and gene mapping, isolation and manipulation of DNA, and transformation of model organisms. Concurrently with or after MCDB 202. SC o Course cr

MCDB 205b, Cell Biology Staff

A comprehensive introductory course in cell biology. Emphasis on the general principles that explain the molecular mechanisms of cellular function. Prerequisites: BIOL 101 and 102, or equivalent performance on the corresponding biological sciences placement examinations, or a score of 5 on the Advanced Placement test in Biology, or a score of 710 or above on the SAT Biology M test, or MCDB 200. SC 0 Course cr

MCDB 221La, Laboratory for Foundations of Biology Staff

This lab complements the BIOL 101–103 series. An introduction to research and common methodologies in the biological sciences, with emphasis on the utility of model organisms. Techniques and methods commonly used in biochemistry, cell biology, genetics, and molecular and developmental biology; experimental design; data analysis and display; scientific writing. With permission of instructor or concurrently with or after BIOL 101, 102 or 103. WR, SC 0 Course cr

MCDB 251Lb, Laboratory for Biology of Reproduction and Development Seth Guller and Shannon Whirledge

Laboratory focus on aspects of human reproductive biology and connections with normal reproductive outcomes. Clinically relevant consideration of human tissue and cell models to study ovarian, uterine, and placental structure and function. Testing of the role of tissue specific cellular differentiation; human trophoblast function; and the roles of steroid hormones in the regulation of uterine, placental, and ovarian function. Mouse tissue models will be employed. Enrollment limited. Concurrently with or after MCDB 210 or 250. Not open to first-year students. Special registration procedures apply; students must consult the instructor prior to the first week of classes. SC ½ Course cr

MCDB 290b, Microbiology Stavroula Hatzios and Jing Yan

Cell structure of bacteria, bacterial genetics, microbial evolution and diversity, bacterial development, microbial interaction, chemotaxis and motility, gene regulation, microbial genomics and proteomics, CRISPR, metabolism, infectious diseases, mechanisms of pathogenesis, host defense systems, viruses, gut microbiota in health and disease. Prerequisites: BIOL 101, 102, and 103, or equivalent performance on the corresponding biological sciences placement examinations; or one term of biochemistry, or cell biology, or genetics; or with permission of instructor. SC

*** MCDB 291Lb, Laboratory for Microbiology** Amaleah Hartman

Practical approaches used when working with microbes, primarily bacteria. Topics include microscopy, culture techniques, biochemical/metabolic assays, and basic environmental and medical microbiology. Concurrently with or after MCDB 290. Electronic permission key required; students should contact the instructor prior to the first class meeting. SC ½ Course cr

*** MCDB 300a or b / MB&B 200a or b, Biochemistry** Staff

An introduction to the biochemistry of animals, plants, and microorganisms, emphasizing the relations of chemical principles and structure to the evolution and regulation of living systems. Introductory biology coursework (BIOL 101, BIOL 102, BIOL 103) or equivalent performance on the corresponding biological sciences placement examination; one term of organic chemistry (CHEM 174 or CHEM 220); or with permission of instructor. Note for MB&B majors: this course does not substitute for MB&B 300 and MB&B 301. SC 0 Course cr

*** MCDB 301La or b / MB&B 251La or b, Laboratory for Biochemistry** Staff

An introduction to current experimental methods in molecular biology, biophysics, and biochemistry. Limited enrollment. Prerequisite: BIOL 101. SC ½ Course cr

*** MCDB 303Lb, Advanced Molecular Biology Laboratory** Maria Moreno and F Kenneth Nelson

A laboratory course that provides advanced biology research skills. Weekly workshops focus on laboratory practice, experimental design, data analysis, reading of primary literature, scientific presentations, and scientific writing skills. Application of these skills in project-based laboratory training sponsored by a faculty member. Enrollment limited. Special registration procedures apply; interested students must contact the instructor and attend an organizational meeting. This class is recommended to students in the sciences who are in their junior year and will be completing a senior research project requirement for graduation. SC RP

*** MCDB 310a / BENG 350a, Physiological Systems** Staff

Regulation and control in biological systems, emphasizing human physiology and principles of feedback. Biomechanical properties of tissues emphasizing the structural basis of physiological control. Conversion of chemical energy into work in light of metabolic control and temperature regulation. Prerequisites: CHEM 165 or 167 (or CHEM 113 or 115), or PHYS 180 and 181; MCDB 120, or BIOL 101 and 102. SC o Course cr

MCDB 315b, Pathobiology Jon Morrow, Karin Finberg, Declan McGuone, Samuel Katz, Harold Sanchez, and Sudhir Perincheri

Mechanisms of human disease from a pathologic perspective. Topics include general cell injury and the biology of cellular senescence, cancer genetics, renal disease, neurologic disease, Gastrointestinal and lung disease, along with the systemic manifestations of disease with clinical correlations. Opportunities to observe under the tutelage of an attending pathologist the manifestations of disease in autopsies at Yale-New Haven Hospital and the role of molecular-based diagnostics in medical decision making will be available. Enrollment limited; preference to junior and senior majors in MCDB or MB&B. Prerequisites: MCDB 205, 300, or 310 SC RP

MCDB 320a / NSCI 320a, Neurobiology Haig Keshishian and Paul Forscher

The excitability of the nerve cell membrane as a starting point for the study of molecular, cellular, and systems-level mechanisms underlying the generation and control of behavior. At least 1 semester of college chemistry is strongly recommended. SC o Course cr

MCDB 321La / NSCI 321La, Laboratory for Neurobiology Haig Keshishian

Introduction to the neurosciences. Projects include the study of neuronal excitability, sensory transduction, CNS function, synaptic physiology, and neuroanatomy. Concurrently with or after MCDB 320. SC ½ Course cr

MCDB 325a, Molecular Hallmarks of Cancer Staff

This course provides a comprehensive introduction to the fundamentals of cancer biology and cancer treatment. Topics covered include: cancer genetics, genomics and epigenetics; familial cancer syndromes; signal transduction, cell cycle control, and apoptosis; cancer metabolism; stem cells and cancer; metastasis; cancer immunology and immunotherapy; conventional and molecularly-targeted therapies; and early detection and prevention. Prerequisites: Introductory courses (BIOL 101–104) and

two MCDB 200-level courses (selected from MCDB 200, MCDB 202, MCDB 205, and MCDB 210) or instructor permission. o Course cr

MCDB 329a / NSCI 329a, Sensory Neuroscience Through Illusions Damon Clark and Michael O'Donnell

Animals use sensory systems to obtain and process information about the environment around them. Sensory illusions occur when our sensory systems provide us with surprising or unexpected percepts of the world. The goal of this course is to introduce students to sensory neuroscience at the levels of sensor physiology and of the neural circuits that process information from sensors. The course is centered around sensory illusions, which are special cases of sensory processing that can be especially illustrative, as well as delightful. These special cases are used to learn about the general principles that organize sensation across modalities and species. Prerequisites: BIOL 101–104; NSCI 160 or NSCI 320 or permission of instructor. SC

MCDB 330a / BENG 230a / MB&B 330a / NSCI 324a, Modeling Biological Systems I

Thierry Emonet and Kathryn Miller-Jensen

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101–104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

*** MCDB 342La, Laboratory in Nucleic Acids I** F Kenneth Nelson

A project from a research laboratory within the MCDB department, using technologies from molecular and cell biology. Laboratories meet twice a week for the first half of the term. Concurrently with or after MCDB 202, 205, or 300. Enrollment limited. Special registration procedures apply; students should contact the instructor during January of the year you intend to take the course. SC o Course cr

*** MCDB 343La, Laboratory in Nucleic Acids II** F Kenneth Nelson

Continuation of MCDB 342L to more advanced projects in molecular and cell biology, such as microarray screening and analysis, next-generation DNA sequencing, or CRISPR/Cas editing of genes. Laboratories meet twice a week for the second half of the term. 0.5 Yale College course credit(s) Enrollment limited. Special registration procedures apply; students should contact the instructor during January of the year you intend to take the course. Prerequisite; MCDB 342L or permission of instructor. SC o Course cr

*** MCDB 344Lb, Experimental Techniques in Cellular Biology** Joseph Wolenski

An inquiry-based approach to research in cell and molecular biology, with emphasis on experimental techniques commonly used in modern biomedical laboratories. Research is module-based and covers pertinent and timely topics. Methods include SDS-PAGE, immunoblotting, immunoprecipitation of proteins, column chromatography, mammalian cell culture, cell fractionation, cell transfection, DNA purification, PCR, and phase contrast and confocal microscopy. Meets during January and February. Prerequisite: MCDB 205. Special registration procedures apply; interested students must contact the instructor at least eighteen months in advance. SC ½ Course cr

*** MCDB 345Lb, Experimental Strategies in Cellular Biology** Joseph Wolenski

Continuation of MCDB 344L, with increased emphasis on experimental design, independent research, presentation of data and research seminars. Students develop semi-independent research projects in modern biomedical research. Emphasis on key components of being a successful principal investigator, including benchwork, seminar presentations, lab meetings, and critical analysis of data. Prepares for MCDB 475, 485, or 495. Meets during March and April. Prerequisite: MCDB 344L. Special registration procedures apply; interested students should contact the instructor. SC ½ Course cr

*** MCDB 350a, Epigenetics** Yannick Jacob and Nadya Dimitrova

Study of epigenetic states and the various mechanisms of epigenetic regulation, including histone modification, DNA methylation, nuclear organization, and regulation by non-coding RNAs. Detailed critique of papers from primary literature and discussion of novel technologies, with specific attention to the impact of epigenetics on human health. Introductory courses (BIOL 101–104) and two MCDB 200-level courses (strongly recommended: MCDB 202 and MCDB 200 or MCDB 210) or instructor permission. SC 0 Course cr

*** MCDB 355a, The Cytoskeleton, Associated Proteins, and Disease** Surjit Chandhoke

In-depth discussion of the cytoskeleton, proteins associated with the cytoskeleton, and diseases that implicate members of these protein families. Preference given to seniors in the MCDB major. Prerequisites: BIOL 101–104 *and* at least one MCDB 200-level course. SC

MCDB 361b / BENG 465b / MB&B 361b / NSCI 325b, Modeling Biological Systems II

Thierry Emonet

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

*** MCDB 364a / MB&B 364a, Light Microscopy: Techniques and Image Analysis**

Joseph Wolenski and Joe Howard

A rigorous study of principles and pertinent modalities involved in modern light microscopy. The overall course learning objective is to develop competencies involving advanced light microscopy applications common to multidisciplinary research. Laboratory modules coupled with critical analysis of pertinent research papers cover all major light microscope methods—from the basics (principles of optics, image contrast,

detector types, fluorescence, 1P and 2P excitation, widefield, confocal principle, TIRF), to more recent advances, including: superresolution, lightsheet, FLIM/FRET, motion analysis and force measurements. This course is capped at 8 students to promote interactions and ensure a favorable hands-on experience. Priority for enrollment is given to students who are planning on using these techniques in their independent research. Prerequisites: MCDB 205, PHYS 170/171 or above, either CHEM 161/165 or above; with CHEM 134L, 136L or permission from the instructor. SC

*** MCDB 370b, Biotechnology** Staff

The principles and applications of cellular, molecular, and chemical techniques that advance biotechnology. The most recent tools and strategies used by industrial labs, academic research, and government agencies to adapt biological and chemical compounds as medical treatments, as industrial agents, or for the further study of biological systems. Prerequisite: MCDB 200, 202, or 300. SC o Course cr

*** MCDB 425a / MB&B 425a, Basic Concepts of Genetic Analysis** Jun Lu

The universal principles of genetic analysis in eukaryotes. Reading and analysis of primary papers that illustrate the best of genetic analysis in the study of various biological issues. Focus on the concepts and logic underlying modern genetic analysis. Prerequisite: MCDB 202 or pre-approval of instructor. SC

*** MCDB 430a, Biology of the Immune System** Staff

The development of the immune system. Cellular and molecular mechanisms of immune recognition. Effector responses against pathogens. Immunologic memory and vaccines. Human diseases including allergy, autoimmunity, immunodeficiency, and HIV/AIDS. After MCDB 300. SC o Course cr

MCDB 452b / MB&B 452b / S&DS 352b, Biomedical Data Science, Mining and Modeling Mark Gerstein and Matthew Simon

Techniques in data mining and simulation applied to bioinformatics, the computational analysis of gene sequences, macromolecular structures, and functional genomics data on a large scale. Sequence alignment, comparative genomics and phylogenetics, biological databases, geometric analysis of protein structure, molecular-dynamics simulation, biological networks, microarray normalization, and machine-learning approaches to data integration. Prerequisites: MB&B 301 and MATH 115, or permission of instructor. SC

*** MCDB 469b / AMST 467b / HSHM 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

*** MCDB 470a, Tutorial in Molecular, Cellular, and Developmental Biology** Douglas Kankel

Individual or small-group study for qualified students who wish to investigate a broad area of experimental biology not presently covered by regular courses. A student must be sponsored by a Yale faculty member, who sets the requirements. The course must include one or more written examinations and/or a term paper. Intended to be a supplementary course and, therefore, to have weekly or biweekly discussion meetings between the student and the sponsoring faculty member. To register, the student must prepare a form, which is available at <http://mcdb.yale.edu/forms> as well as on the course site on Classes*v2, and a written plan of study with bibliography, approved by the faculty research adviser. The form and proposal must be uploaded to Classes*v2 by the end of the second week of classes. The final paper is due in the hands of the sponsoring faculty member, with a copy to the course instructor, by the last day of classes. In special cases, with approval of the director of undergraduate studies, this course may be elected for more than one term, but only one term may count as an elective toward the major. Fulfills the senior requirement for the B.A. degree if taken in the senior year.

*** MCDB 474a or b, Independent Research** Joseph Wolenski

Research project under faculty supervision taken Pass/Fail. This is the only independent research course available to underclassmen. Students are expected to spend approximately ten hours per week in the laboratory. To register, the student must submit a form, which is available from the course site on Canvas@Yale, and a written plan of study with bibliography, approved by the faculty research adviser. The form and proposal must be uploaded to Canvas@Yale by the end of the second week of classes. A final research report is required at the end of the term. Students who take this course more than once must reapply each term. Guidelines for the course should be obtained from the office of the director of undergraduate studies or downloaded from the Canvas@Yale server.

*** MCDB 475a or b, Senior Independent Research** Joseph Wolenski

Research project under faculty supervision, ordinarily taken to fulfill the senior requirement. This course is only available to MCDB seniors and they are awarded a letter grade. Students are expected to spend approximately ten hours per week in the laboratory. To register, the student must prepare a form, which is available from the course site on Canvas@Yale, and a written plan of study with bibliography, approved by the faculty research adviser. The form and proposal must be uploaded to Canvas@Yale by the end of the second week of classes. The final research paper is due in the hands of the sponsoring faculty member, with a copy uploaded to Canvas@Yale, by the last day of classes. Students who take this course more than once must reapply each term; students planning to conduct two terms of research should consider enrolling in MCDB 485, 486. Students should line up a research laboratory during the term preceding the research. Fulfills the senior requirement for the B.A. degree if taken in the senior year. Two consecutive terms of this course fulfill the senior requirement for the B.S. degree if at least one term is taken in the senior year.

*** MCDB 482a, Advanced Seminar in Cell Biology: Intracellular Signal Transduction**

Craig Crews

Discussion of intracellular signal transduction pathways. Detailed critique of experimental approaches, controls, results, and conclusions of selected current and classic papers in this field. SC

*** MCDB 485a and MCDB 486b, Senior Research** Joseph Wolenski

Individual two-term laboratory research projects under the supervision of a faculty member. For MCDB seniors only. Students are expected to spend ten to twelve hours per week in the laboratory, and to make presentations to students and advisers. Written assignments include a short research proposal summary due at the beginning of the first term, a grant proposal due at the end of the first term, and a research report summarizing experimental results due at the end of the second term. Students are also required to present their research in either the fall or the spring term. A poster session is held at the end of the spring term. Students should line up a research laboratory during the term preceding the research. Guidelines for the course may be obtained on the course site on Canvas@Yale. Written proposals are due by the end of the second week of classes. Fulfills the senior requirement for the B.S. degree if taken in the senior year.

*** MCDB 495a and MCDB 496b, Senior Research Intensive** Joseph Wolenski

Individual two-term directed research projects in the field of biology under the supervision of a faculty member. For MCDB seniors only. Before registering, the student must be accepted by a Yale faculty member with a research program in experimental biology and obtain the approval of the instructor in charge of the course. Students spend approximately twenty hours per week in the laboratory, and make written and oral presentations of their research to students and advisers. Written assignments include a short research proposal summary due at the beginning of the first term, a grant proposal due at the end of the first term, and a research report summarizing experimental results due at the end of the second term. Students must attend a minimum of three research seminar sessions (including their own) per term. Students are also required to present their research during both the fall and spring terms. A poster session is held at the end of the spring term. Guidelines for the course may be obtained from the course site on Canvas@Yale. Written proposals are due by the end of the second week of classes. Fulfills the senior requirement for the B.S. degree with an intensive major. 2 Course cr per term

Music (MUSI)

*** MUSI 032a, Music, Sound, and the Environment** Giulia Accornero

The word “environment” derives from the French word *environ* (around): it refers to what is all around us. In this class we examine the roles that music, sound, and their associated vocabularies have long played in negotiating the perception and meaning of what constitutes our environment. We dig into history to learn how the Muslim philosopher al-Kindi conceived of the connection between winds, elements, and the strings of the oud more than a thousand years ago; how across the centuries, people have construed a range of musical genres in connection to the problematic ideology of climatic determinism; and how today, composers give voice to the microscopic. As we proceed, we ask: what is (and could be) the role of music and sound in shaping the environment today? By the end of the class, we recognize and assess the ways in

which music and sound have inflected and continue to inflect our perception of the environment. Enrollment limited to first-year students. WR, HU

*** MUSI 035b / CPSC 035b, Twenty-First Century Electronic and Computer Music Techniques** Scott Petersen

Exploration of twenty-first century electronic and computer music through the diverse subjects and issues at the intersection of technology and new music. How computers have changed and challenged the analysis, composition, production, and appreciation of music over the last fifty years. Knowledge of basic music theory and the ability to read Western musical notation is assumed. Enrollment limited to first-year students. QR

*** MUSI 081a / ER&M 081a / SOCY 081a, Race and Place in British New Wave, K-Pop, and Beyond** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992–present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s–70s, British and American punk rock music (1970s–1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. SO

MUSI 110a or b, Elements of Musical Pitch and Time Staff

The fundamentals of musical language (notation, rhythm, scales, keys, melodies, and chords), including writing, analysis, singing, and dictation. Intended for students who have no music reading ability. o Course cr

*** MUSI 148b / EALL 277b / EAST 424b, Music In Flux: Blendings, Exchanges, and Cultural Significances** Staff

This course examines how music is transmitted by various factors and how its styles and meanings can change in a new context. Through various scholarly approaches, this class aims to enhance your understanding of the mobility of music and its meanings. We will examine the processes and conditions in which music is exchanged and blended and consider how such “mashups” function as cultural indicators and symbols for emergent and migrant communities. We will also examine the impact of technology on musical globalization, localization, and glocalization. In doing so, this class explores issues of identity, representation, authenticity, tradition, nationalism, and transnationalism. By examining music in- or as-culture, students will understand some of the political, cultural, and social aspects of music, as well as the contextual meanings of musical practices. The class will utilize audio/video sources, incorporate discussions based on academic articles and chapters, and require student analysis that connects music to its context. While this class focuses mainly on music from East Asian countries, we will also examine case studies from others around the world. No background in music or prior knowledge of East Asia is required. HU

MUSI 156a / AFAM 117a / AMST 207a / WGSS 117a, Beyonce Makes History: Black Radical Tradition History, Culture, Theory & Politics through Music Staff

This class centers the 2010s and 2020s' sonic and visual repertoire of Beyonce Knowles-Carter (from 2013's self-titled album through 2024's *Cowboy Carter*) as the portal through which to rigorously examine key interdisciplinary works of Black intellectual thought and grassroots activist practices across the centuries. Its aim is two-fold: to both explore and analyze the dense, robust and virtuosic aesthetics, socio-historical and political dimensions of Beyonce's pathbreaking, mid-career body of work and to, likewise, use her aesthetics; the multi-dimensional form and content of her recordings; her boundary-transgressing performance politics; her history-making visual albums; her innovative concert films; her unprecedented pop music archival endeavors and more as the occasion to explore landmark Black Studies scholarship and Black freedom struggle scholarly and cultural texts (in history, Black feminist theory, philosophy, anthropology, art history, performance studies, musicology, political science, sociology, dance, American Studies, religious studies, archival studies etc.) that directly resonate with Beyonce's sonic, visual and live performance endeavors. In short, this is a class that traces the relationship between Beyonce's artistic genius and Black intellectual practice.

HU o Course cr

*** MUSI 185a / THST 236a, American Musical Theater History** Dan Egan

Critical examination of relevance and context in the history of the American musical theater. Historical survey, including nonmusical trends, combined with text and musical analysis. Limited enrollment. Interested students should contact dan.egan@yale.edu for application requirements. WR, HU

*** MUSI 190a, Yale Concert Band** Thomas Duffy

The Yale Concert Band, a group of 45-60 wind, brass, and percussion players, embraces the aesthetics of the traditional wind band and the contemporary experimental ensemble. Our repertoire consists of a panoply of wind band classics; premieres by and commissions of Yale students, faculty and established world-class composers; and the newest wind band literature that incorporates electro-acoustic sounds, folk/rock/hip hop music, soloists, and theatrical trappings. The Yale Concert Band regularly presents concerts to benefit causes and organizations, ranging from benefit concerts to support the work of New Haven's IRIS (Integrated Refugee and Immigrant Services (2017, 2018, 2019)); to provide aid to the relief efforts after Hurricane Katrina (2005), floods in Myanmar (2007), tornadoes in the American midwest (2007), the earthquake in Haiti (2010), the tsunami in Japan (2011), and West African Ebola recovery efforts (2016). In 1959, the Yale Concert Band became the first university band to produce an international concert tour, and, since then, has appeared in concerts in Japan, South Africa, Swaziland, Mexico, Brazil, Bermuda, Russia, Finland, the Czech Republic, Austria, Ireland, England, France, Italy, Denmark, Germany, Holland, Belgium, Lithuania, Latvia, Estonia, Ghana, Haiti, Greece, Australia, and Spain. This course cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. By audition at the beginning of the academic year or by permission of instructor. o Course cr

*** MUSI 191a, Yale Glee Club** Jeffrey Douma

The Yale Glee Club is the University's principal undergraduate SATB choir and oldest musical organization. Led by a School of Music faculty conductor, the 85-voice ensemble is comprised of students from many backgrounds with diverse musical and

academic interests and is committed to the collaborative pursuit of musical excellence as a formative component of a liberal arts education. The Glee Club's repertoire spans eras, styles, and cultures, while acknowledging the tradition of concert music. The group promotes new contributions to the field of choral music through initiatives that highlight historically excluded voices, expanding the boundaries of collegiate choral singing and embracing change and the reflective conversations that come with it. The Glee Club aims to make a positive impact in our local community and beyond through musical collaborations and arts-related service work. The group strives to cultivate a welcoming and inclusive community, foster friendships and camaraderie, and prepare members with the skills and context needed for a lifelong appreciation of music-making. This course cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. By audition at the beginning of the academic year. o Course cr

*** MUSI 192a, Yale Symphony Orchestra** William Boughton

The YSO's programming policy is a combination of—the Western Canon (Bach–Mahler), American Heritage (Beach to Carter) and American Contemporary Music with invitations to living composers to visit the Campus and work with the Orchestra. The YSO has a proud history of presenting many premieres and commissioning new music. This course cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. By audition at the beginning of the academic year. o Course cr

*** MUSI 193a, Yale Jazz Ensembles** Wayne Escoffery

The Yale Jazz Ensembles combine the combo and “big band” styles of jazz and present a variety of music from all styles of the genre: from classic pieces from the golden age of the big band to standards—including those from Yale's Benny Goodman archive—to the newest, most progressive jazz compositions. The YJE has performed in the United States and internationally at such noted venues as New York's Village Vanguard, Iridium Jazz Club, and Dizzy's Club; Boston's Scullers Club, and London's Ronnie Scott's. The YJE has played with or opened for the Mingus Big Band, the Mel Lewis Jazz Orchestra, the Toshiko Akiyoshi/Lew Tabackin Big Band, the World Saxophone Quartet, Jane Ira Bloom, Jimmy Owens, and Branford Marsalis, Randy Brecker, George Coleman, and Wayne Escoffery. This course cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. By audition at the beginning of the academic year. o Course cr

*** MUSI 207a or b, Commercial and Popular Music Theory** Nathaniel Adam

An introduction to music-theory analysis of commercial and popular song (with a focus on American and British music of the past 50 years, across multiple genres). Coursework involves study of harmony, voice leading and text setting, rhythm and meter, and form, with assigned reading, listening, musical transcription and arranging, and written/oral presentation of analysis. Prerequisite: Completion of a 100- or 200-level music theory course or the corresponding placement exam, and/or permission of instructor. HU RP o Course cr

*** MUSI 210a, Counterpoint, Harmony, and Form: 1500–1800** Staff

A concentrated investigation of basic principles and techniques of period musical composition through study of strict polyphonic voice leading, figuration, harmonic progression, phrase rhythm, and small musical forms. HU

*** MUSI 216a, Meter, Rhythm, Musical Time** Richard Cohn

How do the mind and body make sense of patterned sounds in time? How do musical cultures, and individual musicians, create sonic time-patterns that engage attention, stir emotions, and inspire collective behavior? How well does standard Western notation represent these patterns and responses? What other systems of representation are available for exploring the properties of individual songs or compositions? The course focuses on meter, durational rhythm, their interaction across short and long spans of musical time, and their capacity to shape musical form. Repertoires are drawn from various historical eras of notated European music; contemporary popular, jazz, and electronic dance music; and contemporary and traditional musics of Africa, Asia, and the Caribbean. Students acquire a deeper understanding of a fundamental human capacity, as well as specific tools and habits that can be put to use in various activities as performers, composers, improvisers, listeners, and dancers. Prerequisite: Ability to read standard musical notation. HU

*** MUSI 217a, Keyboard Skills for Tonal Music** Staff

This course teaches music-theory keyboard skills such as score reading, melody harmonization, figured-bass realization, and improvisation, and how these topics connect to written music-theory analysis and composition. Prerequisite: Completion of a 100- or 200-level music theory course, intermediate keyboard ability*, and permission of instructor. *eg: 2-octave scales in major and minor keys through 4 sharps/flats; sightread simple hymns/chorales at beat=60; knowledge of roman numerals

*** MUSI 218a, Aural Skills for Tonal Music** Staff

Tonal music theory topics with an emphasis on sight-sightreading, rhythm, melodic and harmonic dictation, and aural analysis. Prerequisite: Completion of MUSI 110, or any 200-level MUSI course, or the following: ability to match pitch and sing a major scale; knowledge of standard staff notation (treble/bass clefs); knowledge of major/minor key signatures; knowledge of basic time signatures; knowledge of intervals; knowledge of triads. HU RP o Course cr

*** MUSI 220a and MUSI 221b, The Performance of Chamber Music** Wendy Sharp

Coached chamber music emphasizing the development of ensemble skills, familiarization with the repertoire, and musical analysis through performance. Admission by audition only. May be repeated for credit. For audition information e-mail wendy.sharp@yale.edu. Credit for MUSI 220 only on completion of MUSI 221. ½ Course cr per term

*** MUSI 228a / THST 224a, Musical Theater Performance I** Annette Jolles and Dan Egan

The structure, meaning, and performance of traditional and contemporary musical theater repertoire. Focus on ways to “read” a work, decipher compositional cues for character and action, facilitate internalization of material, and elicit lucid interpretations. This semester’s course also embraces the online format to address performing and recording virtually as a vital tool in the current field of musical theater. The course combines weekly synchronous learning and private coaching sessions. For singers, music directors, and directors. Admission by audition and application only. Auditions/interviews will be scheduled during the first two weeks of August. May be repeated for credit. For audition information contact dan.egan@yale.edu. HU RP

*** MUSI 230a, Composing for Musical Theater** Joshua Rosenblum and Dan Egan

This course is open to all students (including graduate programs) and from any major, although priority is given to music majors. Knowledge of the basics of music theory and music notation is required, and some familiarity with the musical theater idiom is expected. Some prior composing experience is recommended. Piano skills are very helpful, but not required. Normally the class size is limited, so that all assignments can be performed and fully considered during the class meeting time. Prerequisite: MUSI 110 or equivalent. Enrollment limited to 12. Please contact joshua.rosenblum@yale.edu with any questions about eligibility. HU RP

*** MUSI 231b, Laptop Ensemble: Study and Performance** Konrad Kaczmarek

Investigations into music technology through a combination of classroom learning and live performance. The appropriation of music technology through software and hardware hacking; laptop-based production and performance tools; hybrid electroacoustic instruments and electronic chamber music; live audio processing; novel approaches to notation and conducting. Students create new works and perform in a concert at the end of the term. RP

*** MUSI 232a or b, Central Javanese Gamelan Ensemble** Phil Acimovic

An introduction to performing the orchestral music of central Java and to the theoretical and aesthetic discourses of the gamelan tradition. Students form the nucleus of a gamelan ensemble that consists primarily of tuned gongs and metallophones; interested students may arrange for additional private instruction on more challenging instruments. The course culminates in a public performance by the ensemble. This course may be repeated for credit. No previous musical experience required. RP

*** MUSI 238a, Contemporary Chamber Music Performance** Maiani da Silva

Contemporary chamber music ensemble that emphasizes collaborative workshopping methods for the performance of recent professional repertoire and pieces written by student and faculty composers. Students learn about musical analysis through performance, extended techniques, and the instrumentalists' role in bringing to life a new piece. Admission by audition only. Students must bring their instruments to class. ½ Course cr

*** MUSI 240a or b, The Performance of Early Music** Grant Herreid

A study of musical styles of the twelfth through early eighteenth centuries, including examination of manuscripts, musicological research, transcription, score preparation, and performance. Students in this class form the nucleus of the Yale Collegium Musicum and participate in a concert series at the Beinecke Library. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu. HU RP

*** MUSI 280b / SAST 259b, Music of South Asia** Ameera Nimjee

An introduction to some of the music traditions that hail from South Asia—a region defined by the countries of India, Pakistan, Sri Lanka, Nepal, Bangladesh, Bhutan, Afghanistan, Maldives, and their diasporas. “Music” in this course is considered broadly, and refers to performance and ritual traditions in which music, movement, dance, poetry, and theater all figure. The course approaches music from the disciplinary vantage point of ethnomusicology, where music is studied with respect to its complex intersections with culture, daily life, and society. Course content is introduced weekly through a series of analytical lenses, such as gender, sexuality, caste, and migration,

through which South Asian music can be understood in their social and cultural contexts. HU

*** MUSI 304a or b, Vocal Counterpoint and Arranging** Nathaniel Adam

This course approaches the study of counterpoint with a focus on arranging for voices (and singing arrangements in class). Exercises are modified from classical-music education, but adapted for contemporary popular song, to benefit Yale's "a cappella" performers as well as any other students interested in music theory and composition. Prerequisite: MUSI 218 and/or the following: ability to match pitch and sightsing tonal melodies; willingness to sing in class every day; fluency in treble/bass clefs and standard classical-music notation; knowledge of Roman-numeral analysis and triad inversions.

*** MUSI 320a, Composition Seminar I** Kathryn Alexander

Intermediate analytic and creative projects in music composition, instrumentation, and scoring for visual media. Study of compositional procedures and techniques in different genres and styles. Group and individual lessons to supplement in-class activities. Enrollment limited to 20. Students with questions should contact the instructor at kathryn.alexander@yale.edu. Previously MUSI 312. Prerequisite: MUSI 207 or MUSI 210 or MUSI 211 or equivalent. HU RP

*** MUSI 321b, Composition Seminar II** Konrad Kaczmarek

Intermediate analytic and creative projects in music composition and instrumentation, with a focus on jazz harmony, voice-leading, and music production tools. Study of compositional procedures and techniques in different ensemble settings. Group and individual lessons to supplement in-class lectures. Enrollment limited to 20. Students with questions should contact the instructor at konrad.kaczmarek@yale.edu. Prerequisite: MUSI 210 or MUSI 211 and/or MUSI 312. RP

*** MUSI 328a, Introduction to Conducting** William Boughton

An introduction to conducting through a detailed study of the problems of baton technique. Skills applied to selected excerpts from the standard literature, including concertos, recitatives, and contemporary music.

*** MUSI 329b, Intermediate Conducting** William Boughton

Intermediate studies in baton technique and score preparation. After MUSI 323.

*** MUSI 340b / THST 318b, Analyzing, Directing, and Performing Early Opera**

Grant Herreid and Toni Dorfman

Study of a seventeenth-century Venetian opera, with attention to structural analysis of text and music. Exploration of period performance practice, including rhetorical expression, musical style, gesture, dance, Italian elocution, and visual design. Production of the opera in conjunction with the Yale Baroque Opera Project. Open to all students, but designed especially for singers, instrumentalists, and directors. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu. HU RP

*** MUSI 345a or b, Lessons** Kyung Yu

Individual instruction in the study and interpretation of musical literature. No more than four credits of lessons can be applied towards the 36-credit degree requirement. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for first year and some returning students, and are held only at the beginning

of the fall term. For details, see the Music department's program description in the YCPS.

*** MUSI 346a, Art Songs of Spain and Sweden** Richard Lalli

This course is geared to both singers and pianists. It explores the wealth of art songs composed in Spain and Sweden during the nineteenth and twentieth centuries, and also provides an introduction to issues of musical analysis, poetic analysis, performance practice, and singing technique. The primary goal is to understand how the vocal execution of text can be informed by a study of historical events, social contexts, and aesthetic currents. The importance of text, breathing, and communication are central to the performative component of the seminar. Music reading proficiency and previous solo performing (as either singer or pianist) experience HU

*** MUSI 350a, History of Western Music: Middle Ages and Renaissance** Anna Zayaruznaya

A detailed investigation of the history of musical style from A.D. 900 to 1600. Preference to Music majors according to class. HU

*** MUSI 351b, Music in European Court, Church, and Theater, 1600–1800** Jessica Peritz

A detailed investigation of the history of musical style from 1600 to 1800. Preference to Music majors according to class. HU o Course cr

*** MUSI 378b, American Neighborhood Musics** Trevor Baca

Introduction to American regional musics. Five units, including go-go in Washington, DC; Tejano music in South Texas; Detroit techno and its influence on global EDM; Puerto Rican reggaeton; and the American reception of K-pop. Extensive listening lists and select readings help students understand both the musical attributes and social context of all musics studied in the course. HU

*** MUSI 381a / AFAM 253a, Jazz in Transition, 1960–2000** Michael Veal

A survey of musicians, stylistic currents, and critical issues relevant to the evolution of jazz between 1960 and 2000. Topics include Third Stream, free jazz, jazz-rock fusion, the influence of world music, neo-classicism, jazz and hip-hop, and others. HU

*** MUSI 407b, Commercial and Popular Music Theory II** Nathaniel Adam

This course is a continuation of MUSI 207 Commercial and Popular Music Theory I. While 207 covered fundamentals of analysis, 407 involves further research and more complex analysis, with more presentations and transcription projects in addition to a final paper. Beyond harmonic and formal analysis, 407 explores intersectional topics such as history, video, politics, race, gender, and sexuality in the context of popular music. Completion of MUSI 207 (seniors and graduate students may request instructor's permission without taking 207). HU RP

MUSI 409a, Musical Spaces, Sets, and Geometries Richard Cohn

Conception and representation of pitch and rhythm systems using set, group, and graph theory. Focus on European concert music of the late nineteenth and twentieth centuries. Prerequisite: MUSI 207, 210, 216, or permission of instructor. QR

*** MUSI 412a, Theorizing Musical Time in the Medieval Islamic World** Giulia Accornero

This class is an introduction to medieval Islamic music theory, with a particular focus on the theorization of musical time, motion, and rhythmic patterns as proposed

by polymath Abū Naṣr al-Fārābī. After a deep dive in al-Fārābī's music theory, we survey rhythmic theories and diagrams by Ibn Sīnā (Avicenna) and al-Urmawī. While focusing on music theory, we also learn about music performance in the Abbasid caliphate, the "translation movement" and the integration of Greek music theory (with a focus on Aristoxenus) and philosophy, and discuss historiographical issues. Basic music theoretical knowledge and/or knowledge of medieval Islamic culture/philosophy is expected. HU

*** MUSI 414b, Instrumentation and Orchestration** Kathryn Alexander

A study of instrumentation and orchestration in a variety of musical periods, genres and styles including arranging and scoring for visual media. Related creative project work. MUSI 207, MUSI 210, MUSI 211 or equivalent.

*** MUSI 420a, Composition Seminar III** Konrad Kaczmarek

Advanced analytic and creative projects in music composition and instrumentation, with a focus on writing for chamber ensembles. Ongoing study of evolving contemporary procedures and compositional techniques. Group and individual lessons to supplement in-class lectures. Admission by audition only. May be repeated for credit. Enrollment limited to 10. To audition, students should upload two PDF scores and MP3 recordings in a single zip file by 4 p.m. on the second Wednesday of the semester, to the designated Music 420 audition assignment page at the Canvas site. Students with questions should contact the instructor at konrad.kaczmarek@yale.edu. Prerequisites: Both MUSI 320 and 321. RP

*** MUSI 421b, Composition Seminar IV** Kathryn Alexander

Advanced analytic and creative projects in music composition and instrumentation, with a focus on writing for chamber ensembles. Ongoing study of evolving contemporary procedures and compositional techniques. Group and individual lessons to supplement in-class lectures. Admission by audition only. May be repeated for credit. Enrollment limited to 10. To audition, students should upload two PDF scores and MP3 recordings in a single zip file by the first Friday of the semester to the designated Music 421 audition assignment page at the Canvas site. Students with questions should contact the instructor at kathryn.alexander@yale.edu. Prerequisites: Both MUSI 320 and 321. RP

*** MUSI 425a, Electronic Instrument Design** Konrad Kaczmarek

Live audio and video processing using the visual programming environment Max/MSP/Jitter. Topics include human computer interaction (HCI), instrument design, alternative controllers, data mapping, algorithmic composition, real-time digital signal processing, communication over the network, and programming for mobile devices. HU RP

MUSI 428a / CPSC 431a, Computer Music: Algorithmic and Heuristic Composition
Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on high-level representations of music, algorithmic and heuristic composition, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223. QR

*** MUSI 445a or b, Advanced Lessons** Kyung Yu

Individual instruction for advanced performers in the study and interpretation of musical literature. No more than four credits of lessons can be applied towards the 36-credit degree requirement. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for first year and some returning students, and are held only at the beginning of the fall term. For details, see the Music department's program description in the YCPS.

*** MUSI 449a or b, Jazz Improvisation** Wayne Escoffery

In this course students study basic, intermediate, and advanced concepts of improvisation and learn the essentials for the *Jazz Language* through solo transcription and analysis. Students learn how to use vocabulary (or musical phrases) and a variety of improvisational devices and techniques over common chords and chord progressions. Upon completion of the course students have a deeper understanding of what it takes to become a great improviser, what to practice and how to practice it, and how to go about expanding their *Jazz Vocabulary* in order to naturally develop a unique improvisational voice. Students are required to bring their instruments to class. Prerequisite: Basic understanding of Jazz nomenclature and some experience improvising is advised. Admission by audition only. Permission of the instructor is required. ½ Course cr

*** MUSI 452b, Music, Service, and Society** Sebastian Ruth

The role of musicians in public life, both on and off the concert stage. New ways in which institutions of music can participate in the formation of civil society and vibrant communities. The potential influence of music on the lives of people experiencing political or social oppression. HU RP

*** MUSI 462a / ENGL 205a / HUMS 200a / LITR 195a, Medieval Songlines** Ardis Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

*** MUSI 483b, The Gospel Imagination: Tradition and Revolution** Braxton Shelley

This course studies the black gospel tradition, focusing on the genre's distinctive combination of sound and belief. Music, movement, and conviction, the three expressions gospel holds together, are explored through three interpretive lenses: exemplary performers, pivotal periods, and formal processes. This semester's work focuses on the musicians who turned this stream of Black sacred music on its head—the radicals and revolutionaries who provoked movement between creative eras. The class brings material and approaches from the fields of musicology, music theory, ethnomusicology, black studies, homiletics, and theology to bear on two questions: 1) What work—musical, cultural, and spiritual—does gospel do for its various audiences? 2) How does the function of the gospel song shape its form? Through a combination of weekly reading, listening and writing assignments, students immerse themselves in “the gospel imagination,” the network of belief, performance, and reception that sustains many expressions of black Christian faith. Alongside these assignments, students undertake composition in the gospel style, culminating in a virtual performance of their musical creation. WR, HU

*** MUSI 485a / AFAM 277a / AFST 484a, Musical Pan-Africanisms** Michael Veal
This seminar surveys the musical conversation that has circulated around the “Black Atlantic” cultural sphere (sub-Saharan Africa, Afro-America, the Afro-Caribbean, and Latin America) for most of the twentieth century, facilitated by the advent of sound recording and broadcast technologies at the beginning of the twentieth century, and articulated through discourses of black cultural connection and concrete histories of trans-Atlantic encounter. Many—though not all—of the readings focus on the decades immediately following World War II, when “Pan-Africanism” was an explicit and prominent political discourse. Others address earlier or later examples when the idea of cross-cultural connection was more implicit but equally influential. We trace the unfolding of this conversation through a variety of sources: scholarly, personal (i.e. biographies/autobiographies), journalistic, and, of course, sonic. WR, HU

*** MUSI 495a or b, Individual Study** Anna Zayaruznaya
Original essay in ethnomusicology, music history, music theory, or music technology and/or multimedia art under the direction of a faculty adviser. Admission to the course upon submission to the department of the essay proposal by the registration deadline, and approval of the director of undergraduate studies.

*** MUSI 496a or b, The Senior Recital** Anna Zayaruznaya
Preparation and performance of a senior recital and accompanying essay under faculty supervision. Admission by permission of the director of undergraduate studies.
Prerequisite: MUSI 461.

*** MUSI 497a or b, The Senior Project in Composition** Anna Zayaruznaya
Preparation of a senior composition project under faculty supervision. Admission by permission of the composition faculty of the Department of Music. Prerequisites: MUSI 320, 321, 420, and 421.

*** MUSI 498a or b, The Senior Project in Musical Theater Composition** Anna Zayaruznaya
Preparation of a senior composition project in the field of musical theater under faculty supervision. Admission by permission of the coordinator of the Shen Curriculum. Two terms of MUSI 314 or equivalent.

*** MUSI 499a or b, The Senior Essay** Anna Zayaruznaya
Preparation of a senior essay under faculty supervision. Admission by permission of the director of undergraduate studies.

Naval Science (NAVY)

NAVY 100a or b, Naval Science Laboratory Staff
Leadership and practical application skills from the Professional Core Competency objectives that are not covered in other Naval Science courses. Emphasis on professional training that is not of an academic nature. Includes both classroom instruction and physical training. Topics and special briefings as determined by Naval Science faculty and the Naval Service Training Command. Required for NROTC students each term. Receives no credit; cannot be applied toward the 36-course-credit requirement for the Yale bachelor’s degree. Grades earned in this course do not count toward GPA or eligibility for General Honors. o Course cr

*** NAVY 111a, Introduction to Naval Science** Scott Ryan

An overview of the naval service for first-year Naval ROTC students and others interested in pursuing the NROTC program. Organization, missions, customs and traditions, leadership principles, ethics, duties of a junior officer, and career options in the U.S. Navy and Marine Corps. Discussion of shipboard organization and procedures, safety, and damage control prepares students for summer training aboard naval vessels. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

*** NAVY 112b, Navigation** Nicholas Gioia

Introduction to surface-ship navigation and practical piloting in both restricted and open water. Celestial navigation theory, navigational charts and instruments, and electronic navigation. Weather and other environmental factors that affect naval operations. Navigation rules and regulations, maneuvering board concepts, and practical exercises. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

*** NAVY 212a, Seapower and Maritime Affairs** William Johnson

This course is a study of the U.S. Navy and the influence of U.S. sea power on world history that incorporates both a historical and political science process to explore the major events, attitudes, personalities, and circumstances that have imbued the U.S. Navy with its proud history and rich tradition. This course introduces grand strategy, evaluating key components, and examples from ancient history and modern U.S. history. It deals with issues of national imperatives in peacetime, as well as war, varying maritime philosophies that were interpreted into naval strategies/doctrines, budgetary concerns which shaped force realities, and the pursuit of American diplomatic objectives. It concludes with a discussion of the Navy's strategic and structural changes post-Cold War, the evolution of its focus, mission, and strategy both in the post-September 11, 2001 world and post-Global War on Terrorism era.

NAVY 311a, Naval Engineering Ryan Buck

An overview of Naval engineering systems and a detailed study of the principles behind ship construction. Topics include ship design, hydrodynamic forces, stability, conventional and nuclear propulsion, electrical theory and systems, interior communications, damage control, hydraulics, and ship control. Basic concepts in the theory and design of steam, gas turbine, and diesel propulsion. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

NAVY 312b, Naval Systems Ryan Buck

The characteristics and capabilities of the major systems and platforms used in the U.S. Navy. Technical concepts and scientific theory addressed through study of designations, characteristics, capabilities, and missions of ships and aircraft. How computers and electronic and space-based communications influence operational employment of various naval platforms. Classic theory of radar, sonar, and fire-control systems. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for

the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

NAVY 411a, Naval Operations and Seamanship Nicholas Gioia

Study of relative motion, formation tactics, and ship employment. Introductions to Naval operations and operations analysis, ship behavior and characteristics in maneuvering, applied aspects of ship handling, afloat communications, Naval command and control, Naval warfare areas, and joint warfare. Analysis of case studies involving related moral, ethical, and leadership issues. Prerequisites: NAVY 111 and 112. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

*** NAVY 412b, Leadership and Ethics** William Johnson

Exploration of Western moral traditions and ethical philosophy and of their applications to naval leadership in the twenty-first century. Topics include military leadership, core values, and professional ethics; the Uniform Code of Military Justice and Navy regulations; the roles of enlisted members, junior and senior officers, command relationships, and the conduct of warfare. Discussion of current and historical events in the United States Navy and Marine Corps. Prerequisite: NAVY 212. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

*** NAVY 413b, Maneuver Warfare** Staff

The development of warfare to the present day, with attention to the causes of continuity and change in the means and methods of warfare. The influence of political, economic, and societal factors on the conduct of war, with a focus on the role of technological innovation in changing the battlefield. The contributions of preeminent military theorists and battlefield commanders to the modern understanding of the art and science of war. Prerequisites: NAVY 111 and 212. Required for Marine-option NROTC students. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

Near Eastern Languages and Civilizations (NELC)

*** NELC 005a / HUMS 005a, The Ancient Egyptian Empire of the New Kingdom**

Nadine Moeller

For most of the duration of the New Kingdom (1550–1069 BCE), the ancient Egyptians were able to establish a vast empire and became one of the key powers within the Near East. This course is an introduction to the history, archaeology and literary sources of one of the most dynamic periods of ancient Egyptian history. We investigate the development of Egyptian foreign policies and military expansion, which affected parts of the Near East and Nubia to the south. We also examine and discuss topics such as ideology, imperial identity, political struggle and motivation for conquest and control of wider regions surrounding the Egyptian state as well as the relationship to other powers and their perspective on Egyptian rulers, as, for example, described in the famous Amarna letters, the world's earliest diplomatic correspondence. Throughout

the semester, we consider the different sources that have survived in the archaeological and textual record for understanding Egypt's first empire within its ancient geopolitical context. All primary texts are read in translation. Enrollment limited to first-year students. HU

*** NELC 007a / HUMS 021a, Six Pretty Good Heroes** Kathryn Slanski

Focusing on the figure of the hero through different eras, cultures, and media, this course provides first-year students with a reading-and writing-intensive introduction to studying the humanities at Yale. The course is anchored around six transcultural models of the hero that similarly transcend boundaries of time and place: the warrior, the sage, the political leader, the proponent of justice, the poet/singer, and the unsung. Our sources range widely across genres, media, periods, and geographies: from the ancient Near Eastern, *Epic of Gilgamesh* (1500 BCE) to the Southeast Asian *Ramayana*, to the Icelandic-Ukrainian climate activism film, *Woman at War* (2018). As part of the Six Pretty Good suite, we explore Yale's special collections and art galleries to broaden our perspectives on hierarchies of value and to sharpen our skills of observation and working with evidence. Six Pretty Good Heroes is a 1.5 credit course, devoting sustained attention students' academic writing and is an excellent foundation for the next seven semesters at Yale. Required Friday sessions are reserved for writing labs and visits to Yale collections, as well as one-on-one and small-group meetings with the writing instruction staff. Enrollment limited to first-year students. WR, HU
o Course cr

*** NELC 026a / ARCG 031a / EVST 030a, Origins of Civilization: Egypt and Mesopotamia** Harvey Weiss

The origins of the earliest civilizations in Mesopotamia and Egypt along the Nile and Tigris-Euphrates Rivers explored with archaeological, historical and environmental data for the origins of agriculture, the classes and hierarchies that marked earliest cities, states and empires, the innovative monumental architecture, writing, imperial expansion, and new national ideologies. How and why these civilizational processes occurred with the momentous societal collapses at periods of abrupt climate change. Enrollment limited to first-year students. HU, SO

NELC 109b / ARCG 244b / RLST 245b, The Age of Akhenaton Nadine Moeller and John Darnell

Study of the period of the Egyptian pharaoh Akhenaton (reigned 1353–1336 B.C.E.), often termed the Amarna Revolution, from historical, literary, religious, artistic, and archaeological perspectives. Consideration of the wider Egyptian, ancient Near Eastern, African, and Mediterranean contexts. Examination of the international diplomacy, solar theology, and artistic developments of the period. Reading of primary source material in translation. HU o Course cr

NELC 115b, The Bible in Its Ancient Near Eastern Setting Eckart Frahm

History of the Assyrian, Babylonian, and Persian empires of the first millennium B.C.E.; how their rise and fall influenced the politics, religion, and literary traditions of biblical Israel. Topics include the role of prophecy and (divine) law, political and religious justifications of violence, the birth of monotheism, and the historical reliability of the Hebrew Bible. HU

NELC 121b / HUMS 140b, The Hero in the Ancient Near East Kathryn Slanski

This course is an introduction to of ancient Near Eastern civilization through the prism of its heroes, figures at the intersection of literature, religion, history, and art. While our principle focus is on heroes from ancient Mesopotamia and the Hebrew Bible, students will also have opportunities to compare contemporary heroes to the ANE hero, and to consider if the ANE hero has a modern legacy. HU o Course cr

*** NELC 128a / HUMS 128a / LITR 200a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Kathryn Slanski

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and “The Song of Songs,” medieval works, such as *A Thousand and One Nights*, selections from the *Qur’an*, and *Shah-nama: The Book of Kings*, and modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

NELC 132a / MMES 171a, The Islamic Near East from Muhammad to the Mongol Invasion Kevin van Bladel

The shaping of society and polity from the rise of Islam to the Mongol conquest of Baghdad in 1258. The origins of Islamic society; conquests and social and political assimilation under the Umayyads and Abbasids; the changing nature of political legitimacy and sovereignty under the caliphate; provincial decentralization and new sources of social and religious power. HU o Course cr

NELC 133a, Beginnings of Business: A History of Early Trade Gojko Barjamovic

When did trade begin? When did business go global? How has the organization of commerce changed through time? What are our fundamental financial instruments and how and in what order where they developed? Are there fundamental rules behind the way in which humans conduct business? What roles have states and institutions historically played in facilitating or restricting trade? What sources and approaches are available to study trade in pre-modern times? Can business innovations from the past help us think about business in the present? To explore all these questions, this class draws upon data and case-studies drawn broadly from the ancient world but with focus on evidence from ancient Mesopotamia. With the benefit of a giant canvas of history we paint a detailed picture of how business developed through time. We look at examples where business was strictly regulated by state-controlled institutions as well as examples entrepreneurs would have to rely on informal enforcement mechanisms, such as kin-relationships and reputation in repeated interactions. We dive into the effects of shock on individuals and systems—from production shortages to pandemics. And we ask what happens when systems collapse, or value becomes immeasurable (as people have claimed for the 2008 crash). We study family-controlled business groups as an alternative to integrated and professionally managed corporations. And we observe how entrepreneurs adapted to face the financial challenges of states and dawning globalization. This course immerses students in the history of trade and draws on guests from widely different fields and disciplines to showcase the variety of approaches with which scholars address questions of business history. HU, SO

NELC 135a / HUMS 167a / LITR 378a, Masterpieces of Arabic Literature Shawkat Toorawa

The Arabic literary tradition spans from the 6th-century through to the modern day. In this course, we focus on the first thousand years (600–1600), and read works, and excerpts from works, regarded as masterpieces of Arabic literature. Our readings include the early poetry of the Arabian peninsula (Imru l-Qays, 'Antarah), the Qur'an, celebrated prose writers, including al-Jahiz, al-Tanukhi, al-Hariri, and al-Tawhidi, and famous poets, including al-Mutanabbi, al-Ma'arri, and Ibn Zaydun. All readings in translation. HU

NELC 158a / CLCV 129a / HIST 159a / HUMS 129a / RLST 158a, Jesus to Muhammad: Ancient Christianity to the Rise of Islam Staff

The history of Christianity and the development of Western culture from Jesus to the early Middle Ages. The creation of orthodoxy and heresy; Christian religious practice; philosophy and theology; politics and society; gender; Christian literature in its various forms, up to and including the early Islamic period. HU o Course cr

*** NELC 169a / CLCV 260a, Visible Language: The Origins of Writing in Mesopotamia and Ancient Egypt** Klaus Wagensohn

Exploration of writing in the ancient Near East and the profound effects this new method of communication had on human society. Focus on Egypt and Mesopotamia, where advanced writing systems first developed and were used for millennia, with consideration of Chinese, Mayan, and Indus Valley writing systems as well. Previously NELC 168. HU

NELC 201a / ENGL 191a / HUMS 206a / LITR 318a / MMES 215a, The Arabian Nights, Then and Now Robyn Creswell

The medieval cycle of tales known as The Arabian Nights or The Thousand and One Nights is among the most beloved and influential story collections of world literature. It is an "ocean" of tales that has much to teach us about how stories work, whether they must come to an end, and our apparently bottomless desire to hear them. We will spend the semester in the company of genies and princes, thieves and slaves, mass murderers, detectives, and orientalist. We will also explore the ways in which the stories of the Nights have been adapted by later writers, such as Djebbar, Stevenson, Conan Doyle, and Mahfouz, as well as by filmmakers such Pasolini and – of course – Walt Disney. The course is intended to introduce students to the major tales of the Nights and to the classical Arabic literary tradition more broadly. It also seeks to develop their skills of close reading and analysis, particularly through a consideration of literary and filmic adaptations. HU

NELC 243a / ARCG 245a, Archaeology of Ancient Egypt: An Introduction Gregory Marouard

This lecture is an introductory class that examines in detail the archaeology of ancient Egypt following the chronological order of Egyptian history and covering almost 4000 years, from the late Neolithic period to the end of the Greco-Roman period. The aim is not only to give a comprehensive overview of major sites and discoveries but also to use as much as possible information from recent excavations, discuss problems and priorities concerning this field, offer an introduction to new fieldwork methods and approaches used in Egypt as well as a short history of this discipline. HU o Course cr

*** NELC 330a / ARCG 363a / EVST 371a / NELC 189, Archaeologies of Empire**

Harvey Weiss

Empire is rarely studied cross-culturally, although it is second only to hunting-and-gathering as the most successful, longest-lived, regional politico-economic organization. Despite major empire-specific research efforts, there remains, as well, little consensus as to empires' genesis and function. Here we attempt to define the features of empire, their genesis and their function, in ancient and modern times. Comparative study of origins, structures, efficiencies, and limitations of imperialism, ancient and modern, in the Old and New Worlds, from Akkad to "Indochine" and from Wari to Aztec. The contrast between ancient and modern empires examined from the perspectives of nineteenth- and twentieth-century archaeology and political economy. HU, SO

*** NELC 364b / HIST 412Jb / HUMS 261b / RLST 264b, The Psalms, A Cultural History of Ancient Prayer** Stephen Davis

This course introduces students to the Book of Psalms and its significant cultural and religious impact in ancient Judaism, Christianity, and Islam. The course is organized in three units. Unit 1 focuses on the text of the Psalms, with special attention to their literary forms, editorial organization, and early ritual context in ancient Israel. Unit 2 focuses on the reception and use of the Psalms in late ancient Judaism, Christianity, and Islam, with special attention to matters of translation, interpretation, worship, prayer, and scriptural authority. Unit 3 focuses on material and sensory encounters with the Psalms from antiquity to the present day within these three religious traditions—case studies related to tactile and visual contact with the physical book, oral and aural engagement through song or chant, and embodied forms of writing, reciting, and enacting the Psalms in the context of ritual practice, including magical spells. The goal of the course is thus to trace the life and afterlife—to write the textual and extra-textual “biography,” as it were—of a major biblical book. HU

*** NELC 373b / ARCG 473b / EVST 473b, Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

*** NELC 399b / ARCG 399b / EVST 399b, Agriculture: Origins, Evolution, Crises**

Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

*** NELC 443b, Classical Persian Epic** Jane Mikkelsen

This course acquaints students with some of the most famous epics of classical Persian literature. A remarkably capacious literary form, the Persian *masnavī* (long narrative poem) can be heroic, historical, religious, philosophical, didactic, popular. As we attend minutely to matters of grammar, form, prosody, and style, we also keep in view relevant literary, cultural, historical, and intellectual contexts. An essential objective of the course is to introduce students to some of the ways in which the premodern Persian tradition thinks about itself. To that end, primary readings are supplemented with short extracts

from works by medieval and early modern theorists, critics, philosophers, and literary historians. Achieving a fine-grained view of the tradition from within illuminates our discussions as we consider the distinctiveness of the epic genre and its ability to foster creative conjunctions across myth and history, philosophy and allegory, religion and entertainment, oral and written literary cultures. Thinking critically about the scope, history, and exportability of terms like *masnavi*, *epic*, and *romance* leads us into broader conversations about how best to situate classical Persian literature within (or against) world literature – and what that might mean for comparative, entangled, and multifocal histories of the epic form. Prerequisite: Intermediate-level reading competency in Persian. HU

*** NELC 444a, Classical Persian Lyric** Jane Mikkelsen

This course acquaints students with some of the most extraordinary lyric poets of classical Persian literature. We will read famous medieval figures and early modern luminaries. As we attend minutely to matters of grammar, form, prosody, and style, we will also keep in view relevant literary, cultural, historical, and intellectual contexts. An essential aim of the course is to introduce students to some of the ways in which the premodern Persian tradition thinks about itself. To that end, primary readings in poetry and literary prose are supplemented with short extracts from works by medieval and early modern critics, rhetoricians, theorists, and literary historians; these texts supply concepts and skills that are indispensable for reading, appreciating, and researching Persian literature. Achieving a fine-grained view of the tradition from within will illuminate our discussions as we consider the distinctiveness of the lyric form, probe various entanglements between literature, philosophy, and religion, and situate the premodern Persian literary tradition against broader comparative horizons that stretch across the Islamicate world and beyond. Intermediate reading knowledge of Persian HU

Neuroscience (NSCI)

NSCI 141a / PSYC 141a, The Criminal Mind Arielle Baskin-Sommers

Theoretical and empirical study of the development of criminal behavior, including constitutional, social, and neurobiological elements. Personality and psychopathological factors associated with criminal behavior; theoretical and psychobiological explanations of crime; the biological/environment interaction; the impact of psychobiological models for policy and intervention. SO

NSCI 160a / PSYC 160a, The Human Brain Gregory McCarthy

Introduction to the neural bases of human psychological function, including social, cognitive, and affective processing. Preparation for more advanced courses in cognitive and social neuroscience. Topics include memory, reward processing, neuroeconomics, individual differences, emotion, social inferences, and clinical disorders. Neuroanatomy, neuropsychology, and neuropsychopharmacology are also introduced. SC

NSCI 320a / MCDB 320a, Neurobiology Haig Keshishian and Paul Forscher

The excitability of the nerve cell membrane as a starting point for the study of molecular, cellular, and systems-level mechanisms underlying the generation and control of behavior. At least 1 semester of college chemistry is strongly recommended.

SC o Course cr

NSCI 321La / MCDB 321La, Laboratory for Neurobiology Haig Keshishian

Introduction to the neurosciences. Projects include the study of neuronal excitability, sensory transduction, CNS function, synaptic physiology, and neuroanatomy. Concurrently with or after MCDB 320. SC ½ Course cr

NSCI 324a / BENG 230a / MB&B 330a / MCDB 330a, Modeling Biological Systems I

Thierry Emonet and Kathryn Miller-Jensen

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116; BIOL 101-104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC 0 Course cr

NSCI 325b / BENG 465b / MB&B 361b / MCDB 361b, Modeling Biological Systems II

Thierry Emonet

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

NSCI 329a / MCDB 329a, Sensory Neuroscience Through Illusions Damon Clark and Michael O'Donnell

Animals use sensory systems to obtain and process information about the environment around them. Sensory illusions occur when our sensory systems provide us with surprising or unexpected percepts of the world. The goal of this course is to introduce students to sensory neuroscience at the levels of sensor physiology and of the neural circuits that process information from sensors. The course is centered around sensory illusions, which are special cases of sensory processing that can be especially illustrative, as well as delightful. These special cases are used to learn about the general principles that organize sensation across modalities and species. Prerequisites: BIOL 101-104; NSCI 160 or NSCI 320 or permission of instructor. SC

*** NSCI 444a / PSYC 442a, Topics in Clinical Neuroscience** Tyrone Cannon

This course is an advanced seminar examining the biological bases of psychopathology. We cover research, theory, and controversies regarding the roles of genetics, neurotransmitter systems, brain development and function, and other biological influences in the major classes of mental disorders, including anxiety disorders, depression, schizophrenia, bipolar disorder, obsessive compulsive disorder, substance

use disorders, eating disorders, and autism. Prominent theories emanating from cognitive, behavioral, and interpersonal approaches to psychopathology are examined in the context of multilevel models of behavior, and the interplay of biological and psychological factors are a central theme throughout. Prerequisite: PSYC 160 so

*** NSCI 449a / PSYC 449a, Neuroscience of Social Interaction** Steve Chang

This seminar covers influential studies that inform how the brain enables complex social interactions from the perspectives of neural mechanisms. Students thoroughly read selected original research papers in the field of social neuroscience across several animal species and multiple modern neuroscience methodologies. In class, the instructor and students work together to discuss these studies in depth. Focused topics include neural mechanisms behind brain-to-brain coupling, empathy, prosocial decision-making, oxytocin effects, and social dysfunction. Prerequisite: PSYC 160 or permission from the instructor. SC

*** NSCI 470a, Independent Research** Damon Clark and Steve Chang

Research project under faculty supervision taken Pass/Fail; does not count toward the major, but does count toward graduation requirements. Students are expected to spend approximately ten hours per week in the laboratory. A final research report and/or presentation is required by end of term. Students who take this course more than once must reapply each term. To register, students must submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end of the first week of class. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

*** NSCI 480a and NSCI 481a, Senior Non-empirical Research** Staff

Research survey under faculty supervision fulfills the senior requirement for the B.A. degree and awards a letter grade. For NSCI seniors only (and second term juniors with DUS permission). Students are expected to conduct a literature review, to complete written assignments, and to present their research once in either the fall or spring term. Students are encouraged to pursue the same research project for two terms. The final research paper is due in the hands of the sponsoring faculty member, with a copy submitted to the department, by the stated deadline near the end of the term. To register, students submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end of the first week of classes. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

*** NSCI 490a, Senior Empirical Research** Damon Clark and Steve Chang

Laboratory or independent empirical research project under faculty supervision to fulfill the senior requirement for the B.S. degree. For NSCI seniors only (and second term juniors with DUS permission); this course awards a letter grade. Students are expected to spend at least ten hours per week in the laboratory, to complete written assignments, and to present their research once in either the fall or the spring term. Written assignments include a short research proposal summary due at the beginning of the term and a full research report due at the end of the term. Students are encouraged to pursue the same research project for two terms, in which case, the first term research report and the second term proposal summary may be combined into a full research proposal due at the end of the first term. Final papers are due by the stated deadline. Students should reserve a research laboratory during the term preceding the research. To register, students must submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end

of the first week of classes. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

Ottoman (OTTM)

Persian (PERS)

PERS 110a, Elementary Persian I Farkhondeh Shayesteh

Introduction to modern Persian, with emphasis on all four language skills: reading, writing, listening, and speaking. L1 1½ Course cr

PERS 120b, Elementary Persian II Farkhondeh Shayesteh

Continuation of PERS 110, with emphasis on all four language skills: reading, writing, listening, and speaking. Prerequisite: PERS 110 or permission of instructor. L2 RP 1½ Course cr

PERS 130a, Intermediate Persian I Farkhondeh Shayesteh

Continuation of PERS 120, with emphasis on expanding vocabulary and understanding more complex grammatical forms and syntax. Prerequisite: PERS 120 or permission of instructor. L3 RP 1½ Course cr

PERS 140b, Intermediate Persian II Farkhondeh Shayesteh

Continuation of PERS 130, with emphasis on expanding vocabulary and understanding more complex grammatical forms and syntax. Prerequisite: PERS 130 or permission of instructor. L4 RP 1½ Course cr

*** PERS 151a, Persian Culture and Media** Farkhondeh Shayesteh

Advanced study of Persian grammar, vocabulary, and culture through the use of authentic Persian media. Examination of daily media reports on cultural, political, historical, and sporting events in Iran, Afghanistan, Tajikistan, and other Persian-speaking regions. Designed for nonnative speakers. PERS 140 or permission from instructor. L5

Philosophy (PHIL)

*** PHIL 022b, Philosophy of Masculinities** Robin Dembroff

What is masculinity? What relationships does it bear to femininity, misogyny, and homophobia? To race? To biological sex? This course examines these and other questions related to masculinity from a philosophical perspective. The course develops students' understanding of masculinity as a cultural product that changes across context and time. It pays particular attention to the ways that masculinity is socially policed and reinforced, rather than a "natural" expression of male sex. Through combinations of academic and popular texts, students critically examine language surrounding masculinity (e.g., "real man", "bromance"), interlocking relationships between masculinity and other social features, such as race/ethnicity and class, social mechanisms that reproduce masculine norms (e.g., misogyny), and forces that challenge these norms (e.g., trans and queer identifications). From this groundwork, students consider the influence of masculinity on main fields of philosophy, such as epistemology, philosophy of science, ethics, and metaphysics, as well as the prospects for non-hierarchical, non-"toxic" forms of masculinity. Enrollment limited to first-year students. HU

*** PHIL 050a, Philosophy, Race, and Racism** Robert Gooding-Williams

What is a race, and what is like to have a racial identity? Is racism best conceptualized as a form of flawed belief, as a moral vice, as a social practice, or in terms of notions like “racial oppression” and “white supremacy”? In addressing these questions, we survey and attempt to think along with – analytically, critically, and never dogmatically – the writings of some of the best philosophers who have attempted to answer them. These include W.E.B. DuBois, Jean-Paul Sartre, Frantz Fanon, Michel Foucault, and several contemporary philosophers. Enrollment is limited to first-year students. HU

*** PHIL 100a / CLCV 121a / EALL 150a / EAST 307a, Writing Philosophy: Weakness of Will in Ancient China, Greece, and Today** James Brown-Kinsella

“Grant me chastity and strength of will – but not yet!” In this infamous prayer, Augustine wrestles with a perennial problem for human agency: the apparent gap between knowing that we should do something and actually wanting to do it. How wide is the gap? How can we bridge it? How pervasive is the problem? This course introduces first-year students to writing in the discipline of philosophy by tracing the contours of these questions and exploring their answers in ancient China, ancient Greece, and modern analytic philosophy. We begin by considering the traditional account of weakness of will as *akrasia* (i.e., doing what one knows one shouldn’t do) and explaining how such a gap in our agency is or isn’t possible. Next, we consider an alternative account, that of *acedia* (i.e., not doing what one knows one should do), and assess strategies for helping an agent bridge this kind of gap. Finally, we reassess the phenomenon of weakness of will in light of arguments that position it in a broader context, approach it from a new perspective, or try to rewrite our understanding of the phenomenon altogether. WR, HU

PHIL 105b / WGSS 105b, Strong Men, Fascism, and Patriarchy Robin Dembroff and Jason Stanley

Fascist and patriarchal politics are intertwined. Why? In this course, we examine systems of gender inequality and far right nationalism from a philosophical perspective in order to more fully understand the intimate connections between them. HU
o Course cr

PHIL 115a, First-Order Logic Staff

An introduction to formal logic. Study of the formal deductive systems and semantics for both propositional and predicate logic. Some discussion of metatheory. QR
o Course cr

PHIL 125a / CLCV 125a, Introduction to Ancient Philosophy Staff

An introduction to ancient philosophy, beginning with the earliest pre-Socratics, concentrating on Plato and Aristotle, and including a brief foray into Hellenistic philosophy. Intended to be taken in conjunction with PHIL 126. WR, HU o Course cr

PHIL 126b, Introduction to Modern Philosophy from Descartes to Kant Michael Della Rocca

An introduction to major figures in the history of modern philosophy, with critical reading of works by Descartes, Malabranche, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Intended to be taken in conjunction with PHIL 125, although PHIL 125 is not a prerequisite. HU o Course cr

PHIL 174a, Moral Skepticism Staff

The legitimacy of doubts about morality. Can there really be any objective moral facts? Isn't morality all a matter of personal opinion or subjective preference, or, alternatively, all socially or culturally relative? If there were moral facts, how could one possibly know anything about them? Can one's moral views be justified at all? What place can morality possibly have in a scientific world view? HU o Course cr

PHIL 175b, Introduction to Ethics Shelly Kagan

What makes one act right and another wrong? What am I morally required to do for others? What is the basis of morality? These are some of the questions raised in moral philosophy. Examination of two of the most important answers, the theories of Mill and Kant, with brief consideration of the views of Hume and Hobbes. Discussion of the question: Why be moral? HU o Course cr

*** PHIL 192b / RLST 107b, Metaphysics and Modernity** Nancy Levene

This course surveys concepts and controversies in and among select works of philosophy, theology, and literature. The focus is twofold: on reading works in view of their own principles, thus on questions of truth and interpretation, and on histories of the ideas, thus on questions of origin, change, and story. What and when is metaphysics? What and when is modernity? HU

PHIL 204a / GMAN 381a, Kant's Critique of Pure Reason Paul Franks

An examination of the metaphysical and epistemological doctrines of Kant's *Critique of Pure Reason*. Prerequisite: PHIL 126 or DRST 004. HU

PHIL 219a / ANTH 237a / GMAN 233a / HUMS 225a / LITR 242a, Karl Marx's Capital Staff

A careful reading of Karl Marx's classic critique of capitalism, *Capital* volume 1, a work of philosophy, political economy, and critical social theory that has had a significant global readership for over 150 years. Selected readings also from *Capital* volumes 2 and 3. HU o Course cr

*** PHIL 222a, Moral Emotions, Especially Attitudes of the Heart** Stephen Darwall

A close study of the role of emotions and attitudes in the moral life and in moral philosophy, with special attention to the attitudes involved in heartfelt connection and personal relationship. The course investigates the nature of emotions such as shame, guilt, gratitude, love, and respect, as well as such related phenomena as empathy and sympathy. It considers their relation to fundamental moral concepts, as well as their epistemological role and capacity to ground moral judgments and facts. HU

PHIL 256a / RLST 402a, The Philosophy of Religion Staff

The relation between religion and ethics, traditional arguments for the existence of God, religious experience, the problem of evil, miracles, immortality, science and religion, and faith and reason. HU o Course cr

PHIL 267a, Mathematical Logic Sun-Joo Shin

An introduction to the metatheory of first-order logic, up to and including the completeness theorem for the first-order calculus. Introduction to the basic concepts of set theory. Prerequisite: PHIL 115 or permission of instructor. QR

PHIL 270a, Epistemology Keith DeRose

Introduction to current topics in the theory of knowledge. The analysis of knowledge, justified belief, rationality, certainty, and evidence. HU

PHIL 271b / LING 271b, Philosophy of Language Jason Stanley

An introduction to contemporary philosophy of language, organized around four broad topics: meaning, reference, context, and communication. Introduction to the use of logical notation. HU o Course cr

*** PHIL 272b, Philosophy of Mind** Laurie Paul

A survey of contemporary issues in the philosophy of mind, including arguments for and against materialism and accounts of intentional states, qualitative states, and mental causation. HU

PHIL 276a / CGSC 276a, Metaphysics Staff

Examination of some fundamental aspects of reality. Topics include time, persistence, modality, causation, and existence. HU o Course cr

PHIL 281a, Infinity Staff

The idea of infinity. Traditional and contemporary versions of the paradoxes of space, time, and motion, as well as the paradoxes of classes, chances, and truth. Some elementary arithmetic, geometry, probability theory, and set theory. QR, HU o Course cr

*** PHIL 300a, Sartre and De Beauvoir** Stephen Darwall and Jacob McNulty

This course examines writings from two of the most important French philosophers of the 20th century, Jean-Paul Sartre and Simone de Beauvoir. We begin with a popular statement of the existentialist outlook, “existentialism is a humanism.” We then consider the methodological underpinnings of this new philosophical approach by examining Sartre’s response Husserlian phenomenology, and the notion of intentionality that lies at its center. The bulk of the course is devoted to a reading of Sartre’s master-work, *Being and Nothingness*. Themes we consider include realism and idealism; the difference between the “for itself” and “in-itself”; bad faith; “the look” and intersubjectivity; love; embodiment; sadism and masochism; freedom, responsibility, choice; the notion of a fundamental project and the desire to be God. In the remainder of the course, we consider Beauvoir’s moral philosophy, as set forth in an early essay and in her masterwork *The Ethics of Ambiguity* (traditionally, this work has been overshadowed by her *Second Sex*). Here, we devote attention to the idea of an existentialist ethics, and the demanding ideals of freedom and authenticity that are at its center. We also consider Beauvoir’s perspectives on patriarchy, racism, colonialism, and war. Throughout the course, we give ourselves the option of consulting secondary readings by Anglophone philosophers writing in the existentialist tradition, e.g. Moran, Dover and Gingrich, and others. However, the emphasis is on the primary texts. At least one prior course in philosophy, preferably in ethics and political philosophy or history of philosophy. HU

*** PHIL 307a, Hegel** Jacob McNulty

Hegel is among the most important and influential figures in the history of Western philosophy. This course aims to provide a broad overview of his thought. We begin with selections from Hegel’s *Phenomenology of Spirit*, intended as an introduction to his system. We also consider his mature system itself, starting with his main work of theoretical philosophy, *The Science of Logic* and extending to his main work of

practical (moral and political) philosophy, the *Philosophy of Right*. Time permitting, we consider other appendages of the system as well, like the philosophy of history, aesthetics, and philosophy of religion. Topics to be addressed across these areas include idealism, monism, historicism, the “sociality of reason,” self-consciousness, negation and negativity, mutual recognition, Spirit, Hegel’s critique of Kant’s theoretical and practical philosophies, the fate of metaphysics, and, finally, the relationships between art, religion, and philosophy. At least one prior course in philosophy, preferably on the history of philosophy (for example, Kant). HU

*** PHIL 340a, The Social and Political Philosophy of W.E.B. Du Bois** Robert Gooding-Williams

We examine three of Du Bois’s books—*The Souls of Black Folk* (1903), *Darkwater* (1920), and *Black Reconstruction* (1935)—with some attention to a fourth, *Dusk of Dawn* (1940). We also give attention to some of Du Bois’s essays. Through close readings of these writings, we consider Du Bois’s evolving conceptualization of the “Negro Problem” from the perspective of his philosophy of the human sciences, his political thought, and his aesthetics. Some background in philosophy, political theory, and/or African American Studies is preferred. HU

*** PHIL 351a / CLCV 351a, Ancient Philosophy of Language** Verity Harte and Zoltan Szabo

A seminar on central texts on topics in philosophy of language in the Greco-Roman philosophical tradition. The seminar does not attempt a full survey of the tradition on these topics, but select texts and topics of special interest, including exploring points of comparison and contrast with contemporary discussions in philosophy of language. Topics to be covered include: linguistic categories, the nature of grammar, origins of language, naming, and meaning. 1 prior course in the history of ancient Greco-Roman philosophy and at least 1 additional prior course in philosophy. HU

*** PHIL 373a, Weakness of Will** Michael Della Rocca

An examination of the apparent phenomenon of weakness of will or akratic action whereby one knowingly (in some sense of “knowingly”) acts contrary to one’s better (in some sense of “better”) judgment. Attention to the metaphysical underpinnings of akratic action that seem to make such action possible. Discussion of the connection between weak-willed action and other forms of apparent irrationality, and exploration of the implications of akrasia for moral philosophy. Attention both to historical and recent and contemporary including Plato, Aristotle, Augustine, Spinoza, Leibniz, Anscombe, Davidson, Korsgaard, Bratman, Holton, Buss, Schapiro, and others. At least two courses in philosophy. HU

*** PHIL 385a / ENGL 289a / HUMS 388a / LITR 389a / RLST 380a, The Force of Life** Nancy Levene and James Wood

The point of departure for this course is a line from James Baldwin in *The Fire Next Time*: “To be sensual, I think, is to respect and rejoice in the force of life, of life itself, and to be *present* in all that one does, from the effort of loving to the breaking of bread.” We study four authors—Virginia Woolf, Franz Kafka, Baldwin, and Jacques Derrida—in light of the values Baldwin expresses and their challenges. Our work between philosophy and fiction involves striving to read each text according to the ideas it itself advances, as well as reading for connections and cross-pollinations. WR, HU

*** PHIL 390a, Sidgwick's Methods of Ethics** Shelly Kagan

Henry Sidgwick's *The Methods of Ethics* is one of the greatest works of moral philosophy of the 19th century. A systematic and extremely careful study of three basic approaches to ethics—egoism, utilitarianism, and intuitionism (roughly, commonsense deontological morality)—the *Methods* is a masterpiece that is widely praised (at least, by philosophers!) but much less frequently read, since it is a long and demanding book. We devote the semester to studying it. Prerequisite: a previous class in moral philosophy. HU

*** PHIL 395a / CGSC 395a, Junior Colloquium in Cognitive Science** Isaac Davis

Survey of contemporary issues and current research in cognitive science. By the end of the term, students select a research topic for the senior essay. Enrollment limited to Cognitive Science majors. ½ Course cr

*** PHIL 412b / GMAN 211b / HUMS 314b / LITR 441b, Marx, Nietzsche, Freud**

Austen Hinkley

The course is designed as an introduction to the thought of these three towering figures in the German-language intellectual tradition and to their contributions to our attempts to understand the human mind and society. We read seminal essays as well as (excerpts from) longer works, including Marx's *Capital*, Nietzsche's *Genealogy of Morality* and *Thus Spake Zarathustra*, and Freud's *Interpretation of Dreams*. But we also look at what came before and after these thinkers, considering—among others—Kant, Ludwig Feuerbach, Melanie Klein, Adorno, and Foucault; and we think about the relevance of Marx, Nietzsche, and Freud for the understanding of our own times. HU

*** PHIL 425b, Topics in Epistemology** Keith DeRose and Timothy Williamson

Survey of recent work in epistemology, with an emphasis on connections between formal approaches to epistemology and traditional epistemological questions. Bayesian approaches and their limitations; the relationship of credence to belief and knowledge; higher-order knowledge and probability. Prerequisite: a course in epistemology, or with permission of instructor. HU

*** PHIL 427b, Computability and Logic** Sun-Joo Shin

A technical exposition of Gödel's first and second incompleteness theorems and of some of their consequences in proof theory and model theory, such as Löb's theorem, Tarski's undefinability of truth, provability logic, and nonstandard models of arithmetic. Prerequisite: PHIL 267 or permission of instructor. QR, HU

*** PHIL 431a / RLST 429a, Phenomenology** Noreen Khawaja

In-depth introduction to phenomenology as a theory of what is and as a method for studying it. Key figures in the history of phenomenology, emphasizing connections to social theory, aesthetics, and religion. Readings from Merleau-Ponty, Heidegger, Fanon, Husserl, Ahmed, Barad, and others. HU

*** PHIL 437b, Philosophy of Mathematics** Sun-Joo Shin

We take up a time-honored debate between Platonism and anti-Platonism, along with different views of mathematical truth, that is, logicism, formalism, and intuitionism. Students read classical papers on the subject. Why do we need the philosophy of mathematics? This question could be answered toward the end of the semester, hopefully. HU

*** PHIL 442a, Language and Power** Staff

Investigation into the way language shapes our social world, drawing on readings from feminist theory, critical race theory, formal semantics and pragmatics, political psychology, and European history. Prerequisite: one philosophy course; a basic course in logic would be helpful. HU

*** PHIL 445b / LING 376b, Implicature and Pragmatic Theory** Laurence Horn

This seminar explores theoretical and experimental approaches to conversational implicature, focusing on scalar implicature. We examine the role that pragmatic inference plays in the determination of what is said and of the delineation of at-issue and non-at-issue content within neo-Gricean pragmatics and competing theories. Readings, presentations, and discussion draw on the available evidence from linguistic diagnostics, corpora, and especially a range of experimental studies on the acquisition, processing, and diversity of scalar implicature, negative strengthening, and exhaustivity in focus constructions. In particular, we review current work on the effects of discourse context, politeness and “face” considerations, and lexical semantics in constraining when and how pragmatic inferences are—and aren’t—drawn. Another focus is on the explosion of recent work re-examining the role played by scalar implicature and other factors in the universal resistance to the lexicalization of concepts corresponding to **nall* (= ‘not all’), **nand* (= ‘or not’), and **noth* (= ‘not both’) vis-à-vis *none*, *nor*, *neither*. We also consider the application of the what is said/what is implicated distinction to the characterization of lying vs. misleading in and out of the courtroom. Time and interest permitting, we also touch on recent developments in rational speech act theory and intention- vs. commitment-based approaches to assertion and implicature. Our goal in this seminar is to explore the landscape of scalar implicature, and conversational implicature more generally, and to develop the empirical tools for investigating this landscape. Prerequisite: At least one course in semantics, pragmatics, or philosophy of language; or permission of instructor. SO RP

*** PHIL 450b / EP&E 478b, The Problem of Evil** Keith DeRose

The challenge that evil's existence in the world poses for belief in a perfectly good and omnipotent God. The main formulations of the problem of evil; proposed ways of solving or mitigating the problem and criticism of those solutions. Skeptical theism, the free-will defense, soul-making theodicies, and doctrines of hell. HU

*** PHIL 452b, History of Early Modern Ethics** Stephen Darwall

An examination of seventeenth- and eighteenth-century ethical philosophy, including Hobbes, Hutcheson, Hume, Butler, Rousseau, Kant, Smith, and Bentham. HU

*** PHIL 455b / EP&E 334b, Normative Ethics** Shelly Kagan

A systematic examination of normative ethics, the part of moral philosophy that attempts to articulate and defend the basic principles of morality. The course surveys and explores some of the main normative factors relevant in determining the moral status of a given act or policy (features that help make a given act right or wrong). Brief consideration of some of the main views about the foundations of normative ethics (the ultimate basis or ground for the various moral principles). Prerequisite: a course in moral philosophy. HU

*** PHIL 469a / GMAN 288a / HUMS 480a / LITR 482a, The Mortality of the Soul:
From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.
HU

*** PHIL 477a, Feminist Philosophy** Robin Dembroff

This course surveys several feminist frameworks for thinking about sex, gender, and sexual orientation. We consider questions such as: Is there a tenable distinction between sex and gender? Between gender and sexual orientation? What does it mean to say that gender is a social construction, or that sexual orientation is innate? What is the place of politics in gender and sexual identities? How do these identities—and especially resistant or transgressive identities—impact the creation and revision of social categories? HU

*** PHIL 480a, Tutorial** Daniel Greco

A reading course supervised by a member of the department and satisfying the following conditions: (1) the work of the course must not be possible in an already existing course; (2) the course must involve a substantial amount of writing, i.e., a term essay or a series of short essays; (3) the student must meet with the instructor regularly, normally for at least an hour a week; (4) the proposed course of study must be approved by both the director of undergraduate studies and the instructor.

*** PHIL 485b, Wittgenstein** Paul Franks

Study and discussion of Wittgenstein's *Tractatus Logico-Philosophicus*, *Philosophical Investigations*, and *On Certainty*, with some attention to their background in writings by Frege, Russell, and Moore. Consideration of Wittgenstein's influence on more recent philosophers, among them Iris Murdoch, Elizabeth Anscombe, Saul Kripke, and Cora Diamond. Prerequisite: one prior course in philosophy and permission of the instructor. HU RP

*** PHIL 490a, The Senior Essay** Daniel Greco

The essay, written under the supervision of a member of the department, should be a substantial paper; a suggested length is between 8,000 and 12,000 words for one-term projects, and between 12,500 and 15,000 words for two-term projects. Students completing a one-term project should enroll in either 490 in the fall or 491 in the spring. Students completing a two-term project should enroll in both 490 and 491. The deadline for senior essays completed in the fall is December 5; the deadline for both one- and two-term senior essays completed in the spring is April 21.

Physics (PHYS)

* **PHYS 040a / ASTR 040a, Expanding Ideas of Time and Space** Meg Urry

Discussions on astronomy, and the nature of time and space. Topics include the shape and contents of the universe, special and general relativity, dark and light matter, and dark energy. Observations and ideas fundamental to astronomers' current model of an expanding and accelerating four-dimensional universe. Enrollment limited to first-year students. SC

* **PHYS 047a / AMST 099a / ER&M 089a / HIST 059a, Asian Americans and STEM** Eun-Joo Ahn

As both objects of study and agents of discovery, Asian Americans have played an important yet often unseen role in fields of science, technology, engineering, and math (STEM) in the U.S. Now more than ever, there is a need to rethink and educate students on science's role in society and its interface with society. This course unites the humanities fields of Asian American history and American Studies with the STEM fields of medicine, physics, and computer science to explore the ways in which scientific practice has been shaped by U.S. histories of imperialism and colonialism, migration and racial exclusion, domestic and international labor and economics, and war. The course also explores the scientific research undertaken in these fields and delves into key scientific principles and concepts to understand the impact of such work on the lives of Asians and Asian Americans, and how the migration of people may have impacted the migration of ideas and scientific progress. Using case studies, students engage with fundamental scientific concepts in these fields. They explore key roles Asians and Asian Americans had in the development in science and technology in the United States and around the world as well as the impact of state policies regarding the migration of technical labor and the concerns over brain drains. Students also examine diversity and inclusion in the context of the experiences of Asians and Asian Americans in STEM. Enrollment limited to first-year students. HU, SC

* **PHYS 050a or b / APHY 050a or b / ENAS 050a or b, Science of Modern Technology and Public Policy** Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale immunization, and DNA made to order. Enrollment limited to first-year students. SC

* **PHYS 060a, What's the Universe made of? From Quarks to the Cosmos** Charles Baltay

A phenomenological tour through the land of physics. A general overview of physics primarily for non-science students. No other such course is offered in the department. SC

*** PHYS 100b / APHY 100b / ENAS 100b / EPS 105b / EVST 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC RP

PHYS 106a / EVST 206a / HIST 127a / HSHM 201a / HUMS 106a, Sustainable Energy: Physics and History Staff

Students explore the physical logic of energy and power in parallel with the histories of technology for energy exploitation and economic theories of sustainability on the path to modernity. They learn the fundamentals of quantitative analysis of contemporary and historical energy harvesting, its carbon intensity, and climate impact. They also gain an understanding of the historical underpinnings of the current global energy status quo and its relationship to economic theories of sustainability. Mathematical proficiency with algebra is assumed. Students from all academic interests and experiences are welcome in the course. QR, SC, SO o Course cr

*** PHYS 107b / EDST 107b / MB&B 107b, Being Human in STEM** Andrew Miranker

A collaboratively designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant peer-reviewed literature and popular-press articles. OpEd writing project and design and implementation of an intervention project focusing on improving belonging in Yale STEM communities. SO

*** PHYS 121La / MB&B 121La, Introduction to Physics in Living Systems I: Observation and Analysis** Katherine Schilling and Caitlin Hansen

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice. Topics include detection of light, basic circuit building, sterile technique in biology and physics, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 122L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC ½ Course cr

*** PHYS 122La / MB&B 122La, Introduction to Physics in Living Systems: Observation and Analysis II** Katherine Schilling and Caitlin Hansen

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice, focusing on building models from experimental data. Topics included electrical circuits, magnetism, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. Taking MB&B/PHYS 121L prior to this class is required, as the material builds on itself. Priority is given to first-year students looking to fulfill medical school application. ½ Course cr

*** PHYS 123Lb / MB&B 123Lb, Introduction to Physics in Living Systems III: Mechanics** Katherine Schilling

A hands-on introduction to the physics that enables life and human measurement of living things. The course focuses on the principles of mechanics at work in the biological sciences. This lab builds student knowledge, centering diffusion as an emergent phenomenon from elastic collisions, from which statistical mechanics is introduced. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. Priority for this 1/2 credit course is given to first-year students looking to fulfill medical school application requirements. It is helpful to take this course in the same semester as MB&B 124L. ½ Course cr

*** PHYS 124Lb / MB&B 124Lb, Introduction to Physics in Living Systems Laboratory IV: Electricity, Magnetism, and Radiation** Katherine Schilling

Introduction to the physics that enables life and human measurement of living things. This lab introduces principles of electricity, magnetism, light and optics at work in the biological sciences. The syllabus emphasizes electric dipoles as a model for biomolecules, electric fields such as those across cell membranes, electric current, and magnetic fields. Light is developed in terms of electromagnetic radiation, ray optics and photons. The interaction of light with biomolecules to understand basic biological research and medical diagnostics are also covered. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 123L. May not be taken after PHYS 166L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC o Course cr

PHYS 151a or b / APHY 151a or b / ENAS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

PHYS 165La and PHYS 166Lb, General Physics Laboratory Staff

A variety of individually self-contained experiments are roughly coordinated with the lectures in PHYS 170, 171, and 180, 181 and illustrate and develop physical principles covered in those lectures. SC o Course cr per term

*** PHYS 170a and PHYS 171b, University Physics for the Life Sciences** Staff

An introduction to classical physics with special emphasis on applications drawn from the life sciences and medicine. Fall-term topics include vectors and kinematics, Newton's laws, momentum, energy, random walks, diffusion, fluid mechanics, mathematical modeling, and statistical mechanics. Spring-term topics include oscillations, waves, sound, electrostatics, circuits, Maxwell's equations, electromagnetic waves, gene circuits, and quantum mechanics. Essential mathematics are introduced and explained as needed. Completion of MATH 112 or equivalent is prerequisite for PHYS 170. Completion of PHYS 170 is a prerequisite for PHYS 171. MATH 116 (or MATH 115) is recommended prior to or concurrently with PHYS 171. QR, SC o Course cr per term

PHYS 180a and PHYS 181b, University Physics Staff

A broad introduction to classical and modern physics for students who have some previous preparation in physics and mathematics. Fall-term topics include Newtonian mechanics, gravitation, waves, and thermodynamics. Spring-term topics include electromagnetism, special relativity, and quantum physics. Concurrently with MATH 115 and 120 or equivalents. See comparison of introductory sequences and laboratories in the YCPS. May not be taken for credit after PHYS 170, 171. QR, SC

PHYS 200a and PHYS 201b, Fundamentals of Physics Staff

A thorough introduction to the principles and methods of physics for students who have good preparation in physics and mathematics. Emphasis on problem solving and quantitative reasoning. Fall-term topics include Newtonian mechanics, special relativity, gravitation, thermodynamics, and waves. Spring-term topics include electromagnetism, geometrical and physical optics, and elements of quantum mechanics. Prerequisite: MATH 115 or equivalent. MATH 210 and either MATH 225 or MATH 222, are generally taken concurrently. See comparison of introductory sequences and laboratories in the YCPS. QR, SC

PHYS 205La or b and PHYS 206La or b, Modern Physical Measurement Staff

A two-term sequence of experiments in classical and modern physics for students who plan to major in Physics. In the first term, the basic principles of mechanics, electricity, and magnetism are illustrated in experiments designed to make use of computer data handling and teach error analysis. In the second term, students plan and carry out experiments illustrating aspects of wave and quantum phenomena and of atomic, solid state, and nuclear physics using modern instrumentation. May be begun in either term. SC o Course or per term

*** PHYS 260a and PHYS 261b, Intensive Introductory Physics** Staff

An introduction to major branches of physics – classical and relativistic mechanics; gravitation; electricity and magnetism; and quantum physics, information, and computation – at a sophisticated level. For students majoring in the physical sciences, mathematics, and philosophy whose high school training included both mechanics and electricity and magnetism at the typical college/AP level and have excellent training in, and a flair for, mathematical methods and quantitative analysis. Concurrently with MATH 120, ENAS 151, PHYS 151, or PHYS 301, or equivalent. Students considering an alternative MATH course should check with the DUS in Physics. QR, SC

PHYS 293a / APHY 293a, Einstein and the Birth of Modern Physics A Douglas Stone

The first twenty-five years of the 20th century represent a turning point in human civilization as for the first time mankind achieved a systematic and predictive understanding of the atomic level constituents of matter and energy, and the mathematical laws which describe the interaction of these constituents. In addition, the General Theory of Relativity opened up for the first time a quantitative study of cosmology, of the history of the universe as a whole. Albert Einstein was at the center of these breakthroughs, and also became an iconic figure beyond physics, representing scientist genius engaged in pure research into the fundamental laws of nature. This course addresses the nature of the transition to modern physics, underpinned by quantum and relativity theory, through study of Einstein's science, biography, and historical context. It also presents the basic concepts in electromagnetic theory, thermodynamics and statistical mechanics, special theory of relativity, and quantum mechanics which were central to this revolutionary epoch in science. Prerequisites: Two

terms of PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261, or one term of any of these course with permission of instructor. QR, SC

PHYS 295a / ASTR 255a, Research Methods in Astrophysics Malena Rice

An introduction to research methods in astronomy and astrophysics. The acquisition and analysis of astrophysical data, including the design and use of ground- and space-based telescopes, computational manipulation of digitized images and spectra, and confrontation of data with theoretical models. Examples taken from current research at Yale and elsewhere. Use of the Python programming language. Prerequisite: background in high school calculus and physics. No previous programming experience required. QR, SC RP

PHYS 301a, Introduction to Mathematical Methods of Physics Simon Mochrie

Topics include multivariable calculus, linear algebra, complex variables, vector calculus, and differential equations. Designed to give accelerated access to 400-level courses by providing, in one term, the essential background in mathematical methods. Recommended to be taken concurrently with PHYS 401 or 410. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR

PHYS 343b / ASTR 343b, Gravity, Astrophysics, and Cosmology Staff

Introduction to frontier areas of research in astrophysics and cosmology exploring ideas and methods. In–depth discussion of the physics underlying several recent discoveries including extrasolar planets—their discovery, properties, and issues of habitability; black holes—prediction of their properties from GR, observational signatures, and detection; and the accelerating universe—introduction to cosmological models and the discovery of dark energy. Prerequisites: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR, SC

PHYS 345b, Introduction to Quantum Information Processing and Communication
Steven Girvin

This course is intended for undergraduate physics, chemistry, engineering, computer science, statistics and data science, and mathematics majors seeking an introduction to quantum information science. There is now a second quantum revolution underway and a world-wide race to build powerful new types of computers based on quantum principles, and to develop new techniques for encrypted communication whose security is guaranteed by the laws of quantum mechanics. The approach of this course to these topics will strip away much of the traditional physics details to focus on the information content of quantum systems, the nature of measurement, and why the true randomness of certain measurement results can be a feature rather than a bug. We learn what it means for a quantum bit ('qubit') to be simultaneously 0 and 1 (in some sense). We learn about quantum entanglement and the associated 'spooky action at a distance' that convinced Einstein that the quantum theory must be wrong. Ironically, this bizarre effect is now used on a daily basis to prove that quantum mechanics is indeed correct and used as a routine engineering test to make sure that quantum computers are working properly and are truly quantum. Specific topics include: the mathematical representation of quantum states as complex vectors, the superposition principle, entanglement and Bell inequalities, quantum gates and algorithms for quantum computers, quantum error correction, dense coding, teleportation, and secure quantum communication. Students learn to do problem sets based on programming and operating publicly-accessible cloud-based quantum computers. See for example: <https://www.ibm.com/quantum-computing/>. Familiarity with complex numbers and

the basics of linear algebra (matrices, determinants, eigenvectors and eigenvalues) is assumed. Prior exposure to basic probability and statistics, as well as a course in quantum mechanics are useful but not required. SC

PHYS 353a / BENG 353a, Introduction to Biomechanics Michael Murrell

An introduction to the biomechanics used in biosolid mechanics, biofluid mechanics, biothermomechanics, and biochemomechanics. Diverse aspects of biomedical engineering, from basic mechanobiology to the design of novel biomaterials, medical devices, and surgical interventions. Prerequisites: PHYS 180, 181, MATH 115, and ENAS 194. QR o Course cr

*** PHYS 356a / ASTR 356a / ASTR 556, Astrostatistics and Data Mining** Earl Bellinger

This course is intended to give students majoring in astronomy, physics, or any other physical science the necessary background to be able to conduct research with large and complex datasets. The course provides an introduction to the tools needed for analyzing large volumes of data and gives students more experience in building codes to analyze to them. The course starts with a review of basic probability and statistics. Students then learn the basics of classical statistical inference, regression and model fitting, Bayesian statistical inference, as well as different data-mining techniques. Coding with the Python programming language. Prerequisite: ASTR 255 or equivalent. QR, SC

*** PHYS 378a, Introduction to Scientific Computing & Data Science** Daisuke Nagai

This course introduces students to essential computational and data analysis methods and tools and their problem-solving applications. These are skills and knowledge essential for beginning research in the sciences, and are not typically taught in an introductory physics curriculum. The goal here is not completeness across any of these areas, but instead the introduction of the most important and useful skills, concepts, methods, techniques, tools and relevant knowledge for getting started in research in physics. Key learning goals include basic programming in Python, data analysis, modeling, simulations and machine learning, and their applications to problems in physics and beyond. Prerequisites: Introductory physics and familiarity with single variable calculus (basic integration, differentiation, Taylor series, etc). Previous experience in Python programming is not required. Contact instructor if you are unsure about your preparation. SC

*** PHYS 382Lb, Advanced Physics Laboratory** Staff

Laboratory experiments with some discussion of theory and techniques. An advanced course focusing on modern experimental methods and concepts in atomic, optical, nuclear, and condensed matter physics. Intended to prepare students for independent research. For majors in the physical sciences. After or concurrently with PHYS 439 or 440, or with permission of instructor. PHYS 206L WR, SC

PHYS 401a and PHYS 402b, Advanced Classical Physics from Newton to Einstein Staff

Advanced physics as the field developed from the time of Newton to the age of Einstein. Topics include mechanics, electricity and magnetism, statistical physics, and thermodynamics. The development of classical physics into a “mature” scientific discipline, an idea that was subsequently shaken to the core by the revolutionary discoveries of quantum physics and relativity. Prerequisite: PHYS 170, 171, or 180, 181,

or 200, 201, or 260, 261. Concurrently with PHYS 301 or other advanced mathematics course. QR, SC

PHYS 410a, Classical Mechanics Nikhil Padmanabhan

An advanced treatment of mechanics, with a focus on the methods of Lagrange and Hamilton. Lectures and problems address the mechanics of particles, systems of particles, and rigid bodies, as well as free and forced oscillations. Introduction to chaos and special relativity. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261. Concurrently with PHYS 301 or other advanced mathematics course. QR, SC

PHYS 412a, Relativity Witold Skiba

This course covers special relativity and an introduction to general relativity. A thorough treatment of special relativity, stressing equally conceptual understanding and certain formal aspects. Introduction to general relativity covers curved spaces, Einstein's equations, and some of their solutions. Prerequisite: PHYS 401 or PHYS 410. QR, SC

*** PHYS 420a / APHY 420a, Thermodynamics and Statistical Mechanics** Eduardo Higino da Silva Neto

This course is subdivided into two topics. We study thermodynamics from a purely macroscopic point of view and then we devote time to the study of statistical mechanics, the microscopic foundation of thermodynamics. Prerequisites: PHYS 301, 410, and 440 or permission of instructor. QR, SC

PHYS 430b, Electromagnetic Fields and Optics Staff

Electrostatics, magnetic fields of steady currents, electromagnetic waves, and relativistic dynamics. Provides a working knowledge of electrodynamics. Prerequisites: PHYS 301 and 410 or equivalents. QR, SC

PHYS 439a / APHY 439a, Basic Quantum Mechanics Robert Schoelkopf

The basic concepts and techniques of quantum mechanics essential for solid-state physics and quantum electronics. Topics include the Schrödinger treatment of the harmonic oscillator, atoms and molecules and tunneling, matrix methods, and perturbation theory. Prerequisites: PHYS 181 or 201, PHYS 301, or equivalents, or permission of instructor. QR, SC

PHYS 440a, Quantum Mechanics and Natural Phenomena I Ramamurti Shankar

The first term of a two-term sequence covering principles of quantum mechanics with examples of applications to atomic physics. The solution of bound-state eigenvalue problems, free scattering states, barrier penetration, the hydrogen-atom problem, perturbation theory, transition amplitudes, scattering, and approximation techniques. Prerequisite: PHYS 410 or 401. QR, SC

PHYS 441b, Quantum Mechanics and Natural Phenomena II Staff

Continuation of PHYS 440. Prerequisite: PHYS 440 and either PHYS 430 or permission of the instructor. QR, SC

PHYS 442b, Introduction to Nuclear and Elementary Particle Physics Staff

Fundamental concepts in nuclear and particle physics, including the discovery of radioactivity, the Dirac equation, antimatter, Feynman diagrams, hadron resonances, quarks and gluons, fundamental symmetries, the weak interaction, beta decay, quantum chromodynamics, neutrino oscillation, unification, and particle theories for dark matter. Prerequisite: two term courses in quantum mechanics. QR, SC

PHYS 448a / APHY 448a, Solid State Physics I Vidvuds Ozolins

The first term of a two-term sequence covering the principles underlying the electrical, thermal, magnetic, and optical properties of solids, including crystal structure, phonons, energy bands, semiconductors, Fermi surfaces, magnetic resonances, phase transitions, dielectrics, magnetic materials, and superconductors. Prerequisites: APHY 322, 439, PHYS 420. QR, SC

PHYS 449b / APHY 449b, Solid State Physics II Yu He

The second term of the sequence described under APHY 448. QR, SC

PHYS 458a / APHY 458a, Principles of Optics with Applications Hui Cao

Introduction to the principles of optics and electromagnetic wave phenomena with applications to microscopy, optical fibers, laser spectroscopy, and nanostructure physics. Topics include propagation of light, reflection and refraction, guiding light, polarization, interference, diffraction, scattering, Fourier optics, and optical coherence. Prerequisite: PHYS 430. QR, SC

*** PHYS 469a and PHYS 470b, Independent Research in Physics** David Poland

Each student works on an independent project under the supervision of a member of the faculty or research staff. Students participate in a series of seminar meetings in which they present a talk on their project or research related to it. A written report is also required. For students with a strong background in physics coursework. This course may be taken multiple times for pass/fail credit. Suggested for first years and sophomores.

*** PHYS 471a and PHYS 472b, Independent Projects in Physics** David Poland

Each student works on an independent project under the supervision of a member of the faculty or research staff. Students participate in a series of seminar meetings in which they present a talk on their project or research related to it. A written report is also required. Registration is limited to junior and senior physics majors. This course may be taken up to four times for a letter grade.

Polish (PLSH)

PLSH 110a, Elementary Polish I Krystyna Illakowicz

A comprehensive introduction to elementary Polish grammar and conversation, with emphasis on spontaneous oral expression. Reading of original texts, including poetry. Use of video materials. L1 RP 1½ Course cr

PLSH 120b, Elementary Polish II Krystyna Illakowicz

Continuation of PLSH 110. After PLSH 110 or equivalent. L2 RP 1½ Course cr

PLSH 130a, Intermediate Polish I Krystyna Illakowicz

A reading and conversation course conducted in Polish. Systematic review of grammar; practice in speaking and composition; reading of selected texts, including poetry. Use of video materials. After PLSH 120 or equivalent. L3 RP 1½ Course cr

PLSH 140b, Intermediate Polish II Krystyna Illakowicz

Continuation of PLSH 130. After PLSH 130 or equivalent. L4 RP 1½ Course cr

*** PLSH 150a, Advanced Polish** Krystyna Illakowicz

Improvement of high-level language skills through reading, comprehension, discussion, and writing. Focus on the study of language through major literary and

cultural texts, as well as through film and other media. Exploration of major historical and cultural themes. Prerequisite: PLSH 140 or equivalent. L5

*** PLSH 246b / FILM 241b, Polish Communism and Postcommunism in Film**

Krystyna Illakowicz

The Polish film school of the 1950s and the Polish New Wave of the 1960s. Pressures of politics, ideology, and censorship on cinema. Topics include gender roles in historical and contemporary narratives, identity, ethos of struggle, ethical dilemmas, and issues of power, status, and idealism. Films by Wajda, Munk, Polanski, Skolimowski, Kieslowski, Holland, and Kedzierzawska, as well as selected documentaries. Readings by Milosz, Andrzejewski, Mickiewicz, Maslowska, Haltoff, and others. Readings and discussion in English. HU

Political Science (PLSC)

*** PLSC 028a, American Constitutionalism: Power and its Limits** Gordon Silverstein

What happens when a modern superpower tries to govern itself under an 18th-century Constitution? Using original documents, contemporaneous books, and U.S. Supreme Court cases, this course explores the debates that have defined America's struggle to live up to its sometimes conflicting commitments to liberty, equality and the consent of the governed. Enrollment limited to first-year students. SO

*** PLSC 050a, New Haven and the American City** Doug Rae

The seminar focuses on New Haven and its region, beginning about two generations after its incorporation as a city in 1784, covering the rapid rise and halting decline of New Haven's industrial economy, its succession of immigrant communities, its episodes of racial crisis, its often awkward mutual adaptation with Yale University, and most recently with a fresh period of tech-driven post-industrial growth to which university science and engineering may be making an important contribution. Enrollment limited to first-year students. SO

PLSC 113b, Introduction to American Politics Christina Kinane

Introduction to American national government. The Constitution, American political culture, civil rights, Congress, the executive, political parties, public opinion, interest groups, the media, social movements, and the policy-making process. SO o Course cr

PLSC 114a, Introduction to Political Philosophy Staff

Fundamental issues in contemporary politics investigated through reflection on classic texts in the history of political thought. Emphasis on topics linked to modern constitutional democracies, including executive power, representation, and political parties. Readings from Plato, Machiavelli, Hobbes, Locke, Rousseau, Madison and Hamilton, Lincoln, and Tocqueville, in addition to recent articles on contemporary issues. SO o Course cr

PLSC 116a, Comparative Politics: States, Regimes, and Conflict Staff

Introduction to the study of politics and political life in the world outside the United States. State formation and nationalism, the causes and consequences of democracy, the functioning of authoritarian regimes, social movements and collective action, and violence. SO o Course cr

PLSC 145a / GBL 283a, Technology and War Staff

The course explores the international security implications of emerging technologies such as artificial intelligence, cyberweapons, hypersonic missiles, and so-called killer robots. The first half of the course offers a deep dive into the transformative military and civilian technologies of the 20th century, examining how doctrine and culture shaped the development, acquisition, and deployment of key systems like submarines, bomber aircraft, and nuclear bombs, and how these technologies, in turn, shaped international security. In the second half of the course, we apply the lessons of the past to make theoretically guided predictions. What norms will guide the use of new technologies, and what weapons should or should not be developed? Are arms races inevitable? What might improve the prospects for arms control of emerging technologies? so o Course cr

*** PLSC 147a, Coercion in the Globalized Economy** Michael-David Mangini

This course is divided into two parts: 1) the theory of economic coercion and 2) applications of the theory. In each part, we study relevant interests, interactions, and institutions: how the choices of states, groups, and individuals interact to affect each other's interests within an institutional framework that favors some outcomes. This framework helps guide our study throughout the course. so

*** PLSC 161a / GBL 344a / HIST 483Ja, Studies in Grand Strategy II** Arne Westad and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. so

PLSC 169a, International Security Staff

This course provides an overview of the study of international security in the modern era. This course has five parts. First, we begin by using the rational-choice approach to study why wars happen, how states can avoid them, and how they end. Second, there is a historical overview of major power wars. Third, we study the politics of interstate war. Fourth, we study civil wars and counterinsurgency. Finally, we study international security with a look towards the future. so

PLSC 186a / GBL 203a, Globalization and Domestic Politics Staff

Examination of the political and institutional conditions that explain why some politicians and interest groups (e.g. lobbies, unions, voters, NGOs) prevail over others in crafting foreign policy. Consideration of traditional global economic exchange (trade, monetary policy and finance) as well as new topics in the international political economy (IPE), such as migration and environmental policy. o Course cr

*** PLSC 197a / GBL 226 / SAST 345a, National Security in India in the Twenty-first Century** Sushant Singh

This course examines the state and dynamics of national security in India in the past two decades. As an emergent power, India is an important country in Asia, with its

economic and geo-political strength noticed globally. A major share of the country's heft comes from its national security paradigm which has undergone a significant shift in the twenty-first century. This course intends to take a holistic look at the conceptions for the basis of India's national security, its evolution, the current challenges and its future course by exploring its various dimensions such as China, Pakistan, global powers, Indian Ocean region, Kashmir, nuclear weapons, civil-military relations and defense preparedness. SO

*** PLSC 200a / AFAM 244a, The Politics of Crime and Punishment in American Cities**

Allison Harris

This course explores the relationship between politics and crime and punishment. We review literature focused on political behavior and political institutions to better understand the phenomena we hear about in the news from sentencing algorithms, to felon (dis)enfranchisement, to stop-and-frisk, and police use of force. SO

PLSC 203a / WGSS 204a, Women, Politics, and Policy Staff

This course is an introduction to the way gender structures how we interpret the political world, exploring topics such as women's access to power, descriptive and substantive representation, evaluation of the functioning of political institutions, and analysis of government policy. It also serves as an introduction to reading and producing empirical research on gender in the social sciences. SO o Course cr

*** PLSC 204a, Election Fundamentals and Forecasting** Kevin DeLuca

This course examines the fundamental forces that determine election outcomes in the United States. Students practice data analytics using real election results and historical data, and ultimately build a predictive model of the 2024 U.S. election. After the election, students assess their model accuracy. Topics include but are not limited to: presidential approval, the economy, incumbency and candidate quality, campaign and media effects, partisan polarization, case studies of key presidential elections, and election regulations. Throughout the course we explore how the class material helps us understand the dynamics in the upcoming/ongoing 2024 election campaign. Instructor permission required. Students must have at least completed a class that teaches regression techniques (some examples include PLSC 347, 438, 452, the YData courses, Stat 230, or similar, etc.). Students should also have experience coding (the class will mainly use R). Weekly assignments involved coding and making election predictions using real world data. SO

PLSC 205a, The American Presidency Staff

Examination of the constitutional law, historical development, and current operations of the American presidency. Topics include formal powers, the organization and mobilization of popular support, the modern executive establishment, and the politics of presidential leadership. SO o Course cr

*** PLSC 209a / HIST 167a, Congress in the Light of History** David Mayhew

This reading and discussion class offers an overview of U.S. congressional history and politics from 1789 through today, including separation-of-powers relations with the executive branch. Topics include elections, polarization, supermajority processes, legislative productivity, and classic showdowns with the presidency. Emphasized is Congress's participation in a sequence of policymaking enterprises that have taken place from the launch of the nation through recent budget difficulties and handling of climate

change. Undergrads in political science and history are the course's typical students, but anyone is welcome to apply. SO

*** PLSC 210a, Political Preferences and American Political Behavior** Joshua Kalla

Introduction to research methods and topics in American political behavior. Focus on decision making from the perspective of ordinary citizens. Topics include utility theory, heuristics and biases, political participation, retrospective voting, the consequences of political ignorance, the effects of campaigns, and the ability of voters to hold politicians accountable for their actions. SO

*** PLSC 212a / EP&E 390a / EVST 212a, Democracy and Sustainability** Michael Fotos

Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

*** PLSC 215a / EVST 255a, Environmental Law and Politics** John Wargo

We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

*** PLSC 228a / EP&E 306a, First Amendment and Ethics of Law** Karen Goodrow

This course addresses the First Amendment and freedom of speech, focusing on the ethical implications of restrictions on free speech, as well as the exercise of free speech. Course topics and discussions include the "fighting words" doctrine, hate speech, true threats, content regulated speech, freedom of speech and the internet, and the so-called "right to be forgotten." By the end of the course, students recognize the role free speech plays in society, including its negative and positive impacts on various segments of society. Students also have an understanding of the competing interests arising from the First Amendment's right to free speech, and can analyze how these competing interests are weighed and measured in the United States as compared with other countries. SO

*** PLSC 232a / EDST 232a, US Federal Education Policy** Eleanor Schiff

Though education policy is typically viewed as a state and local issue, the federal government has taken a significant role in shaping policy since the end of World War II. The centralization of education policy has corresponded with changing views in society for what constitutes an equitable educational opportunity. This class is divided into three topics: 1) the federal role in education broadly (K-12) and the accountability movement in K-12: from the No Child Left Behind Act to the Common Core State Standards (and cross-national comparisons to US schools), 2) federal role in higher education, and 3) the education industry (teachers unions and think tanks). EDST 110 recommended. SO

*** PLSC 235a, The Chief and the Bureaucrats: Power Dynamics in the U.S. Executive Branch** Christina Kinane

This seminar provides an in-depth exploration of the U.S. President's role within the executive branch, focusing specifically on the interactions between the Chief Executive and the federal bureaucracy, offering a blend of theoretical knowledge and practical insights. Students examine the constitutional foundations that establish and limit presidential power; the operational structure of the federal bureaucracy; the power dynamics that characterize the relationship between the President and bureaucratic agencies; the strategic tools and mechanisms at the President's disposal to direct and control bureaucratic actions; and the common institutional constraints that shape and sometimes hinder a president's ability to exert influence over the bureaucracy. The course addresses both historical and contemporary examples, providing a comprehensive view of how different administrations have navigated the challenges of bureaucratic management. Through case studies, students analyze significant instances where these constraints have impacted presidential decisions and policy implementations. Seminar discussions also consider how executive politics scholars study presidential power and control of the bureaucracy—highlighting their questions and the tools and approaches they employ to answer those questions. so

*** PLSC 239a / EP&E 239a, Political Representation** Amir Fairdosi

The notion of political representation lies at the center of government in the United States and much of the rest of the world. In this course, we examine the features of political representation, both in theory and practice. We ask (and possibly find ourselves struggling to answer!) such questions as: What is political representation? Should we have a representative system as opposed to something else like monarchy or direct democracy? Should representatives demographically resemble those they represent, or is that not necessary? How do things like congressional redistricting, electoral competition, and term limits affect the quality of representation? Do constituents' preferences actually translate into policy in the United States, and if so, how? In Part I of this course, we discuss the theoretical foundations upon which representative government rests. In Part II, we move beyond theories of representation and on to the way political representation actually operates in the United States. In Part III, we move beyond the ways in which representation works and focus instead on some ways in which it doesn't work. Proposed solutions are also explored. so

*** PLSC 247a / AMST 245a / ENGL 246a, The Media and Democracy** Joanne Lipman

In an era of “fake news,” when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media's role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th-century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. so

*** PLSC 256b / AFAM 177b / EP&E 248b, American Political Institutions** Michael Fotos

The origins and development of American political institutions, especially in relation to constitutional choice and the agency of persons seeking freedom, equality, and self-governing capabilities as a driver of constitutional change. Key concepts include:

American federalism, compound republic, citizenship, social movements, racial justice, and nonviolence. WR, SO

*** PLSC 258a / EP&E 336a / PLSC 841a, Democracy and Bureaucracy** Ian Turner
Exploration of what government agencies do and why; focus on issues of accountability and the role of bureaucracy in representative democracy. Understanding how bureaucracy works internally and how it is affected by interactions with other political actors and institutions. SO

*** PLSC 274a, Cities: Making Public Choices in New Haven** John DeStefano
Examination of cities, particularly the relationship of people to place and most importantly to one another, through the prism and experiences of the City of New Haven. Exploration of how concepts of social capital and legitimacy of institutions in policy design and execution, are key to the well being of community residents. How cities, in the context of retreating or antagonistic strategies by the state and federal governments, can be key platforms for future economic and social wealth creation. SO

*** PLSC 281a / EDST 281a / HIST 404a / HUMS 303a, What is the University?**
Mordechai Levy-Eichel

The University is one of the most influential – and underexamined – kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

PLSC 290a / SOCY 151a, Foundations of Modern Social Theory Staff
Major works of social thought from the beginning of the modern era through the 1900s. Attention to social and intellectual concepts, conceptual frameworks and methods, and contributions to contemporary social analysis. Writers include W.E.B. Du Bois, Simone De Beauvoir, Adam Smith, Thomas Hobbes, Jean-Jacques Rousseau, Immanuel Kant, Emile Durkheim, Max Weber, and Karl Marx. SO o Course cr

*** PLSC 303a / HUMS 302a, Demagoguery and Democracy** Bryan Garsten
This course offers historical and theoretical perspective on contemporary debates about democratic leadership and political discourse. How can demagoguery be distinguished from healthy forms of popular leadership? Under what conditions do demagogues tend to emerge? What institutional arrangements and political strategies help to manage demagogues? The course traces these themes through a set of conversations that begin

in ancient Greek and Roman texts on the art of persuasion and continue through the Renaissance and early modern period and into revolutionary and post-revolutionary thinking about leaders' claims to speak for the people. Contemporary issues including populism and the impact of social media are addressed. HU, SO

*** PLSC 304b / EP&E 325b, Business Ethics and Law** Robin Landis

This seminar is intended to provide frameworks for the analysis of ethical issues that may arise in the context of business decisions, including such aspects as the role of ethics, competing values and interests, and tools for making principled decisions. The course also covers, as appropriate, some aspects of law as they relate to business ethics. Previous courses in philosophy and ethics may be helpful. SO

*** PLSC 312a, Punishment** Alexander Rosas

This course is about punishment. The power of the state to restrict freedom, to impose pain, even death, and to mark one as 'criminal' is remarkable, and this course interrogates the theories that underlie that power. In what cases and for what reasons should the state have the power to punish, and where should the moral and legal limits on that power lie? What should the goals of punishment be, and which forms of punishment align most closely with them? What is the nature and desired role of vengeance and mercy in determining whether, when, and how to punish? What obligations should a society have to punish but also to those whom it punishes? Should the state have the power to shame and humiliate? What does punishment reveal about society more broadly? This course considers these and other related questions primarily through works in political and legal theory, but it also takes an interdisciplinary approach and elaborates and evaluates the theoretical materials through a discussion of numerous legal and other case studies. SO

*** PLSC 313b / EP&E 380b, Bioethics, Politics, and Economics** Stephen Latham

Ethical, political, and economic aspects of a number of contemporary issues in biomedical ethics. Topics include abortion, assisted reproduction, end-of-life care, research on human subjects, and stem cell research. SO

*** PLSC 318a, Lincoln's Statecraft and Rhetoric** Staff

Close reading of major speeches and letters by Abraham Lincoln, with a focus on his views concerning slavery, equality, and race in American society. The relation of words to deeds in Lincoln's practice of statecraft; his place in the history and theory of statesmanship. The emergence of Lincoln's thought from an engagement with views of the American founders; ways in which his vision of American democracy both drew upon and transformed the founders' vision. SO o Course cr

*** PLSC 320b / EP&E 421b, Ethics, Law, and Current Issues** Karen Goodrow

Examination of how freedom of speech and bias influence the criminal justice system, focusing on wrongful convictions and administration of the death penalty. Understanding the role of potential bias at various levels and the competing interests of protecting speech, due process, and the innocent. Topics include limitations on speech, practical effects of speech, the efficacy of the death penalty, actual innocence, gender/race/economic bias and its effects on the justice system, as well as best practices for improving our sense of justice.

PLSC 326a, Socialist Political Ideas Staff

This course explores the history of socialist political thought by focusing on how socialist thinkers addressed the problem of political organization and how they viewed

democracy and its institutions. The course looks at Utopian socialism, the problem of political organization in 1848, Proudhon's arguments for anarchism, the economic and political thought of Karl Marx, controversies over the role of parliaments, political parties and the masses in the Second International, Lenin's theory of political action, Luxemburg's debate about imperialism and the mass strike and Gramsci's interpretation of culture. The course is structured around key primary texts, which are accompanied by secondary readings and suggestions for books and movies. None, but throughout the course, we will be referring to key historical events, which have shaped the course of socialist theorising. I will circulate a list of useful resources to help gather information about these historical moments, as well as some background readings to help students situate the thinkers in their biographical and historical context. SO o Course cr

*** PLSC 329a / EP&E 372a / HUMS 263a, Thucydides** Daniel Schillinger

In this seminar, we undertake a careful examination of Thucydides' so-called History of the Peloponnesian War in its entirety. Central problems include the psychological and structural causes of war, the relation of justice to necessity, the susceptibility of democracy to imperialism and demagoguery, and the experience of war itself. We also engage with the secondary literature on Thucydides. WR, HU

*** PLSC 330a / EP&E 246a, Participatory Democracy** Amir Fairdosi

What does democracy look like without elections? In this class, we discuss the theory and practice of "participatory" forms of democracy (i.e. those that allow and encourage citizens to influence policy directly, rather than indirectly through elected representatives). SO

*** PLSC 331a, Individualism and Community: Tocqueville and J.S. Mill** Heather Wilford

Alexis de Tocqueville and John Stuart Mill were two of the most prominent liberal theorists and statesmen of the 19th century. They recognized that the modern era was to be democratic, and both sought a "new political science" to understand and guide "a world altogether new." This course will compare their political philosophies, asking how each understood the relations between individualism and community, democracy and liberty, and citizenship and human flourishing. HU

*** PLSC 332a / EP&E 299a / GLBL 299a, Philosophy of Science for the Study of Politics** Ian Shapiro

An examination of the philosophy of science from the perspective of the study of politics. Particular attention to the ways in which assumptions about science influence models of political behavior, the methods adopted to study that behavior, and the relations between science and democracy. Readings include works by both classic and contemporary authors. SO

*** PLSC 333a, The Politics of Expertise** Federico Brandmayr

Few societies have been as reliant on experts as our own. As societies grow more complex and technology advances, so does the need for experts who have undergone years of specialized training. Ordinary citizens, firms, state bureaucracies, courts, and legislators constantly rely on experts to guide them in their decisions. However, this reliance is far from seamless. Opportunities to become a successful expert are uneven and often depend on circumstances beyond individual control. Specialists must counter public skepticism and compete with rival groups to establish their authority. Decision-makers are inundated with claims of expertise, making it challenging to discern

between valid and dubious advice. Experts can exacerbate issues, fail catastrophically, or neglect public concerns to serve their own interests. Moreover, the increasingly specialized knowledge possessed by experts can seem esoteric and detached from everyday life, leading laypeople to view them with suspicion. For these reasons and others, the very notion of expertise has become highly politicized in recent years. Our society seems to be more and more divided between those who think that experts are indispensable to solve our problems, and those who see them as the root of our troubles. The course adopts an interdisciplinary perspective to explore these issues, drawing from both classical and modern research in sociology, political science, psychology, and philosophy. so

*** PLSC 338a, AI and Democracy** Luise Papcke

This course proposes to examine how the emergence of AI systems affects the conditions and dynamics of democratic life. How does AI impact the economic system and thus the material conditions supporting (or not) prosperity, equality, and liberty in contemporary democracies? What is new about “surveillance capitalism” and what political and social repercussions are to be expected from the turn towards ‘data’ as one of the main engines of the economy? Would Universal Basic Income solve the looming problem of unemployment given the rise of generative AI? And how does AI affect our chances for “voice” as citizens? From echo chambers to mis/disinformation and deepfakes, how can we regulate how artificial intelligence changes our public sphere and discourse? Finally, how can we mobilize AI to improve our democratic institutions – from more responsive government, to digital forms of participation, and maybe even personalized law, what are the novel opportunities for a better democratic life that AI affords us? This course applies a political theory lens to these and related questions to investigate the social and political impact of artificial intelligence.

No prior background in political theory or familiarity with emerging AI is required. so

PLSC 344a / EP&E 295a, Game Theory and Political Science Staff

Introduction to game theory – a method by which strategic interactions among individuals and groups in society are mathematically modeled – and its applications to political science. Concepts employed by game theorists, such as Nash equilibrium, subgame perfect equilibrium, and perfect Bayesian equilibrium. Problems of cooperation, time-consistency, signaling, and reputation formation. Political applications include candidate competition, policy making, political bargaining, and international conflict. No prerequisites other than high school algebra. Political Science majors who take this course may not count ECON 159 toward the major. QR, so
o Course cr

*** PLSC 347a / EP&E 328a / S&DS 172a, YData: Data Science for Political Campaigns**
Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying

politics, and opportunities to practice the data science skills presented in S&DS 123, YData. QR

PLSC 349a, Visualization of Political and Social Data Staff

This course is an introduction to data visualization with a focus on political and social data. Our main textbook is *The Visual Display of Quantitative Information* by Edward Tufte, a foundational book that explores the history of data visualization and offers a perspective on how graphs should be constructed. We also learn from other visualization pioneers not included in Tufte's review such as W.E.B. Du Bois and Florence Nightingale. Our secondary textbook is the *ggplot2* book by Hadley Wickham, an indispensable resource for constructing statistical graphs in the programming language R. The main goal of the course is to help students to communicate both "what we know and why we think we know it" through excellent data visualization. Prerequisite: Introductory course in statistics and probability. Background familiarity with learning from random samples and the construction of confidence intervals is useful. Students do not need to know how to program in R as it will be covered extensively. QR, SO o Course cr

PLSC 351a or b / CPSC 123a or b / S&DS 123a or b / S&DS 523a or b, YData: An Introduction to Data Science Ethan Meyers

Computational, programming, and statistical skills are no longer optional in our increasingly data-driven world; these skills are essential for opening doors to manifold research and career opportunities. This course aims to dramatically enhance knowledge and capabilities in fundamental ideas and skills in data science, especially computational and programming skills along with inferential thinking. YData is an introduction to Data Science that emphasizes the development of these skills while providing opportunities for hands-on experience and practice. YData is accessible to students with little or no background in computing, programming, or statistics, but is also engaging for more technically oriented students through extensive use of examples and hands-on data analysis. Python 3, a popular and widely used computing language, is the language used in this course. The computing materials will be hosted on a special purpose web server. QR

*** PLSC 354a / EP&E 250a, The European Union** David Cameron

Origins and development of the European Community and Union over the past fifty years; ways in which the often-conflicting ambitions of its member states have shaped the EU; relations between member states and the EU's supranational institutions and politics; and economic, political, and geopolitical challenges. SO

PLSC 357a / EAST 310a / GLBL 309a, The Rise of China Staff

Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy. SO o Course cr

PLSC 362a, Law & Political Development Staff

This lecture course investigates the role of law in political development, in how political authority is constructed and contested. The central focus of the course is the political roles of legal actors – judges, prosecutors, and lawyers. The course covers state formation, the role of law in empires and colonialism, the functioning of law under

authoritarian regimes and during and in the aftermath of violent political conflicts, during the transition to democracy, and in the programs of transitional justice. We analyze the role of law in the legitimation of authority, contestations for political power, and political resistance. We ask, why do some countries end up with strong and independent judiciaries while others don't? Why did some countries implement radical and comprehensive transitional justice prosecutions, while other countries chose to forget about the atrocities of the past? The class explores whether significant social and political change can be achieved through the courts. Finally, we delve into the challenges of implementing reforms in the legal field. so o Course cr

*** PLSC 364a / AFST 366a / EP&E 305a / HIST 367a, Bureaucracy in Africa: Revolution, Genocide, and Apartheid** Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

PLSC 371a / EAST 371, Japanese Politics and Public Policy Staff

This class introduces students to 13 important puzzles about contemporary Japanese politics, domestic policy, and foreign policy, discusses various ways in which scholars have attempted to solve these puzzles, and suggests pathways for future research. Together, we seek to explain public policy outcomes across a wide range of topics, including constitutional revision, defense, economic growth, energy, gender, immigration, income inequality, population aging, territorial disputes, and trade. In the process, we learn (1) the important actors in Japanese politics (e.g., voters, politicians, parties, bureaucrats, and firms); (2) the positions that different actors take with respect to various policies, as well as the sources of these policy preferences; and (3) how political institutions block or enhance the representation of these actors' interests. so o Course cr

*** PLSC 374a / ECON 449a / EP&E 244a, The Economic Analysis of Conflict** Gerard Padro

In this course we apply microeconomic techniques, theoretical and empirical, to the analysis of internal violent conflict, including civil wars, terrorism and insurgencies, its causes and consequences. Topics include forced migration, ethnic conflict, long-term consequences of war and individual choices to participate in violence. Readings comprise frontier research papers and students will learn to critically engage with cutting-edge research designs. Prerequisites: Intermediate econometrics so o

PLSC 378a / AFAM 186a / LAST 214a / SOCY 170a, Contesting Injustice Staff

Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. so o Course cr

*** PLSC 386a / GBL 358a, The Geopolitics of the War in Ukraine** Lauren Young

This seminar examines the war in Ukraine with a geopolitical lens focusing on its broader implications for both regional security and democracy. The outbreak of war in Ukraine in February 2022 quickly became a flashpoint in the region. Over two years later, the stakes are high and tensions are rising among transatlantic allies supporting Ukraine, both with arms and sanctions. This course evaluates the historical roots of the war and the fallout from a potential failure to effectively deter an authoritarian state from invading a sovereign neighbor. Our course of study includes the role of international stakeholders and multi-lateral institutions in the conflict, regional political and security dynamics and economic consequences. The humanitarian aspects of the war and its impact on civilian populations, human rights violations and the role of the media in shaping perceptions of the conflict is analyzed. Ultimately, what are the responsibilities of the international community in mitigating the human cost of conflict and the broader economic and policy implications? The aim of this course is both a comprehensive understanding of the conflict and its role in changing and shaping both security and democracy in region and further afield. WR, SO

*** PLSC 393a, Comparative Constitutionalism and Legal Institutions** Steven Calabresi

Introduction to the field of comparative constitutional law. Constitutional texts, materials, and cases drawn primarily from those constitutional democracies that are also members of the Group of Twenty Nations and that respect judicial independence. SO

*** PLSC 410a / SOCY 410a, Political Protests** Maria Jose Hierro

The 2010s was the “decade of protest,” and 2019 capped this decade with an upsurge of protests all over the world. In 2020, amidst the Covid-19 pandemic, the US is witnessing the broadest protests in its history. What are the roots of these protests? Under what conditions does protest start? Why do people decide to join a protest? Under what conditions do protests succeed? Can repression kill protest movements? Focusing on recent protest movements across the world, this seminar addresses these, and other questions related to the study of political protest. SO

*** PLSC 417b / EDST 282b, Comparative International Education** Mira Debs

Around the world, education is one of the central institutions of society, developing the next generation of citizens, workers and individuals. How do countries balance these competing priorities? In which ways do countries converge on policies, or develop novel approaches to education? Through the course, students learn the a) impact of colonialism on contemporary education systems, b) the competing tensions of the demands of citizen and worker and c) how a variety of educational policies are impacted around the world and their impact on diverse populations of students. EDST 110 Foundations in Education Studies recommended. WR, SO

*** PLSC 466a / HIST 268Ja / JDST 351a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East

and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** PLSC 471a, Individual Reading for Majors** Andrea Aldrich

Special reading courses may be established with individual members of the department. They must satisfy the following conditions: (1) a prospectus describing the nature of the program and the readings to be covered must be approved by both the instructor and the director of undergraduate studies; (2) the student must meet regularly with the instructor for an average of at least two hours per week; (3) the course must include a term essay, several short essays, or a final examination; (4) the topic and/or content must not be substantially encompassed by an existing undergraduate or graduate course. All coursework must be submitted no later than the last day of reading period.

*** PLSC 474a, Directed Reading and Research for Junior Intensive Majors** Andrea Aldrich

For juniors preparing to write yearlong senior essays as intensive majors. The student acquires the methodological skills necessary in research, identifies a basic reading list pertinent to the research, and prepares a research design for the project. All coursework must be submitted no later than the last day of reading period.

*** PLSC 480a, One-Term Senior Essay** Andrea Aldrich

For seniors writing the senior essay who do not wish, or are unable, to write the essay in a department seminar. Students must receive the prior agreement of a member of the department who will serve as the senior essay adviser, and must arrange to meet with that adviser on a regular basis throughout the term.

*** PLSC 490a, The Senior Colloquium** Maria Jose Hierro

Presentation and discussion of students' research proposals, with particular attention to choice of topic and research design. Each student frames the structure of the essay, chooses research methods, begins the research, and presents and discusses a draft of the introductory section of the essay. Enrollment limited to Political Science majors writing a yearlong senior essay.

*** PLSC 491a, The Senior Essay** Andrea Aldrich

Each student writing a yearlong senior essay establishes a regular consultation schedule with a department member who, working from the prospectus prepared for PLSC 490, advises the student about preparation of the essay and changes to successive drafts. Enrollment limited to Political Science majors writing a yearlong senior essay.

Portuguese (PORT)

PORT 110a, Elementary Portuguese I Staff

This course introduces the Portuguese language through a comprehensive exploration of cultural topics from the Lusophone world. Instead of traditional textbooks, students engage with diverse authentic materials to enhance learning. Organized into three content units, students reflect on themes related to urban life, addressing guiding questions such as “Who are you in the city?” and “What Do You See from Your Window?” Through visual arts, music, film, and various literary genres, students explore these topics through paced activities focusing on comprehension, contextualization, reflection, and the creation of new meaning. They discuss and

interpret challenging themes such as racism, neoliberalism, and sexism from minority perspectives, starting from the first semester of Portuguese studies. Each unit concludes with a small project, integrating knowledge with other university courses. By the course end, students will have gained an understanding of the language across textual genres focusing on diverse aspects of Portuguese-speaking cultures. Students can also publish their work in our digital magazine, *Revista dos Estudantes de Português da Yale*. L1 1½ Course cr

PORT 130a, Intermediate Portuguese I Staff

This course, a continuation of Portuguese 120, enhances Portuguese language skills by exploring cultural topics of the Lusophone world. It consists of three units: the intersection of iconic and minority-produced art, including street art and Afro-Lusophone cultural production; the impact of fake news in contemporary society; and Indigenous cosmovisions and their role in postponing global crises. In this course, students do not find traditional textbooks. Instead, each unit employs authentic materials across various genres – visual arts, articles, music, poetry, videos, films, plays, and essays – for comprehension, contextualization, reflection, and meaning creation. Through this approach, students not only learn Portuguese as a language but also delve into critical contexts that deepen their understanding of language usage and reveal aspects of their own culture they may not have previously considered. Units culminate in small projects where students, individually and in groups, create diverse media, scripts, and texts. Themes include gender, class, ethnicity, Black feminism, and ecological crises viewed through Indigenous perspectives. By course end, students can grasp diverse cultural aspects in a global context, refining their Portuguese language skills. Students also have the option to publish their work in our digital magazine, *Revista dos Estudantes de Português da Yale*. L3 1½ Course cr

PORT 154a / ER&M 154a / FILM 154a / LAST 154a / WGSS 154a, Advanced Studies: Women Filmmakers and Photographers of the Portuguese-Speaking World

Giseli Tordin

Women Filmmakers and Photographers of the Portuguese-Speaking World is a Portuguese advanced course that delves into the language and culture of the Lusophone world through the lens of women filmmakers and photographers. Organized into three interconnected units, namely, “Diasporas and (De)Territorialities,” “Memories They Told Me,” and “Reframing Other Existences,” students explore how these authors bring forth other perspectives, including those of indigenous people, Afro-Lusophone women, immigrants, and LGBTQIA+ community, among others, challenging societal norms and dominant portrayals. It also explores how their films and photographs reconnect with cultural roots in Africa and Latin America, fragmented by patriarchy, colonialism, and capitalism. By exploring a variety of productions by photographers like Yassmin Forte, Madalena Schwartz, Claudia Andujar, and filmmakers like Anna Muylaert, Carolina Paiva, and Lúcia Murat, among others, students investigate links between identities, memory, and language, enabling them to describe, interpret and make inferences about how cultural environments have been historically constructed and how these artistic productions reshape perceptions of our societies. By the course’s end, students have a deeper understanding of the Portuguese language and diverse cultural aspects within the Lusophone world. Conducted in Portuguese. Portuguese 140 or equivalent. L5, HU

*** PORT 352a / CPLT 657a / LITR 256a / PORT 652a, Clarice Lispector: The Short Stories** Kenneth David Jackson

This course is a seminar on the complete short stories of Clarice Lispector (1920–1977), a master of the genre and one of the major authors of twentieth-century Brazil known for existentialism, mysticism and feminism. WR, HU TR

*** PORT 380a / LITR 221a, Fernando Pessoa** Kenneth David Jackson

Survey of the main facets of Pessoa's works and consideration of the principal theories and interpretations of his complex literary universe. Reading knowledge of Portuguese is essential, however students may supplement his texts with translations in English, Spanish, French, or Italian. WR, HU

Psychology (PSYC)

PSYC 110a, Introduction to Psychology Samuel McDougale

A survey of major psychological approaches to the biological, cognitive, and social bases of behavior. SO

PSYC 116b / CGSC 216b / LING 116b, Cognitive Science of Language Staff

The study of language from the perspective of cognitive science. Exploration of mental structures that underlie the human ability to learn and process language, drawing on studies of normal and atypical language development and processing, brain imaging, neuropsychology, and computational modeling. Innate linguistic structure vs. determination by experience and culture; the relation between linguistic and nonlinguistic cognition in the domains of decision making, social cognition, and musical cognition; the degree to which language shapes perceptions of color, number, space, and gender. SO

*** PSYC 118a, Disney: A Case Study in Applied Psychology** Katherine Battle

Disney wields enormous influence on our society. Its domination of social media, film, theme parks, and online merchandising allows Disney to shape entire generations. This course uses a theoretical and empirical framework of psychology to examine how Disney exerts its influence and what impact that influence has on behavior, self-perception, and mental health. We incorporate theories and practices from a wide range of branches of psychology including social, clinical, industrial/organization, neuropsychology, developmental, environmental, and media psychology as a foundation for the seminar. The course interweaves related multidisciplinary readings and insights from perspectives including (but not limited to) women's, gender, and sexuality studies; race and ethnicity; film and media; visual arts; music; environmental studies; food/health; philosophy/morality; global affairs; and economics. The course begins with an overview of how Disney uses psychology to influence behavior in its theme parks, online marketing, and workplace and will culminate in a critical examination of representation in Disney films/media and the psychological literature on how that representation impacts self-perception and mental health. Students have ample opportunity to focus on specific areas of interest in weekly responses and longer writing assignments. Prior coursework in psychology is not necessary, nor is it assumed. Prior coursework in psychology is not necessary, nor is it assumed. SO

*** PSYC 125a / CHLD 125a / EDST 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD 127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD 128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children – their behavior and development – without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of their philosophy and curriculum. Weekly Observations: Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

*** PSYC 127b / CHLD 127b / EDST 127b, Theory and Practice of Early Childhood Education** Carla Horwitz

The course deals with development and delivery of curricula for young children ages 3–6 and the current context of educational reform and debate. Goals are to deepen insights through critical analysis of educational programs for young children in light of current research and developmental theory and to understand how political context contributes to the practice of education. Regularly scheduled seminar discussions and workshops that engage students with learning materials emphasize the ongoing dynamic process of developing emergent curriculum and focus on methods of creating a responsive, inclusive environment; planning and assessment; appreciating cultural and linguistic diversity; teachers' roles; anti-bias education; working with families; conceptualizing the professional challenges of collaborating on a teaching team within the organization of the school; standards and accountability and the role of policy and advocacy in educational change. The course will use newspaper and magazine articles and other recent media as primary sources in addition to current research and other texts. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. CHLD 125 is recommended. Permission of instructor is required. Priority given to juniors, seniors, and Ed Study students. WR, SO RP

*** PSYC 128b / CHLD 128b / EDST 128b, Language, Literacy, and Play** Ann Close and Carla Horwitz

The focus of this course will be to demonstrate the complicated role that play has in the development of language and literacy skills. A major part of each topic presentation

will be a discussion of the role that play has in the curriculum in enhancing these developmental areas. There is a widespread consensus that play is an essential component of a developmentally appropriate early childhood curriculum. Research indicates that play enhances a child's creativity, intellectual development and social emotional development. Because learning to play, learning language and learning literacy skills are all part of the process of thinking and communication, **the course will provide a view which attempts to demonstrate the integration of language, literacy and play in an early childhood education curriculum.** Theoretical aspects of each of these developmental areas will be examined first, and it will be that theoretical understanding which will be the basis upon which ideas about curriculum will be explored, experienced and discussed. Students must arrange to do a weekly one-hour observation (in-person or virtually) of a child under age 6 and an additional 2 hour in-person classroom observation at Calvin Hill Day Care Center. Total observation time commitment is 3 hours per week. Permission of instructor. Enrollment priority will be given to juniors, seniors, and education study scholars. WR, SO RP

PSYC 130a / CGSC 110a, Introduction to Cognitive Science Brian Scholl

An introduction to the interdisciplinary study of how the mind works. Discussion of tools, theories, and assumptions from psychology, computer science, neuroscience, linguistics, and philosophy. SO

PSYC 140a / EDST 140a, Developmental Psychology Julia Leonard

An introduction to research and theory on the development of perception, action, emotion, personality, language, and cognition from a cognitive science perspective. Focus on birth to adolescence in humans and other species. Prerequisite: PSYC 110. SO

PSYC 141a / NSCI 141a, The Criminal Mind Arielle Baskin-Sommers

Theoretical and empirical study of the development of criminal behavior, including constitutional, social, and neurobiological elements. Personality and psychopathological factors associated with criminal behavior; theoretical and psychobiological explanations of crime; the biological/environment interaction; the impact of psychobiological models for policy and intervention. SO

PSYC 150a / EDST 160a, Social Psychology Maria Gendron

Theories, methodology, and applications of social psychology. Core topics include the self, social cognition/social perception, attitudes and persuasion, group processes, conformity, human conflict and aggression, prejudice, prosocial behavior, and emotion. SO

PSYC 160a / NSCI 160a, The Human Brain Gregory McCarthy

Introduction to the neural bases of human psychological function, including social, cognitive, and affective processing. Preparation for more advanced courses in cognitive and social neuroscience. Topics include memory, reward processing, neuroeconomics, individual differences, emotion, social inferences, and clinical disorders. Neuroanatomy, neurophysiology, and neuropharmacology are also introduced. SC

PSYC 200a, Statistics Staff

Measures of central tendency, variability, association, and the application of probability concepts in determining the significance of research findings. This course may not be taken after S&DS 100. QR o Course cr

*** PSYC 235a, Research Methods, Writing Intensive** Yarrow Dunham

Introduction to general principles and strategies of psychological research. Topics include generating and testing hypotheses, laboratory and field experiments, scale construction, sampling, archival methods, case studies, ethics and politics of research, and Internet and cross-cultural methods. Hands-on research experience in laboratories. Prerequisite: PSYC 200 or S&DS 103. WR, SO

*** PSYC 312a / ER&M 412a, Native American Mental Health** Mark Beitel and Christopher Cutter

Issues of health policy, research, and service delivery in Native American communities, with a focus on historical antecedents that shape health outcomes and social policy for indigenous communities. Urgent problems in health and wellness, with special attention to Native American mental health. The roles of the Indian Health Service, state and local agencies, and tribal health centers; comparison of Native American and European American conceptions of health and illness. SO

*** PSYC 314a / CGSC 314a, Performance Psychology and Neuroscience** Marvin Chun

Human cognitive and motor performance fluctuates over time and varies across situations. What explains peak performance and how can it be sustained? The variation can be explained by neural mechanisms of attention and executive control; psychological factors like emotion, stress, mindset, and positive thinking; and physiological factors such as sleep and exercise, which affect the brain and mind. SO

PSYC 317a / EDST 237a / LING 217a, Language and Mind Maria Pinango

The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

PSYC 318a / LING 220a, Phonetics I Natalie Weber

Each spoken language composes words using a relatively small number of speech sounds, a subset of the much larger set of possible human speech sounds. This course introduces tools to describe the complete set of speech sounds found in the world's spoken languages. It covers the articulatory organs involved in speech production and the acoustic structure of the resulting sounds. Students learn how to transcribe sounds using the International Phonetic Alphabet, including different varieties of English and languages around the world. The course also introduces sociophonetics, how variation in sound patterns can convey social meaning within a community, speech perception, and sound change. SO o Course cr

PSYC 327a / LING 227a, Language and Computation I Tom McCoy

This course introduces the design and analysis of computational models of language. There are many properties of language that make it challenging to handle computationally: First, language is ambiguous—a given word or sentence can have many possible meanings. Second, our linguistic experience is sparse—many aspects of language (e.g., certain sentence structures) occur very rarely, posing a challenge for computational systems that learn from data. Third, language has an enormous amount of hidden structure—words and other linguistic units can have complex relationships with each other that are not apparent on the surface. In this course, we explore the

computational approaches that can overcome these challenges. Topics include finite state tools, neural networks, Bayesian approaches, computational morphology and phonology, grammar and parsing, lexical semantics, and the use of linguistic models in applied problems. Prerequisite: prior programming experience or permission of instructor. QR, SO

PSYC 331b / LING 231b, Neurolinguistics Maria Pinango

The study of language as a cognitive neuroscience. The interaction between linguistic theory and neurological evidence from brain damage, degenerative diseases (e.g., Alzheimer's disease), mental illness (e.g., schizophrenia), neuroimaging, and neurophysiology. The connection of language as a neurocognitive system to other systems such as memory and music. At least one class that introduces students to linguistic theory and linguistic argumentation from at least one perspective, including any of the following: (1) LING 217 Language and Mind, (2) LING 110 Intro to linguistics, (3) LING 253 Syntax 1, (4) LING 112 Historical Linguistics, (5) LING 232 Phonology 1, (6) LING 220 General Phonetics, or (7) Instructor permission. SC, SO
o Course cr

*** PSYC 337a, Multicultural Psychology** Mica Rencher

Multicultural Psychology examines how identity, and its social contexts, impacts human behavior and perspectives. This course will introduce students to theoretical and practical approaches used to assess the impact of culture on various psychological processes. Such examination will be guided by real-world application of material covered in class and required readings. Topics will include class, culture, family, gender, mental and physical health, race, religion and spirituality, and stereotyping and prejudice. SO

*** PSYC 350b / CHLD 350b / EDST 350b, Autism and Related Disorders** Mariana Torres-Viso, Kelly Powell, and James McPartland

Weekly seminar focusing on autism and related disorders of socialization. A series of lectures on topics in etiology, diagnosis and assessment, treatment and advocacy, and social neuroscience methods; topics cover infancy through adulthood. Supervised experience in the form of placement in a school, residence, or treatment setting for individuals with autism spectrum disorders. Details about admission to the course are explained at the first course meeting. Prerequisite: an introductory psychology course. SO

*** PSYC 375a / CGSC 375a / LING 375a, Linguistic Meaning and Conceptual Structure** Maria Pinango

The meaning of a word or sentence is something in the human mind that has specific properties: it can be expressed (written/signed/spoken forms); it can be combined with other meanings; its expression is not language dependent; it connects with the world; it serves as a vehicle for inference; and it is hidden from awareness. The course explores these properties in some detail and, in the process, provides the students with technical vocabulary and analytical tools to further investigate them. The course is thus intended for those students interested in undertaking a research project on the structure of meaning, the nature of lexico-conceptual structure, that is, the structure of concepts which we refer to as “word meanings”, and how they may be combined through linguistic and non-linguistic means. Its ultimate objective is to bridge models of conceptual structure and models of linguistic semantic composition, identify their respective strengths and weaknesses and explore some

of the fundamental questions that any theory of linguistic meaning composition must answer. Evidence discussed will emerge from naturalistic, introspectional, and experimental methodologies. Prerequisites: LING 110, CGSC 110, LING 217, or LING 263. SO

*** PSYC 408a, Topics in Thinking** Woo-Kyoung Ahn

A survey of psychological studies on thinking and reasoning, with discussion of ways to improve thinking skills. Topics include judgments and decision making, counterfactual reasoning, causal learning, inductive inferences, analogical reasoning, problem solving, critical thinking, and creativity. Students who have taken PSYC 179 are not eligible to enroll in this course. SO

*** PSYC 440a, The Psychology of Attraction and Close Relationships** Margaret Clark

This course is an advanced seminar covering psychological research on interpersonal attraction and intra- and interpersonal psychological processes that lead to thriving (or stumbling) in close relationships such as friendships, romantic relationships, and family relationships. It covers research on what attracts people to one another, relationship initiation, commitment, and the maintenance and deterioration of relationships. It is neither a self-help nor clinical course but, rather, a social psychological course focusing on processes that influence most people's relationships which also includes some work on individual differences in the functioning of close relationships. This course has no set prerequisites. One research methods course in psychology and at least one lecture course covering aspects of social psychology (e.g. introductory psychology, social psychology) are suggested. It is most appropriate for junior and senior psychology majors and for social psychology or clinical psychology graduate students interested in relational processes. SO

*** PSYC 442a / NSCI 444a, Topics in Clinical Neuroscience** Tyrone Cannon

This course is an advanced seminar examining the biological bases of psychopathology. We cover research, theory, and controversies regarding the roles of genetics, neurotransmitter systems, brain development and function, and other biological influences in the major classes of mental disorders, including anxiety disorders, depression, schizophrenia, bipolar disorder, obsessive compulsive disorder, substance use disorders, eating disorders, and autism. Prominent theories emanating from cognitive, behavioral, and interpersonal approaches to psychopathology are examined in the context of multilevel models of behavior, and the interplay of biological and psychological factors are a central theme throughout. Prerequisite: PSYC 160 SO

*** PSYC 449a / NSCI 449a, Neuroscience of Social Interaction** Steve Chang

This seminar covers influential studies that inform how the brain enables complex social interactions from the perspectives of neural mechanisms. Students thoroughly read selected original research papers in the field of social neuroscience across several animal species and multiple modern neuroscience methodologies. In class, the instructor and students work together to discuss these studies in depth. Focused topics include neural mechanisms behind brain-to-brain coupling, empathy, prosocial decision-making, oxytocin effects, and social dysfunction. Prerequisite: PSYC 160 or permission from the instructor. SC

*** PSYC 453a, The Science of the Human Mind: Pioneers between the Objective and Subjective** Kia Nobre

The human mind, with its subjective nature, is the most mysterious and elusive of all substances in the known universe. It took intrepid thinkers and ingenious scientists to forge the objective empirical study of mental functions. Today human experimental psychology, cognitive science, and neuroscience are thriving. How far have we come from the pioneering days and are we headed in a good direction? This seminar course will offer the advanced and scholarly minded student the opportunity to take a deep dive into the fundamental breakthroughs that opened the experimental study of the human mind and that continue to push the boundaries between the objective and subjective in new directions. Prerequisites: PSYC 110 and either PSYC 130, Introduction to Cognitive Science, or PSYC 160, The Human Brain. PSYC 335, The Cognitive Neuroscience, is strongly advised but not strictly required. so

*** PSYC 493a, Directed Research** Yarrow Dunham

Empirical research projects or literature review. A student must be sponsored by a faculty member, who sets the requirements and supervises the student's progress. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it to the director of undergraduate studies by the deadline listed on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms. May not be used for the Psychology senior essay requirement.

*** PSYC 495a, Research Topics** Yarrow Dunham

Empirical research project or literature review. A student must be sponsored by a faculty member, who sets the requirements and supervises the student's progress. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it to the director of undergraduate studies by the date indicated on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms. May not be used for the Psychology senior essay requirement. ½ Course cr

*** PSYC 499a, Senior Essay** Yarrow Dunham

Independent senior research project (either empirical research or literature review), conducted under the guidance of a faculty adviser who sets the requirements and supervises the research. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it by the deadline indicated on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. A paper of 5,000 words or more meets the writing needed for the senior requirement. To be considered for Distinction in the Major, the paper should be submitted at least one week before the last day of classes and will be graded by the adviser and a second reader assigned by the DUS.

Punjabi (PNJB)

* PNJB 110a, Elementary Punjabi I Staff

Introduction to the Punjabi language in its cultural context. Development of fundamental speaking, listening, reading, and writing skills through the application of communicative methods and the use of authentic learning materials. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Credit only on completion of PNJB 120. L1 RP 1½ Course cr

* PNJB 130a, Intermediate Punjabi I Staff

The important target of this course is to develop basic Punjabi Language skills (reading, writing, listening and speaking). This is approached through the theme-based syllabus, discussion in small groups and paired activities on the cultural background of Punjab or Punjabi culture. As well as, the listening and speaking skills would be developed by using the media such as educational material, Punjabi movies, music and computer lab sessions. The usage of the textbooks would lead us to learn grammatical rules of the Punjabi language. The students are approached individually, since the class typically consists of students in the various backgrounds. Prerequisite: PNJB 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

Religious Studies (RLST)

* RLST 102a / EAST 390a, Atheism and Buddhism Hwansoo Kim

A critical examination of atheism and religions (Buddhism), with a focus on intellectual, religious, philosophical, and scientific debates about God, the origin of the universe, morality, evolution, neuroscience, happiness, enlightenment, the afterlife, and karma. Readings selected from philosophical, scientific, and religious writings. Authors include some of the following: Charles Darwin, Bertrand Russell, Christopher Hitchens, Richard Dawkins, Deepak Chopra, Sam Harris, Owen Flanagan, Stephen Batchelor, and the Dalai Lama. HU

* RLST 107b / PHIL 192b, Metaphysics and Modernity Nancy Levene

This course surveys concepts and controversies in and among select works of philosophy, theology, and literature. The focus is twofold: on reading works in view of their own principles, thus on questions of truth and interpretation, and on histories of the ideas, thus on questions of origin, change, and story. What and when is metaphysics? What and when is modernity? HU

* RLST 108a / HSHM 451a / HUMS 108a, Introduction to the Occult Sciences Travis Zadeh

This course provides a comparative history of the occult sciences from antiquity to the present. From Galen's occult properties to Newton's pursuit of alchemy, the notion that there are hidden forces in nature has played an immeasurable role in the development of religious thought, scientific reasoning, and literary endeavor. The modern impulse to separate religion from science and science from magic can obscure the centrality of

an array of practices and beliefs across time and place. Far from a disenchanted present, magic and the occult are woven through the fabric of modernity. From healing crystals to the personalized astrology of Co-Star, tarot cards to New-Age inflected conspiracy theories, fortune tellers to countless films, we are surrounded by appeals to occult powers. Building on case studies from classical antiquity and Jewish, Christian, and Islamic letters, this course traces the development of the occult sciences through an array of historical periods, social contexts, and discursive materials. Topics include: origins of writing, astrology, alchemy, medicine, natural philosophy, divination, automata, talismans, natural magic, letterism, hermeticism, kabbalah, Neoplatonism, recipes for summoning demons and angels, persecution, orientalism, colonialism, mesmerism, spiritualism, disenchantment, modernity, capitalism, consumption, and fantasy. Materials are drawn from an array of sources, including: philosophical dialogues, scientific manuals, illuminated manuscripts, encyclopedias, cosmographies, handbooks of practical magic, collections of stories, and movies. In addition to a panoply of primary sources and contemporary scholarship on theory and method, students are introduced to a variety of archival materials in the Yale collections. HU

RLST 148a / ER&M 219a / HIST 219a / JDST 200a / MMES 149a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

RLST 158a / CLCV 129a / HIST 159a / HUMS 129a / NELC 158a, Jesus to Muhammad: Ancient Christianity to the Rise of Islam Staff

The history of Christianity and the development of Western culture from Jesus to the early Middle Ages. The creation of orthodoxy and heresy; Christian religious practice; philosophy and theology; politics and society; gender; Christian literature in its various forms, up to and including the early Islamic period. HU o Course cr

RLST 160a / HIST 280a / ITAL 315a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

*** RLST 175a / EAST 431a, North Korea and Religion** Hwansoo Kim

Ever since the establishment of the Democratic People's Republic of Korea (DPRK) in 1948 and the Korean War (1950–1953), North Korea has been depicted by the media as a reclusive, oppressive, and military country, its leaders as the worst dictators, and its people as brainwashed, tortured, and starving to death. The still ongoing Cold War discourse, intensified by the North Korea's recent secret nuclear weapons program, furthers these negative images, and outsiders have passively internalized these images. However, these simplistic characterizations prevent one from gaining a balanced understanding of and insight into North Korea and its people on the ground. Topics other than political, military, and security issues are rarely given attention.

On the whole, even though North Korea's land area is larger than South Korea and its population of 25 million accounts for a third of all Koreans, North Korea has been neglected in the scholarly discussion of Korean culture. This class tries to make sense of North Korea in a more comprehensive way by integrating the political and economic with social, cultural, and religious dimensions. In order to accomplish this objective, students examine leadership, religious (especially cultic) aspects of the North Korean Juche ideology, the daily lives of its citizens, religious traditions, the Korean War, nuclear development and missiles, North Korean defectors and refugees, human rights, Christian missionary organizations, and unification, among others. Throughout, the course places North Korean issues in the East Asian and global context. The course draws upon recent scholarly books, articles, journals, interviews with North Korean defectors, travelogues, media publications, and visual materials. so

*** RLST 201a / HIST 232Ja / HUMS 443a / JDST 270a / MMES 342a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

*** RLST 229a / EAST 420a, Buddhist Ethics** Meghan Howard

This course explores ethical action in a range of Buddhist traditions, with an emphasis on Mahayana Buddhism in India and Tibet. Rather than starting with the categories of Western philosophy, we seek to develop an account that emerges from Buddhist sources. We begin by establishing a working model of karmic acts—describing the status of agents and patients, the mechanics of karma, and the cosmological and soteriological contexts for action. We then examine the paradigmatic ethical act of giving as embodied by two great virtuous exemplars: the Buddha (archetypal renunciate) and Vessantara (archetypal layman). From there, we turn to case studies of ethical cultivation and negotiation in three realms of Buddhist practice: the Vinaya precepts governing monastic life, the altruism and skillful means of bodhisattvas, and the antinomian ethics of Buddhist tantra. The course concludes with a reflection on the intersection of aesthetics and morality in Buddhist thought. HU

*** RLST 233a / ENGL 346a / HUMS 253a, Poetry and Faith** Christian Wiman

Issues of faith examined through poetry, with a focus on modern poems from 1850 to the present. Poems from various faith traditions studied, as well as to secular and antireligious poetry. HU

*** RLST 234b / HIST 234Jb, History of the Supernatural from Antiquity to Modernity** Carlos Eire

This survey course aims to provide an introduction to ancient, medieval, and early modern Western beliefs in supernatural forces, as manifested in saints, mystics, demoniacs, ghosts, witches, relics, miracles, magic, charms, folk traditions, fantastic creatures and sacred places. Using a wide range of primary sources and various historical methodologies, our aim is to better understand how beliefs and worldviews

develop and change and the ways in which they shape and determine human behavior. This course is not open to students previously enrolled in HIST 299. HU

RLST 245b / ARCG 244b / NELC 109b, The Age of Akhenaton Nadine Moeller and John Darnell

Study of the period of the Egyptian pharaoh Akhenaton (reigned 1353–1336 B.C.E.), often termed the Amarna Revolution, from historical, literary, religious, artistic, and archaeological perspectives. Consideration of the wider Egyptian, ancient Near Eastern, African, and Mediterranean contexts. Examination of the international diplomacy, solar theology, and artistic developments of the period. Reading of primary source material in translation. HU o Course cr

*** RLST 259a, Muslim Societies in Africa** Matthew Steele

While the Western academy has long devoted attention to Africa and Islam, it has not commonly treated the two together. Their estrangement in the literature belies the significance of Islam in Africa and conversely of Africa within the wider Islamic World. Indeed, today Africans constitute nearly a third of the global Muslim community. Islam enjoys a rich history on the continent, stretching from the migration of Muslims to seventh-century Abyssinia to the Islamic kingdoms of nineteenth-century West Africa. This course seeks to reimagine Africa not as a periphery but as a center of the Islamic World. It relocates a model of Islam that looks to the Middle East, instead highlighting the diversity of practice, scholarship, and politics of Muslim societies in Africa. It explores how constructions of race inform the representation of Islam in Africa today. It also questions whether one can even speak of Islam *in* Africa at all, reexamining what is lost and what is gained in such a geography of African and Muslim subjects. Rather than a comprehensive overview, the course provides a solid foundation for engaging in key theoretical debates on issues of religion, race, and politics in Africa and the wider Islamic World. HU

RLST 262a / ARCH 272a / HSAR 150a, Introduction to the History of Art: Art and Architecture of the Sacred Staff

A wide-ranging, cross-temporal exploration of religious images, objects, and architecture in diverse cultures, from ancient Mesopotamia to modern Manhattan. Buddhist, Christian, Hindu, Jewish, Muslim, and various polytheistic traditions are represented. Thematic threads include the human body; transformations of nature; death, memory, and afterlife; sacred kingship and other forms of political engagement; practices of concealment and revelation; images as embodiments of the divine; the framing and staging of ritual through architecture. HU o Course cr

*** RLST 264b / HIST 412Jb / HUMS 261b / NELC 364b, The Psalms, A Cultural History of Ancient Prayer** Stephen Davis

This course introduces students to the Book of Psalms and its significant cultural and religious impact in ancient Judaism, Christianity, and Islam. The course is organized in three units. Unit 1 focuses on the text of the Psalms, with special attention to their literary forms, editorial organization, and early ritual context in ancient Israel. Unit 2 focuses on the reception and use of the Psalms in late ancient Judaism, Christianity, and Islam, with special attention to matters of translation, interpretation, worship, prayer, and scriptural authority. Unit 3 focuses on material and sensory encounters with the Psalms from antiquity to the present day within these three religious traditions—case studies related to tactile and visual contact with the physical book, oral and aural engagement through song or chant, and embodied forms of writing, reciting, and

enacting the Psalms in the context of ritual practice, including magical spells. The goal of the course is thus to trace the life and afterlife—to write the textual and extra-textual “biography,” as it were—of a major biblical book. HU

*** RLST 289a / ER&M 444a, Race, Religion, and Transnational Mobilities** Gana Ndiaye

This course surveys how “migrants” and “desirable migrants” are produced through race and religion in the Americas and Europe. It also examines how racial identities and religious beliefs inform human mobilities and shape the experiences of such mobile persons as settlers, exiles, asylum seekers, temporary workers, and economic migrants. By the end of the course, participants will familiarize themselves with the crucial roles that religious beliefs and practices play in causing and responding to human mobilities. Students will also gain familiarity with the ways in which migrants’ religious practices transform local cultures, politics, and societies as their own religious practices are reconfigured by and in the context of host nations. Topics to be covered include citizenship and cultural difference, religion and the public sphere, multiculturalism, Islam and democracy, Christian Pentecostal missions, liberation theology, and African diasporic religions. SO

*** RLST 324a / HIST 268Ja / JDST 351a / PLSC 466a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** RLST 327b / EALL 238b / EAST 394b, Buddhist Monastic Experience** Hwansoo Kim

Is monastic life relevant in contemporary society, where religion is increasingly considered less significant in our secular lives? Can we find valuable aspects of a monastic lifestyle that can be integrated into our daily lives? If so, what are these aspects, and how can we incorporate them? This seminar represents a collaborative effort to gain insight into one of the major monastic traditions: Buddhist monasticism. Throughout this seminar, we delve into various facets of Buddhist monastic life, examining its origins, historical development, monastic identity, rules and regulations, practices, and the dynamics between monastics and the laity. We also explore the tensions that often arise between the ideals of monasticism and the realities it faces in today’s world. As part of this exploration, we embark on an eight-week monastic life project, during which students create their own set of daily rules (precepts), adhere to these rules, engage in meditation and other relevant practices, and establish a regular communal gathering with fellow students. HU

RLST 342b / AMST 234b / ER&M 243b / HIST 188b, Spiritual But Not Religious
Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

*** RLST 347b / HIST 240b / SOCY 331b / WGSS 291b, Sexual Minorities from Plato to the Enlightenment** Igor De Souza

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment’s condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham. HU

RLST 375a / SAST 256a, Hindu Nationalism Supriya Gandhi

This course analyzes the development of Hindu nationalism from the nineteenth to the twenty-first centuries. Students interrogate the emergence of Hinduism as a religion, before exploring the reform and revivalist movements in the nineteenth century that paved the way for the articulation of Hindu nationalism. Students also read from key writings of several Hindu nationalist thinkers of the twentieth century and investigate the historical and social contexts leading to the emergence of Hindu nationalism as a major political force. Topics include: colonialism, modernity, the idea of Hinduism, nationalist ideologies, gender, and religious violence. HU, SO

*** RLST 380a / ENGL 289a / HUMS 388a / LITR 389a / PHIL 385a, The Force of Life**
Nancy Levene and James Wood

The point of departure for this course is a line from James Baldwin in *The Fire Next Time*: “To be sensual, I think, is to respect and rejoice in the force of life, of life itself, and to be *present* in all that one does, from the effort of loving to the breaking of bread.” We study four authors—Virginia Woolf, Franz Kafka, Baldwin, and Jacques Derrida—in light of the values Baldwin expresses and their challenges. Our work between philosophy and fiction involves striving to read each text according to the ideas it itself advances, as well as reading for connections and cross-pollinations. WR, HU

RLST 402a / PHIL 256a, The Philosophy of Religion Staff

The relation between religion and ethics, traditional arguments for the existence of God, religious experience, the problem of evil, miracles, immortality, science and religion, and faith and reason. HU o Course cr

*** RLST 422b / EGYPT 147b, Egyptian Monastic Literature in Coptic** Stephen Davis

Readings in the early Egyptian classics of Christian asceticism in Sahidic Coptic, including the desert Fathers and Shenute. Prerequisite: EGYPT 127 or equivalent. Counts as L4 if taken after EGYPT 137 or equivalent. L3

*** RLST 423a / EGYPT 137a, Gnostic Texts in Coptic** Staff

Reading, translation, and analysis of Gnostic and Valentinian literature from Nag Hammadi, in several dialects of Coptic. Prerequisite: EGYPT 127 or equivalent. Counts as L4 if taken after EGYPT 147 or equivalent. L3

*** RLST 429a / PHIL 431a, Phenomenology** Noreen Khawaja

In-depth introduction to phenomenology as a theory of what is and as a method for studying it. Key figures in the history of phenomenology, emphasizing connections to social theory, aesthetics, and religion. Readings from Merleau-Ponty, Heidegger, Fanon, Husserl, Ahmed, Barad, and others. HU

*** RLST 486a / EALL 221a, Introduction to Chinese Buddhist Literature** Eric Greene

This class is an introduction to Chinese Buddhist literature. Although written in classical Chinese, Buddhist texts in China were written in a particular idiom that was much influenced by the Indian languages and which can be difficult to understand without special training. This class introduces students who already have some reading ability in literary Chinese to this idiom and the tools and background knowledge needed to read and understand Chinese Buddhist literature. We read a series of selections of some of the most influential Chinese Buddhist texts from various genres including canonical scriptures, apocryphal scriptures, monastic law, doctrinal treatises, and hagiography. Secondary readings introduce the basic ideas of Indian and Chinese Buddhist thought to the extent necessary for understanding our readings. Prerequisite: CHNS 171 (Literary Chinese II) or equivalent, or permission of the instructor. Students of Japanese or Korean literature who can read basic *kanbun* or *gugyeol* are also welcome to enroll; no knowledge of modern, spoken Chinese is required. HU

*** RLST 488a and RLST 489b, Individual Tutorial** Eric Greene

For students who wish, under faculty supervision, to investigate an area in religious studies not covered by regular departmental offerings. The course may be used for research or for directed reading. A long essay or several short ones are required. To apply, students should present a prospectus with bibliography of work they propose to undertake to the director of undergraduate studies together with a letter of support from the faculty member who will direct the work.

*** RLST 490b, Religion and Society** Hwansoo Kim

Seminar on religion and society. Topics covered vary by year, but may include one or more of the following: ritual and its social functions, different concepts of social life, the operation of violence in social relationships, religion as both champion and critic of society, and theoretical models of religion and society.

*** RLST 491a and RLST 492a or b, The Senior Essay** Eric Greene

Students writing their senior essays meet periodically in the fall and weekly in the spring for a colloquium directed by the director of undergraduate studies. The essay, written under the supervision of a member of the department, should be a substantial paper between 12,500 and 15,000 words.

Romanian (ROMN)

Russian (RUSS)

* RUSS 024a / RSEE 024a, **Strange Russian Writers** Edyta Bojanowska

The course offers an introduction to some of the most bizarre and haunting works of Russian literature. In this artistic universe of madmen, prophets, and oddballs, of supernatural events and grotesque transformations, a nose can become a high-ranking bureaucrat, a dog turns into a boorish human after a pituitary gland transplant from a local drunk, 2 x 2 most emphatically equals five, and one encounters a diary entry dated “Da 34 te yare, February 349.” Yet along with all the fun, these fictions offer profound explorations of the challenges of modern life involving sexuality, technology, or class privilege, satirical vistas of both capitalist and communist systems, critiques of rationalism, and dystopian or humorous visions of Russian provincial or national malaise. This course asks you to suspend all assumptions, exert your powers of sense-making, and learn about a rich literary tradition. The course is especially appropriate for students with some experience in literary analysis, but welcomes any adventurous reader. Enrollment limited to first-year students. WR, HU

* RUSS 025a / EALL 025a, **Russian and Chinese Science Fiction** Jinyi Chu

What can we learn about Russian and Chinese cultures through their fantasies? How do Russian and Chinese writers and filmmakers respond to the global issues of animal ethics, artificial intelligence, space immigration, surveillance, gender and sexuality? How are Russian and Chinese visions of the future different from and similar to the western ones? This course explores these questions by examining 20th-21st-century Russian and Chinese science fictions in their cultural, historical, and philosophical contexts. All readings and discussion in English. Sci-fi authors and translators will be invited to give guest lectures. Enrollment limited to first-year students. HU

RUSS 110a, **First-Year Russian I** Julia Titus

A video-based course designed to develop all four language skills: reading, writing, speaking, and listening comprehension. Use of dialogues, games, and role playing. In addition to readings in the textbook, students read original short stories and learn Russian songs and poems. Oral and written examinations. L1 RP o Course cr

RUSS 120b, **First-Year Russian II** Julia Titus

Continuation of RUSS 110. After RUSS 110 or equivalent. L2 1½ Course cr

RUSS 122a, **Russian for Heritage Learners I** Julia Titus

A comprehensive Russian course for native speakers of Russian or other Slavic languages whose formal education has been in English. Overview of Russian grammar, focusing on the writing system, cases, conjunction, and syntax. Readings from Russian prose, film screenings, discussion, and regular practice in translation and composition. L1, L2 o Course cr

RUSS 125a, **Intensive Elementary Russian** Constantine Muravnik

An intensive course that covers in one term the material taught in RUSS 110 and 120. For motivated students. Study of Russian grammar; practice in conversation, reading, and composition. Recommended for prospective seekers of the Advanced Language Certificate and prospective majors in Russian and in Russian and East European Studies. L1, L2 o Course cr

RUSS 130a, Second-Year Russian I Olha Tytarenko

The goal of this course is to improve functional competence in speaking and listening by providing culturally-enriched context. The engaging textbook and workbook reflect social, cultural and linguistic norms of contemporary Russia and its diverse regions. In addition, you will be reading some classic and contemporary literature, and using films and other media. After RUSS 120 or equivalent. L3 1½ Course cr

RUSS 140b, Second-Year Russian II Olha Tytarenko

Continuation of RUSS 130. After RUSS 130 or equivalent. L4 1½ Course cr

*** RUSS 142b, Russian for Heritage Learners II** Julia Titus

Continuation of RUSS 122. Further development of reading and writing skills. Expansion of vocabulary. After RUSS 122 or equivalent. L3, L4

RUSS 145b, Intensive Intermediate Russian Constantine Muravnik

A continuation of RUSS 125 that covers in one term the material taught in RUSS 130 and 140. For students of superior linguistic ability. Prerequisite: RUSS 125. L3, L4 2 Course cr

RUSS 150a, Third-Year Russian I Constantine Muravnik

Intensive practice in reading, conversation, and composition accompanied by in-depth review and refinement of grammar. Readings from nineteenth-century history and current events are used as the basis of structured conversation, composition, and grammatical practice. Oral examinations and individual and group projects. After RUSS 140 or 145 or equivalent. L5 1½ Course cr

RUSS 151b, Third-Year Russian II Constantine Muravnik

Continuation of RUSS 150. After RUSS 150 or equivalent. L5 RP 1½ Course cr

RUSS 160a, Fourth-Year Russian I Anastasia Selemeneva

Discussion topics include Russian culture, literature, and self-identity; the old and new capitals of Russia, the cultural impact of the Russian Orthodox Church, and Russia at war. Readings from mass media, textbooks, and classic and modern literature. Use of video materials. After RUSS 151 or equivalent. L5

RUSS 161b, Fourth-Year Russian II Anastasia Selemeneva

Continuation of RUSS 160. After RUSS 160 or equivalent. L5

*** RUSS 172b, Russian History through Literature and Film** Anastasia Selemeneva

Study of important events in Russian history, from the medieval times to the present, through authentic reading materials in various genres and through feature and documentary films. The course is designed to advance students' speaking proficiency in Russian and to develop their reading, listening, and writing skills. Texts include Russian fairy tales; fragments from *The Primary Chronicles*; A. Tolstoy's *Peter I*; D. Merezhkovsky's *Antichrist*; N. Eidelman's *Decembrists*; P. Chaadaev's *Philosophical Letters*; N. Leskov's *Enchanted Wanderer* (fragments); and I. Goncharov's *Oblomov* (fragments). Films include A. Tarkovsky's *Andrei Rublev*; N. Mikhalkov's *Several Days from Oblomov's Life*; A. Askoldov's *Comissar*; Todorovsky's *Stiliagi*; K. Muratova's *Asthenic Syndrome*; and A. Zviagintsev's *Loveless*. All written assignments, texts, and discussions are in Russian. RUSS 142 or 151, or permission of instructor. L5, HU

*** RUSS 174a, The Russian Works of Vladimir Nabokov** Constantine Muravnik

An aesthetic reading of Vladimir Nabokov's Russian works and him as a writer concerned with the question of the ontological significance of art and various modes of

the artist's relationship to the world. Taught in Russian, aimed at advancing students' speaking, reading, writing, and listening proficiency. Prerequisite: RUSS 151 or equivalent, or with permission of instructor. L5, HU RP

RUSS 220b / HSAR 221b, Russian and Soviet Art, 1757 to the Present Molly Brunson

The history of Russian and Soviet art from the foundation of the Academy of the Arts in 1757 to the present. Nineteenth-century academicism, romanticism, and realism; the Russian avant-garde and early Soviet experimentation; socialist realism and late- and post-Soviet culture. Readings and discussion in English. HU TR o Course cr

*** RUSS 222a / FILM 369a / HUMS 186a / RSEE 244a, War Games** Staff

Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players "perform" war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

RUSS 241b / HIST 237b / RSEE 390b, Russian Culture: The Modern Age Claire

Roosien and Sergei Antonov

An interdisciplinary exploration of Russian cultural history, focusing on literature, art, religion, social and political thought, and film. Conceptions of Russian nationhood; the myths of St. Petersburg; dissent and persecution; the role of social and cultural elites; the intelligentsia; attitudes toward the common people; conflicting appeals of rationality, spirituality, and idealism; the politicization of personal life; the impact of the Bolshevik Revolution and its aftermath. Readings and discussion in English. HU

*** RUSS 309a / HSAR 354a / RSEE 309a, Art and the Arctic** Molly Brunson

This seminar asks how the arctic took shape as an aesthetically contested ground in the visual art, literature, material culture, and popular media of the nineteenth century. How did national styles make claims on a stateless landscape? In what ways was the circumpolar region gendered and racialized? And how did these questions shape the emergence of a northern modernism too often neglected in histories of art? Questions

of whiteness, exploration, and exploitation will be considered in the works of Russian, Nordic, and Sami artists from the nineteenth and early twentieth centuries. HU

*** RUSS 313a / LITR 210a / RSEE 313a / SLAV 313a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

*** RUSS 316a / EALL 288a / EAST 316a / LITR 303a / RSEE 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

*** RUSS 329a / HIST 398Ja / MMES 300a / RSEE 329a, Introduction to Modern Central Asia** Claire Roosien

An overview of the history of modern Central Asia – modern-day Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, Uzbekistan, and the Xinjiang Uyghur Autonomous Region of the People’s Republic of China. This course shows Central Asia to be a pivotal participant in some of the major global issues of the 20th and 21st centuries, from environmental degradation and Cold War, to women’s emancipation and postcolonial nation-building, to religion and the rise of mass society. It also includes an overview of the region’s longer history, of the conquests by the Russian and Chinese empires, the rise of Islamic modernist reform movements, the Bolshevik victory, World War II, the *perestroika*, and the projects of post-Soviet nation-building. Readings in history are supplemented by such primary sources as novels and poetry, films and songs, government decrees, travelogues, courtly chronicles, and the periodical press. All readings and discussions in English. HU TR

*** RUSS 380a / FILM 360a / LITR 301a / RSEE 380a, Putin's Russia and Protest Culture** Staff

Survey of Russian literature and culture since the fall of communism. The chaos of the 1990s; the solidification of power in Putin's Russia; the recent rise of protest culture. Sources include literature, film, and performances by art collectives. Readings and discussion in English; texts available in Russian. WR, HU

*** RUSS 401b / RSEE 401b, Socialist Realism And Its Legacies** Claire Roosien

Socialist Realism was promulgated in the 1930s as the sole mode for cultural production in the Soviet Union. Since that time, it has been maligned as totalitarian, lauded as emancipatory, dismissed as hackish, and reappropriated in a variety of ways—from homage to parody. This course offers an introduction to Socialist Realism and its legacies, beginning with its prehistory in the early Soviet avant-garde and other cultural movements, tracing its official adoption under Stalin, its reassessment in the late Soviet period, and its legacies after the fall of the Soviet Union. Special attention is paid to the interpretations of Socialist Realism in the emerging national cultures beyond the Russian SFSR. The course also examines select examples of the impact of Socialist Realism beyond the Soviet Union, particularly in the “Third World” during the era of Cold War cultural diplomacy. Questions for discussion include: How did Socialist Realism imagine, enforce, and unsettle hierarchies of gender, race, and ethnicity? What did Socialist Realism look like beyond literature—in film, visual art, architecture, and music? How did the imperative to use Socialist Realism connect to the Soviet project to create minority cultures that would be “national in form, socialist in content”? How did people outside the Second World receive and appropriate Socialist Realism? HU

*** RUSS 490a and RUSS 491b, The Senior Essay** Jinyi Chu

Research and writing on a topic of the student's own devising. Regular meetings with an adviser as the work progresses from prospectus to final form.

Russian, East European, and Eurasian Studies (RSEE)

*** RSEE 024a / RUSS 024a, Strange Russian Writers** Edyta Bojanowska

The course offers an introduction to some of the most bizarre and haunting works of Russian literature. In this artistic universe of madmen, prophets, and oddballs, of supernatural events and grotesque transformations, a nose can become a high-ranking bureaucrat, a dog turns into a boorish human after a pituitary gland transplant from a local drunk, 2 x 2 most emphatically equals five, and one encounters a diary entry dated “Da 34 te yare, February 349.” Yet along with all the fun, these fictions offer profound explorations of the challenges of modern life involving sexuality, technology, or class privilege, satirical vistas of both capitalist and communist systems, critiques of rationalism, and dystopian or humorous visions of Russian provincial or national malaise. This course asks you to suspend all assumptions, exert your powers of sense-making, and learn about a rich literary tradition. The course is especially appropriate for students with some experience in literary analysis, but welcomes any adventurous reader. Enrollment limited to first-year students. WR, HU

*** RSEE 222b / HIST 222Jb, Russia and the Eurasian Steppe** Paul Bushkovitch

A study of Russia's interaction with the nomads of the Eurasian steppe. Topics include the Mongol invasion, the Mongol Empire in Asia and the Golden Horde, Islam,

nomadic society, and the Russian state. Focus on conquest and settlement. May count toward either European or Asian distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU

*** RSEE 231a / HIST 221Ja, Russia in the Age of Tolstoy and Dostoevsky, 1850–1905**

Sergei Antonov

Russian politics, culture, and society ca. 1850 to 1905. Tsars' personalities and ruling styles, political culture under autocracy. Reform from above and revolutionary terror. Serfdom and its abolition, problem of "traditional" Russian culture. Growth of industrial and financial capitalism, middle-class culture, and daily life. Foreign policy and imperial conquest, including the Caucasus and the Crimean War (1853–56). Readings combine key scholarly articles, book chapters, and representative primary sources. All readings and discussions in English. WR, HU

*** RSEE 244a / FILM 369a / HUMS 186a / RUSS 222a, War Games** Staff

Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players "perform" war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

RSEE 266a / HIST 265a, Soviet Russia 1917–1991 Staff

Overview of the rise and fall of the Soviet Union. Topics include political culture and ideology of the Bolshevik/Communist Party; social and economic changes; foreign policy and the role of WWII; major artistic and cultural movements. Paper assignments involve close readings of memoir and oral history accounts. HU o Course cr

*** RSEE 309a / HSAR 354a / RUSS 309a, Art and the Arctic** Molly Brunson

This seminar asks how the arctic took shape as an aesthetically contested ground in the visual art, literature, material culture, and popular media of the nineteenth century. How did national styles make claims on a stateless landscape? In what ways was the circumpolar region gendered and racialized? And how did these questions shape the emergence of a northern modernism too often neglected in histories of art? Questions

of whiteness, exploration, and exploitation will be considered in the works of Russian, Nordic, and Sami artists from the nineteenth and early twentieth centuries. HU

*** RSEE 313a / LITR 210a / RUSS 313a / SLAV 313a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

*** RSEE 316a / EALL 288a / EAST 316a / LITR 303a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

*** RSEE 329a / HIST 398Ja / MMES 300a / RUSS 329a, Introduction to Modern Central Asia** Claire Roosien

An overview of the history of modern Central Asia – modern-day Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, Uzbekistan, and the Xinjiang Uyghur Autonomous Region of the People’s Republic of China. This course shows Central Asia to be a pivotal participant in some of the major global issues of the 20th and 21st centuries, from environmental degradation and Cold War, to women’s emancipation and postcolonial nation-building, to religion and the rise of mass society. It also includes an overview of the region’s longer history, of the conquests by the Russian and Chinese empires, the rise of Islamic modernist reform movements, the Bolshevik victory, World War II, the *perestroika*, and the projects of post-Soviet nation-building. Readings in history are supplemented by such primary sources as novels and poetry, films and songs, government decrees, travelogues, courtly chronicles, and the periodical press. All readings and discussions in English. HU

*** RSEE 380a / FILM 360a / LITR 301a / RUSS 380a, Putin's Russia and Protest Culture** Staff

Survey of Russian literature and culture since the fall of communism. The chaos of the 1990s; the solidification of power in Putin's Russia; the recent rise of protest culture. Sources include literature, film, and performances by art collectives. Readings and discussion in English; texts available in Russian. WR, HU

RSEE 390b / HIST 237b / RUSS 241b, Russian Culture: The Modern Age Claire Roosien and Sergei Antonov

An interdisciplinary exploration of Russian cultural history, focusing on literature, art, religion, social and political thought, and film. Conceptions of Russian nationhood; the myths of St. Petersburg; dissent and persecution; the role of social and cultural elites; the intelligentsia; attitudes toward the common people; conflicting appeals of rationality, spirituality, and idealism; the politicization of personal life; the impact of the Bolshevik Revolution and its aftermath. Readings and discussion in English. HU

*** RSEE 401b / RUSS 401b, Socialist Realism And Its Legacies** Claire Roosien

Socialist Realism was promulgated in the 1930s as the sole mode for cultural production in the Soviet Union. Since that time, it has been maligned as totalitarian, lauded as emancipatory, dismissed as hackish, and reappropriated in a variety of ways—from homage to parody. This course offers an introduction to Socialist Realism and its legacies, beginning with its prehistory in the early Soviet avant-garde and other cultural movements, tracing its official adoption under Stalin, its reassessment in the late Soviet period, and its legacies after the fall of the Soviet Union. Special attention is paid to the interpretations of Socialist Realism in the emerging national cultures beyond the Russian SFSR. The course also examines select examples of the impact of Socialist Realism beyond the Soviet Union, particularly in the “Third World” during the era of Cold War cultural diplomacy. Questions for discussion include: How did Socialist Realism imagine, enforce, and unsettle hierarchies of gender, race, and ethnicity? What did Socialist Realism look like beyond literature—in film, visual art, architecture, and music? How did the imperative to use Socialist Realism connect to the Soviet project to create minority cultures that would be “national in form, socialist in content”? How did people outside the Second World receive and appropriate Socialist Realism? HU

*** RSEE 490a and RSEE 491b, The Senior Essay** Jinyi Chu

Preparation of the senior essay under faculty supervision. The essay grade becomes the grade for both terms of the course. Required of all seniors majoring in Russian and East European Studies. Credit for RSEE 490 only on completion of RSEE 491.

Sanskrit (SKRT)

*** SKRT 110a / LING 115a, Introductory Sanskrit I** Aleksandar Uskokov

An introduction to Sanskrit language and grammar. Focus on learning to read and translate basic Sanskrit sentences in Devanagari script. No prior background in Sanskrit assumed. L1 1½ Course cr

SKRT 130a / LING 138a, Intermediate Sanskrit I Aleksandar Uskokov

The first half of a two-term sequence aimed at helping students develop the skills necessary to read texts written in Sanskrit. Readings include selections from the *Hitopadesa*, *Kathasaritsagara*, *Mahabharata*, and *Bhagavadgita*. After SKRT 120 or equivalent. L3

*** SKRT 160a, Advanced Sanskrit: Readings in Poetry and Drama** Aleksandar Uskokov

The purpose of this course is to introduce the jargon of classical Sanskrit literature, specifically the interrelated genres of *mahā-kāvya* or court epic; *nāṭaka* or drama; and hagiography or *carita*. Special attention is given to matters of style and advanced morphology and syntax. Additionally, the course introduces scholastic techniques of text interpretation. Finally, the course looks at the phenomenon of retelling stories from Vedas, the epics, or the Buddhist *sūtras* in classical Sanskrit literature, combining thus advanced language instruction with learning cultural content. Prerequisites: previous terms of Sanskrit to L4 or equivalent. L5 RP

Science (SCIE)

Sinhala (SNHL)

*** SNHL 110a, Elementary Sinhala I** Staff

First half of a two-term sequence focusing on all four language skills. Basic grammar, sentence construction, simple reading materials, and use of everyday expressions. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

*** SNHL 130a, Intermediate Sinhala I** Staff

Further development of speaking, listening, reading, and writing skills in Sinhala. Communicative approach to the exchange of ideas and information, with early emphasis on oral skills and reading comprehension. Prerequisite: SNHL 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

SNHL 150a, Advanced Literary Sinhala I Staff

This course introduces the distinctive grammatical forms and vocabulary used in Literary Sinhala. While focused particularly on the development of reading skills, the course also introduces students to Literary Sinhala composition, builds students' listening comprehension of semi-literary Sinhala forms (such as those used in radio and TV news), and guides students in incorporating elements of the literary register of Sinhala in their spoken production. Prerequisite: SNHL 140, or equivalent. L5 RP

Slavic Languages and Literatures (SLAV)

*** SLAV 313a / LITR 210a / RSEE 313a / RUSS 313a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema,

which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

Sociology (SOCY)

*** SOCY 081a / ER&M 081a / MUSI 081a, Race and Place in British New Wave, K-Pop, and Beyond** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992–present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s–70s, British and American punk rock music (1970s–1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. SO

*** SOCY 100a, Introduction to Population Studies** Emma Zang

This course offers an introduction to population studies/demography. Population studies cover all aspects related to human populations. The topics that demographers or population scientists study range from health disparities in the United States, the impact of AIDS on population health in Africa, migration patterns from Latin America, the reasons behind sex-selective abortions in Asia, the implications of low fertility in Europe, and the socioeconomic impact of COVID-19. Understanding population dynamics is crucial to professionals in a diversity of careers and industries. For example, city planners, environmental engineers, and health policy experts all use demographic expertise about population growth, migration patterns, and health and longevity in decisions on issues such as how many schools a city should build, how much water a region needs over twenty years, and what type of public health initiatives would best serve a community. Professionals in business also rely on demographic knowledge to make decisions about which markets to enter, what products are needed, and how to best market their products. In this course, students explore the key concepts and measures used to study population dynamics. SC, SO o Course cr

SOCY 101b, Introduction to Sociology Philip Smith

The class opens a doorway to sociology as an academic discipline. This is the systematic and rigorous study of society at all levels from the interpersonal, through institutions, organizations, and groups, to the level of the nation and world system. We cover the major research methods, forms of explanation, core concepts, and theoretical models. Substantive topics include inequality, race, gender, networks, culture, deviance, social change, and social behaviors among others. SO o Course cr

SOCY 112a / AMST 115a / EDST 110a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO
o Course cr

SOCY 133a, Computers, Networks, and Society Scott Boorman

Comparison of major algorithm-centered approaches to the analysis of complex social network and organizational data. Fundamental principles for developing a disciplined and coherent perspective on the effects of modern information technology on societies worldwide. Software warfare and algorithm sabotage; blockmodeling and privacy; legal, ethical, and policy issues. No prior experience with computers required. SO
o Course cr

SOCY 138b / ANTH 140b / ER&M 241b, The Corporation Douglas Rogers

Survey of the rise, diversity, and power of the capitalist corporation in global contexts, with a focus on the 20th and 21st centuries. Topics include: the corporation as legal entity and the social and cultural consequences of this status; corporations in the colonial era; relationships among corporations, states, and non-governmental organizations in Western and non-Western contexts; anti-corporate critique and response; corporate social responsibility; and race, gender, and indigeneity. HU, SO
o Course cr

SOCY 144a / EDST 144a / ER&M 211a / EVST 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO
o Course cr

SOCY 151a / PLSC 290a, Foundations of Modern Social Theory Staff

Major works of social thought from the beginning of the modern era through the 1900s. Attention to social and intellectual concepts, conceptual frameworks and methods, and contributions to contemporary social analysis. Writers include W.E.B. Du Bois, Simone De Beauvoir, Adam Smith, Thomas Hobbes, Jean-Jacques Rousseau, Immanuel Kant, Emile Durkheim, Max Weber, and Karl Marx. SO
o Course cr

*** SOCY 169a, Visual Sociology** Philip Smith

Introduction to themes and methods in visual sociology. The role and use of visual information in social life, including images, objects, settings, and human interactions. Ethnographic photography, the study of media images, maps and diagrams, observation and coding of public settings, unobtrusive measures, and the use of internet resources. SO

SOCY 170a / AFAM 186a / LAST 214a / PLSC 378a, Contesting Injustice Staff

Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S.

and international settings. Intended primarily for first years and sophomores. SO
o Course cr

*** SOCY 205a, Politics and Culture** Yagmur Karakaya

This class explores the link between politics and culture, by delving into three subsets of political culture: civil society and power, political performance and communication, and collective action. Throughout the semester, we explore culture as a social force which can shift political life in new directions. Our deep engagement starts with civil society and power, specifically the American understanding of community, to see how civic Republicanism and radical individualism undergird participation in social life. Here, we deconstruct how Americans perceive themselves as political actors and members of a political community, and frame their participation in politics. In political performance and communication, we explore several topics: political speeches, populism as a style, media as a realm of political performance, and collective memory. Learning about the performative side of politics, with real life material, we familiarize ourselves with narratives and deep stories told by people across the political spectrum. In collective action, we look at social media and mobilization, environmental philanthropy, religion in political activism, and emotions. While focusing on case studies students become familiar with different approaches to culture. SO

SOCY 207b / AMST 200b / HUMS 165b / WGSS 200b, Topics in Human Sexuality

Joseph Fischel

In 1970, Yale professors and sexuality scholars Lorna and Philip Sarrel introduced what came to be their wildly popular lecture, "Topics in Human Sexuality." The course, offered at the height of the sexual revolution and shortly after Yale University admitted women undergraduates, was multipurpose: to teach students about pressing, contemporary social problems around sex, gender, and sexuality; to help students learn about their bodies, sexualities, and relationships; to direct students to resources and information about their sexual and reproductive health; and to advance the mission of a liberal arts education, namely, the cultivation of well-rounded, critically engaged, curious, participatory young citizens. This iteration of the course is inspired by the Sarrels' ambitions, even if we are unlikely to realize them in full. The course is offered in the spirit of a critical sexuality education, critical as in 1) theory – rather than practicum-driven, but nonetheless 2) urgent. As political movements that endanger transgender children, suppress sexual expression, and rescind reproductive rights gain traction, the course offers candid, careful focus on: abortion, sexual education, queer and trans kids, pornography, university sexual politics, hooking up, and breaking up. Along the way, we watch a season of Netflix's "Sex Education" together. The class (nonexclusively) focuses on social and political problems in the contemporary United States, and examines those problems by drawing upon scholarship in Gender & Sexuality Studies, American Studies, Sociology, Psychology, and Public Law. HU, SO

*** SOCY 275a, Climate Privilege: A Sophomore Seminar** Rene Almeling

There are massive and consequential inequalities between those who produce the most carbon and those who suffer the effects. In this discussion-based seminar designed for sophomores, students first review basic information about climate warming and learn about the emergence of the environmental justice approach, which foregrounds intersecting inequalities such as race and class. Then, they engage with interdisciplinary readings on privilege, complicity, and complacency to develop a more systematic understanding of "climate privilege" and how it contributes to forestalling the social,

political, economic, and cultural changes necessary to reduce climate warming. The course also involves a basic introduction and practice with selected social scientific research methods, including surveys, observations, and interviews. SO

*** SOCY 305a / ER&M 285a / LAST 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia

Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos – numbering more than 60 million in the U.S. – are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the aim of providing students the tools necessary to thoughtfully participate in current debates. SO

*** SOCY 331b / HIST 240b / RLST 347b / WGSS 291b, Sexual Minorities from Plato to the Enlightenment** Igor De Souza

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham. HU

*** SOCY 342a / AFAM 329a, Managing Blackness in a “White Space”** Elijah Anderson
“White space” is a perceptual category that assumes a particular space to be predominantly white, one where black people are typically unexpected, marginalized when present, and made to feel unwelcome—a space that blacks perceive to be informally “off-limits” to people like them and where on occasion they encounter racialized disrespect and other forms of resistance. This course explores the challenge black people face when managing their lives in this white space. SO

*** SOCY 390a / ER&M 360a / HLTH 370a / HSHM 432a / WGSS 390a, Politics of Reproduction** Rene Almeling

Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality. WR, SO

*** SOCY 410a / PLSC 410a, Political Protests** Maria Jose Hierro

The 2010s was the “decade of protest,” and 2019 capped this decade with an upsurge of protests all over the world. In 2020, amidst the Covid-19 pandemic, the US is witnessing the broadest protests in its history. What are the roots of these protests? Under what conditions does protest start? Why do people decide to join a protest? Under what conditions do protests succeed? Can repression kill protest movements? Focusing on recent protest movements across the world, this seminar addresses these, and other questions related to the study of political protest. SO

*** SOCY 471a, Individual Study** Rourke O'Brien

Individual study for qualified juniors and seniors under faculty supervision. To register for this course, each student must submit to the director of undergraduate studies a written plan of study that has been approved by a faculty adviser.

*** SOCY 491a, Senior Essay and Colloquium for Nonintensive Majors** Ramina Sotoudeh

Independent library-based research under faculty supervision. To register for this course, students must submit a written plan of study approved by a faculty adviser to the director of undergraduate studies no later than the end of registration period in the term in which the senior essay is to be written. The course meets biweekly, beginning in the first week of the term.

*** SOCY 493a, Senior Essay and Colloquium for Intensive Majors** Alex Manning

Independent research under faculty direction, involving empirical research and resulting in a substantial paper. Workshop meets biweekly to discuss various stages of the research process and to share experiences in gathering and analyzing data.

South Asian Studies (SAST)

*** SAST 020a / HIST 039a, Bombay/Mumbai: Life in a Megacity** Rohit De

Mumbai as a case study for the transformations brought by urbanization and modernity in Asia. Focus on how Mumbai's residents and its planners navigated the challenges of living in a rapidly growing cosmopolitan city and reflected it in their art and ideas. Themes include capitalism, globalization, British empire, religious pluralism, radical politics, organized crime, and Bollywood. Enrollment limited to first-year students. WR, HU

SAST 224b / HIST 396b, India and Pakistan since 1947 Rohit De

Introduction to the history of the Indian subcontinent from 1947 to the present. Focus on the emergence of modern forms of life and thought, the impact of the partition on state and society, and the challenges of democracy and development. Transformations of society, economy, and culture; state building; economic policy. HU o Course cr

SAST 256a / RLST 375a, Hindu Nationalism Supriya Gandhi

This course analyzes the development of Hindu nationalism from the nineteenth to the twenty-first centuries. Students interrogate the emergence of Hinduism as a religion, before exploring the reform and revivalist movements in the nineteenth century that paved the way for the articulation of Hindu nationalism. Students also read from key writings of several Hindu nationalist thinkers of the twentieth century and investigate the historical and social contexts leading to the emergence of Hindu nationalism as a

major political force. Topics include: colonialism, modernity, the idea of Hinduism, nationalist ideologies, gender, and religious violence. HU, SO

*** SAST 259b / MUSI 280b, Music of South Asia** Ameera Nimjee

An introduction to some of the music traditions that hail from South Asia—a region defined by the countries of India, Pakistan, Sri Lanka, Nepal, Bangladesh, Bhutan, Afghanistan, Maldives, and their diasporas. “Music” in this course is considered broadly, and refers to performance and ritual traditions in which music, movement, dance, poetry, and theater all figure. The course approaches music from the disciplinary vantage point of ethnomusicology, where music is studied with respect to its complex intersections with culture, daily life, and society. Course content is introduced weekly through a series of analytical lenses, such as gender, sexuality, caste, and migration, through which South Asian music can be understood in their social and cultural contexts. HU

*** SAST 303b / ANTH 383b, In Ordinary Fashion** Jane Lynch

Clothing fashions not only our bodies but also our experiences in and claims about the world. It has been used to define the nature and radical possibilities of indigeneity, anti-colonial nationalism, counter-cultural narratives, and capitalist critiques. At the same time, dress—and its social and legal regulation—also creates and reinforces social hierarchies, systems of morality, and forms of exclusion. This course centers these competing social realities and histories using clothing as a way into understanding the poetics and politics of everyday life. Readings include ethnographies and social histories of textiles, fashion, and the manufacture of garments including cases from India, Guatemala, Italy, China, Sri Lanka, Bangladesh, Trinidad, and the United States. SO

*** SAST 308b / ANTH 318b / URBN 412b, Peril and Possibility in the South Asian City** Kalyanakrishnan Sivaramakrishnan

For the first time in human history, at some point in the last decade a majority of humankind became city dwellers. A fifth of these city-dwelling masses inhabit the massive and massifying megacities of the Indian sub-continent. Karachi, Dhaka, and Bombay frequently threaten to be the most populous urban centers on earth, and it may only be faith in the accuracy of government census data that defers this dubious honor. For while these cities are plugged into the global flows of people, ideas, things, and capital; such developments also bring with them anomie, alienation, dispossession, and depredations. Historical social conflicts born of a century of European colonialism and millennia of caste society have in some cases been mitigated, in others intensified in ways both insidious and invidious. Much ink has been spilt on contouring both the perils and possibilities attending the urbanization of the sub-continent. This course explores a ground-up view of the many ways in which the urban denizens of these bustling cities where pasts and futures collide, experience this collision. While this course draws on interdisciplinary scholarly examinations engaging the urban emergent, it focuses on the realm of experience, desire and affect germinating in the city. Students sample ethnography, art, speculative fiction, and film to map out the textures of this complex and mutating fabric. In doing so we chart the emergence and application of new ideas and cultures, practices and constraints, identities and conflicts in the contemporary urban landscapes. SO

*** SAST 345a / GBL 226 / PLSC 197a, National Security in India in the Twenty-first Century** Sushant Singh

This course examines the state and dynamics of national security in India in the past two decades. As an emergent power, India is an important country in Asia, with its economic and geo-political strength noticed globally. A major share of the country's heft comes from its national security paradigm which has undergone a significant shift in the twenty-first century. This course intends to take a holistic look at the conceptions for the basis of India's national security, its evolution, the current challenges and its future course by exploring its various dimensions such as China, Pakistan, global powers, Indian Ocean region, Kashmir, nuclear weapons, civil-military relations, and defense preparedness. SO

*** SAST 474a / ENGL 368a / HIST 341Ja, The Novel and the Nation: Reading India in Vikram Seth's *A Suitable Boy*** Priyasha Mukhopadhyay and Rohit De

This course pairs two interconnected phenomena: the rise of the Indian Republic and the birth of the postcolonial novel. Over the course of the semester, we read a single primary text: Vikram Seth's *A Suitable Boy* (1993). Set in the 1950s in the aftermath of India's Independence and Partition, Seth's encyclopaedic novel is the story of four families brought together by a mother's search for a "suitable boy" for her daughter to marry. In the process, it builds a microcosm of an Indian society coming to terms with postcolonial statehood and weighing the aftereffects of British colonialism. Entwined in its plot about marriage, love, and relationships are some of the most urgent cultural and political concerns facing the new nation: legislative changes and land reforms, the violent aftermath of the Partition, secularism tainted by communal tensions, the disintegration of courtly forms of sociality, the reconstruction of city life, and the fate of the English novel in the postcolonial classroom. We read *A Suitable Boy* as literary critics and historians, pairing close readings of language and literary form with historical scholarship. Over the course of our discussions, we address the following questions: what is the relationship between the nation, the novel, and identity in the postcolonial world? How do we read narratives of "nation building" as literary and cultural constructions? What do we make of "literature" and "history" as disciplinary categories and formations? The seminar introduces students to methods of literary criticism and textual studies, and teaches them how to read a range of primary sources, from legislative debates, bureaucratic reports, newspapers, poetry, cinema, and radio. HU

*** SAST 491a, Senior Essay** Priyasha Mukhopadhyay

A semester-long research project completed under faculty supervision and resulting in a substantial paper.

Spanish (SPAN)

*** SPAN 060a, First-Year Colloquium: Literary Studies in Spanish** Noel Valis

Introduction to the study of literature in general and to some of the most important texts in Hispanic literature. Selected texts in Spanish include short stories, novels, lyric, and theater. Open to students who have placed into L5 courses. Counts toward the requirements of the Spanish major. Enrollment limited to first-year students. L5, HU

*** SPAN 110a, Elementary Spanish I** Staff

For students who wish to begin study of the Spanish language. Development of basic skills in understanding, speaking, reading, and writing through a functional approach to the teaching of Spanish grammar. Includes an introduction to the cultures (traditions, art, literature, music) of the Spanish-speaking world. Audiovisual materials are incorporated into class sessions. Conducted in Spanish. To be followed immediately by SPAN 120. L1 1½ Course cr

SPAN 120a, Elementary Spanish II Staff

Further development of understanding, speaking, reading, and writing skills. Class sessions incorporate short authentic texts in Spanish, audiovisual materials, and film. Cultural topics of the Spanish-speaking world (traditions, art, literature, music) are included. Conducted in Spanish. After SPAN 110 or in accordance with placement results. Admits to SPAN 130 or 145. L2 1½ Course cr

*** SPAN 125a, Intensive Elementary Spanish** Lourdes Sabé

An intensive beginning course in spoken and written Spanish that covers the material of SPAN 110 and 120 in one term. Conducted in Spanish. Admits to SPAN 130 or 145. Not open to students who have completed SPAN 110 or 120. L1, L2 RP 2 Course cr

SPAN 130a, Intermediate Spanish I Staff

Development of language proficiency in listening, speaking, reading, and writing through communicative activities rather than a sequence of linguistic units. Authentic Spanish language texts, films, and videos serve as the basis for the functional study of grammar and the acquisition of a broader vocabulary. Cultural topics are presented throughout the term. Prerequisites: Conducted in Spanish. Admits to SPAN 140. L3 1½ Course cr

*** SPAN 132a, Spanish for Heritage Speakers I** Sybil Alexandrov

A language course designed for students who have been exposed to Spanish—either at home or by living in a Spanish-speaking country—but who have little or no formal training in the language. Practice in all four communicative skills (comprehension, speaking, reading, writing), with special attention to basic grammar concepts, vocabulary building, and issues particular to heritage speakers. This course meets during *Reading Period*: the period between the last week of classes and finals week. Admission in accordance with placement results. L3

SPAN 140a, Intermediate Spanish II Staff

Continuation of SPAN 130. Development of increased proficiency in the four language skills. Greater precision in grammar usage, vocabulary enrichment, and expanded cultural awareness are achieved through communicative activities based on authentic Spanish-language texts, including a short novel. Conducted in Spanish. Admits to L5 courses. L4 1½ Course cr

*** SPAN 142a, Spanish for Heritage Speakers II** Sybil Alexandrov

Continuation of SPAN 132. Examination of complex grammar structures; consideration of problems particular to heritage speakers through the reading of both literary and journalistic texts. Practice in all communicative skills (comprehension, speaking, reading, writing). After SPAN 132 or in accordance with placement results. L4 RP

*** SPAN 200a, Policies and Politics in the Spanish-Speaking World** Staff

This course is a content-based course that looks to further increase your language proficiency and critical cultural awareness by engaging you with a wide array

of compelling texts and media (e.g., legal texts, journalistic and opinion pieces, film, podcasts, literature) from various communities in Latin America and Spain. Through critical analyses of these texts and media, as well as through conversations with native speakers of Spanish in different countries, this course gives you an insider's perspective of some of the most pressing political, social, and cultural issues in the Spanish-speaking world today. This course is organized into the following 4 thematic units: local perspectives from Latin American & Spanish cities; when quality education speaks a minority/minoritized language; healthcare as culture, healthcare as right; and let us write a Latin American constitution for all. Prerequisite: SPAN 140 or SPAN 142 or SPAN 145 or L5 placement L5

*** SPAN 221a, Spanish Language and Culture through Art** Rosamaria Leon

An advanced course designed to increase student's fluency in oral and written skills. Through the exploration of five art themes relevant to Spanish speaking countries, students review advanced points of Spanish grammar, focus on vocabulary enrichment, and learn the basic principles of academic composition. The course approach for learning is a project-based model which introduces a wide variety of texts: readings, visual art, podcast, music, videos. Students are required to register for a recitacion practice that consists of a weekly 40-minute conversation with students from Pontificia Universidad Católica del Perú. Prerequisite: AP with score of 5/ IB score of 7, Placement in L5 through Spanish Department placement exam or by having completed L4. L5, HU

*** SPAN 222a / LAST 222a, Legal Spanish** Mercedes Carreras

An introduction to Spanish and Latin American legal culture with a focus on the specific traits of legal language and on the development of advanced language competence. Issues such as human rights, the death penalty, the jury, contracts, statutory instruments, and rulings by the constitutional courts are explored through law journal articles, newspapers, the media, and mock trials. Enrollment limited to 18. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

*** SPAN 223a / LAST 223a, Spanish in Film: An Introduction to the New Latin American Cinema** Margherita Tortora

Development of proficiency in Spanish through analysis of critically acclaimed Latin American films. Includes basic vocabulary of film criticism in Spanish as well as discussion and language exercises. Enrollment limited to 18. L5

*** SPAN 227a / LAST 227a, Creative Writing** Mayte López

An introduction to the writing of fiction, poetry, and creative nonfiction, with a focus on developing techniques and abilities that are essential for crafting imaginative texts and honing self-expression. Through in-class tasks, substantive discussions on composition and craft, and analyses of contemporary Latinx, Latin American, and Spanish works, students enhance their writing skills and nurture their unique voices as writers. This course takes on the format of a workshop, with students receiving constructive feedback from both the instructor and their fellow writers. Conducted in Spanish. Enrollment limited to 15. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

SPAN 228a / ER&M 278a / LAST 228a, Borders & Globalization in Hispanophone Cultures Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources (including goods, knowledge, information, technologies, etc.). Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that constrain the access of excluded persons to resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts that may include treatises, maps, travel literature, visual culture, material culture (e.g., currency), law, music, and performance art, students investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. More broadly, we explore, describe, and trace the entanglements of bordering, globalizations, and knowledge production in Hispanophone cultures. Some of the questions that will guide our conversations are: What are (social) borders and what are the processes through which they persist? How do the effects of practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? What can we learn from indigenous peoples' responses to bordering process and globalization? Prerequisite: SPAN 140 or 145, or in accordance with placement results. The course is conducted entirely in Spanish. Readings are available electronically through Canvas and the University Library. To be conducted in Spanish. L5, HU

*** SPAN 232a / EVST 232a, Ecological Mindfulness: Poetics and Praxis in the Spanish-Speaking World** Sarah Glenski

What is our relationship with nature? What constitutes ecological mindfulness? Does the practice of ecological mindfulness constitute a poetics? Is art a form of ecological mindfulness? These are some of the questions that we consider as we examine the concept of ecological mindfulness as an intersection of poetics and praxis. Throughout the semester, we explore a wide array of artistic expressions (essays, short stories, sound, poetry, photography, painting, etc.), which allows us to both appreciate and interrogate the many ways in which interactions with nature are depicted and performed in different Hispanophone cultures. Our analysis of these texts is complemented by carrying out and reflecting upon our own practice of ecological mindfulness. This course is taught in Spanish. Prerequisite: SPAN 140, or SPAN 142, or SPAN 145, or equivalent L5, HU

*** SPAN 243a / LAST 243a, Advanced Spanish Grammar** Lissette Reymundi

A comprehensive, in-depth study of grammar intended to improve students' spoken and written command of Spanish. Linguistic analysis of literary selections; some English-to-Spanish translation. Enrollment limited to 18. L5

*** SPAN 250a, Cultural Inquiries: Spain, Latin America, and the Latinx World** Santiago Acosta

This course offers an in-depth exploration of the cultural landscapes of Latin America, Spain, and the Latinx world, providing students with specialized terminology and methodologies essential for studying cultural production. Organized around four

thematic modules, students engage with a variety of cultural forms, including literature, film, and visual art, spanning different historical periods and geographical regions. This course is mandatory for Spanish majors, bridging previous language and culture courses with advanced levels of study. HU

*** SPAN 261a / LAST 261a, Critical Contexts in Medieval and Early Modern Iberia**

Jesus Velasco

This course offers a panoramic introduction to Iberian written cultures from the medieval to early modern period (ca. 800–1700). Organized chronologically and guided by the methodology of close reading, we will analyze a wide range of concepts and topics relevant for understanding the multilingual, multireligious contexts in which literary and non-literary works were produced, including knowledge and hospitality; borders and negotiation; authority and power; autobiography and eyewitness narrative accounts; courtly love and love sickness; makeup and cosmetic theory; prostitution and public health; gender dissidence and transgressive bodies; masculinities and misogyny; economic crisis and decline; black Africans and the African diaspora; the Inquisition and religious orthodoxy. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the major in Spanish. L5, HU

*** SPAN 266a / LAST 266a, Critical Contexts in Colonial Latin America** Staff

This course offers a panoramic introduction to the written and visual cultural production of colonial Latin America (ca. 1492–1800). Organized chronologically and guided by the methodology of close reading, we analyze works of various genres and formats whose creators were of Indigenous, African, Spanish, and mestizo descent. We investigate how these texts reveal, critique, reimagine, or participate in the power relations of multiethnic societies founded on conquest, colonization, and slavery. Among our objectives is the development of the skills of critical analysis of texts written in Spanish, which we pursue through class discussion, oral presentations, and written and creative projects. L5, HU

*** SPAN 269a, Critical Contexts in Latinx Cultures** Staff

This course offers an in-depth exploration of Latinx cultures in the United States, with a primary focus on language, identity formation, and cultural expression. We analyze a rich and diverse selection of historical texts, literature, art, film, and digital media representing various Latinx communities, both locally at Yale and New Haven as well as more broadly in the United States. This course aims to empower students to become more informed and sensitive cultural interpreters, to advocate for Latinx communities, and to further advance their communicative competence in Spanish so they can better navigate and interpret the diverse linguistic and cultural landscapes of the Spanish-speaking United States. As we engage in critical discussions, conduct research, and complete creative projects, our goal is for students to identify and describe, with a high degree of detail, some of the products, practices, and perspectives of various Latinx communities in the United States; to articulate how Latinx identities formation connects to various forms of linguistic and cultural expression; and to learn to use several digital methods and tools to participate in the production and reproduction of Latinx cultures. Prerequisite: SPAN 140, 142, 145, or equivalent. L5, HU

*** SPAN 344a / LAST 344a, Narrative and Music in Hispanic Caribbean Culture**

Anibal González-Pérez

The development of the narrative genre in Cuba, the Dominican Republic, and Puerto Rico from its origins in the nineteenth century to the present. Focus on how music is represented and incorporated into the discourse of Hispanic Caribbean novels and stories. Authors include Villaverde, Carpentier, Cabrera Infante, Nicolás Guillén, Ana Lydia Vega, and Luis Palés Matos. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

*** SPAN 360a / AFAM 345a / AFST 363a / ER&M 252a, Our Guinea: Locating Africa in Early Iberian Archives** Staff

African coastlines were the first horizons of Iberian imperial expansion into the Atlantic, and eventually, the world. While the worlds made by Africans displaced by the slave trade and their descendants have received extensive attention in recent years, Africa itself rarely enters the frame. The histories that unfolded on the continent in many ways challenge our understandings of Spanish and Portuguese expansion and colonialism, shaped as they are by the “New World” paradigm of conquest and conversion. Were African societies part of the “New World” or the “Old World”? In this course we study an often-overlooked domain of Spanish and Portuguese imperialism and commerce from an approach that includes but does not limit itself to the study of slavery and enslaved Africans in the Americas. We read a selection of primary texts from the early modern Ibero-African archive, with a focus on texts produced about the African continent and Africans (and when possible, by Africans) in Spanish, and to a lesser extent Portuguese, seeking (1) to challenge existing narratives and frameworks for the study of precolonial Africa, but also (2) to see what kinds of African groups appear when we set aside our assumptions and generalizations. L5, HU TR

*** SPAN 365a / EVST 266a / HUMS 452a / LAST 350a, Ecologies of Culture: Latin American Environmental Aesthetics** Santiago Acosta

In the age of rising sea levels, mass extinction, and carbon-driven climate change, can culture and the arts remain unchanged? This course focuses on the intersections between aesthetics and ecological practices in the context of the Anthropocene, a proposed geological epoch wherein humans have become a major geological force shaping the planet. It challenges traditional approaches by examining how culture and the arts can help to understand and respond to environmental crises. Discussions and readings emphasize the role of culture and aesthetics as agents and producers of environmental knowledge, highlighting their potential to challenge socio-ecological relations. Throughout the semester, students explore various themes, including colonialism, anthropocentrism, human-animal relations, fossil capitalism, indigenous ontologies, and the impact of extractive industries on territories and bodies in Latin America, the Caribbean, and the Latinx world. Students engage with works by established and emerging artists, aiming to produce ecocritical knowledge about the current climate and environmental crisis. The course also offers a panoramic view of Latin American culture by examining some key historical events and authors whose works can shed light on cultural and ideological processes at the root of climate change. By the end of the semester, students can formulate research questions that are critical to the field of Latin American environmental humanities, as well as produce papers that

are relevant to a broader debate about culture and ecology. Lastly, the course hopes to motivate students—beyond the classroom—to examine their place in an increasingly warming world. **Taught in Spanish.** L5, HU

* **SPAN 367a / HIST 227a, The Spanish Civil War: Words and Images** Noel Valis
An introduction to the history and cultural and literary impact of the Spanish Civil War (1936–39), through national and international perspective and an analysis of the literature and culture produced during and after the conflict. The course is divided into four sections: the war “from within”, the war “from outside”, women in war and the memory of war. Authors include George Orwell, Ernest Hemingway, Javier Cercas, Mercè Rodoreda, Julio Llamazares, Ramón J. Sender and others; films: *The Spanish Earth*, *The Good Fight*, *El laberinto del fauno*, *Rojo y negro*; arte: *Guernika* (Picasso), *El rostro de la guerra* (Dalí), war posters. In Spanish. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

SPAN 404a / ANTH 264a / ARCG 264a, Aztec Archaeology and Ethnohistory

Oswaldo Chinchilla Mazariegos

An anthropological and ethnohistorical examination of the Aztec civilization that dominated much of Mexico from the fourteenth century until the Spanish Conquest of 1521. SO

* **SPAN 478a, Directed Readings and/or Individual Research** Lisa Voigt

Individual study under faculty supervision. The student must submit a bibliography and a written plan of study approved by the faculty adviser to the director of undergraduate studies. No reading or research course credit is granted without prior approval from the director of undergraduate studies. The student must meet with the instructor at least one hour a week. A final examination or essay is required.

* **SPAN 491a, The Senior Project** Lisa Voigt

A research project completed under faculty supervision and resulting in an essay of considerable length, or its equivalent in another medium, in Spanish.

Special Divisional Major (SPEC)

Statistics and Data Science (S&DS)

S&DS 100a or b, Introductory Statistics Robert Wooster

An introduction to statistical reasoning. Topics include numerical and graphical summaries of data, data acquisition and experimental design, probability, hypothesis testing, confidence intervals, correlation and regression. Application of statistical concepts to data; analysis of real-world problems. May not be taken after S&DS 101–106 or 109. QR

S&DS 123a or b / CPSC 123a or b / PLSC 351a or b / S&DS 523a or b, YData: An

Introduction to Data Science Ethan Meyers

Computational, programming, and statistical skills are no longer optional in our increasingly data-driven world; these skills are essential for opening doors to manifold research and career opportunities. This course aims to dramatically enhance knowledge and capabilities in fundamental ideas and skills in data science, especially computational and programming skills along with inferential thinking. YData is an introduction to Data Science that emphasizes the development of these skills while providing

opportunities for hands-on experience and practice. YData is accessible to students with little or no background in computing, programming, or statistics, but is also engaging for more technically oriented students through extensive use of examples and hands-on data analysis. Python 3, a popular and widely used computing language, is the language used in this course. The computing materials will be hosted on a special purpose web server. QR

*** S&DS 150a, Data Science Ethics** Elisa Celis

In this course, we introduce, discuss, and analyze ethical issues, algorithmic challenges, and policy decisions that arise when addressing real-world problems via the lens of data science. We grapple with the normative questions of what constitutes bias, fairness, discrimination, or ethics when it comes to data science and machine learning in applications such as policing, health, journalism, and employment. We incorporate technical precision by introducing quantitative measures that allow us to study how algorithms codify, exacerbate and/or introduce biases of their own, and study analytic methods of correcting for or eliminating these biases. Lastly, we study the social implications of these decisions, and understand the legal, political and policy decisions that could be used to govern data-driven decision making by making them transparent and auditable. We read critical commentary by practitioners, state-of-the-art technical papers by data scientist and computer scientists, and samples of legal scholarship, moral and ethical philosophy, readings in sociology, and policy documents. We often ground our discussions around recent case studies, controversies, and current events. Prerequisites: One from S&DS 238, S&DS 241, S&DS 242, or the equivalent; and one from S&DS 230, ECON 131, or the equivalent. Suggested courses: one from: CPSC 470, S&DS 365, ECON 429, CPSC 365, CPSC 366, or equivalent; and one from: EP&E 215, PHIL 175, PHIL 177, SOCY 144, PLSC 262, PLSC 320, or equivalent. SO

*** S&DS 160b / AMTH 160b / MATH 160b, The Structure of Networks** Staff

Network structures and network dynamics described through examples and applications ranging from marketing to epidemics and the world climate. Study of social and biological networks as well as networks in the humanities. Mathematical graphs provide a simple common language to describe the variety of networks and their properties. QR

*** S&DS 172a / EP&E 328a / PLSC 347a, YData: Data Science for Political Campaigns**

Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying politics, and opportunities to practice the data science skills presented in S&DS 123, YData.

QR

*** S&DS 173b, YData: Analysis of Baseball Data** Ethan Meyers

The fields of data science aim to extract insights from large data sets that often contain random variation. Baseball is a game that contains a high degree of randomness, and because professional baseball has been played since the 19th century, a large amount

of data has been collected about players' performance. In this class we use baseball data to understand key concepts in data science including data visualization, data wrangling, and statistical inference. To understand these concepts, we analyze data include season-level statistics going back to the 1870s, play-by-play statistics going back to the 1930s and pitch trajectory statistics going back to 2006. The course uses the Python programming language and is paced to be accessible to students who have previously taken or are currently enrolled in S&DS 123. QR

S&DS 220b, Introductory Statistics, Intensive Robert Wooster

Introduction to statistical reasoning for students with particular interest in data science and computing. Using the R language, topics include exploratory data analysis, probability, hypothesis testing, confidence intervals, regression, statistical modeling, and simulation. Computing taught and used extensively, as well as application of statistical concepts to analysis of real-world data science problems. MATH 115 is helpful but not required. While no particular prior experience in computing is required, strong motivation to practice and learn computing are desirable. QR

*** S&DS 224a, Dice, Data, and Decisions – The Statistics of Board Game Strategy**

Robert Wooster

This course provides a hands-on application of data analysis, simulation, and probability theory to the world of board games and traditional games of chance. Class lessons will be a combination of lecture, computing labs, and actually learning and playing games! Topics include analyzing board game strategy using probability theory, probabilistic modeling using simulation in R, and exploration and analysis of both simulated and real game board game data. One of S&DS 100, 123, 220, or 230, and experience in the R statistical programming language.

S&DS 230a or b, Data Exploration and Analysis Staff

Survey of statistical methods: plots, transformations, regression, analysis of variance, clustering, principal components, contingency tables, and time series analysis. The R computing language and Web data sources are used. Prerequisite: a 100-level Statistics course or equivalent, or with permission of instructor. QR

S&DS 238a, Probability and Bayesian Statistics Joseph Chang

Fundamental principles and techniques of probabilistic thinking, statistical modeling, and data analysis. Essentials of probability, including conditional probability, random variables, distributions, law of large numbers, central limit theorem, and Markov chains. Statistical inference with emphasis on the Bayesian approach: parameter estimation, likelihood, prior and posterior distributions, Bayesian inference using Markov chain Monte Carlo. Introduction to regression and linear models. Computers are used for calculations, simulations, and analysis of data. After or concurrently with MATH 118 or 120. QR

S&DS 240b, An Introduction to Probability Theory Elisa Celis

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic modeling. This course counts towards the Data Science certificate but not the Statistics and Data Science major. Prerequisite: MATH 115. QR

S&DS 241a / MATH 241a, Probability Theory Harrison Zhou

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic modeling. After or concurrently with MATH 120 or equivalent. QR

S&DS 242b / MATH 242b, Theory of Statistics Zhou Fan

Study of the principles of statistical analysis. Topics include maximum likelihood, sampling distributions, estimation, confidence intervals, tests of significance, regression, analysis of variance, and the method of least squares. Some statistical computing. After S&DS 241 and concurrently with or after MATH 222 or 225, or equivalents. QR

S&DS 265a, Introductory Machine Learning John Lafferty

This course covers the key ideas and techniques in machine learning without the use of advanced mathematics. Basic methodology and relevant concepts are presented in lectures, including the intuition behind the methods. Assignments give students hands-on experience with the methods on different types of data. Topics include linear regression and classification, tree-based methods, clustering, topic models, word embeddings, recurrent neural networks, dictionary learning and deep learning. Examples come from a variety of sources including political speeches, archives of scientific articles, real estate listings, natural images, and several others. Programming is central to the course, and is based on the Python programming language. Prerequisites: Two of the following courses: S&DS 230, 238, 240, 241 and 242; previous programming experience (e.g., R, Matlab, Python, C++), Python preferred. QR

S&DS 312a, Linear Models Zongming Ma

The geometry of least squares; distribution theory for normal errors; regression, analysis of variance, and designed experiments; numerical algorithms, with particular reference to the R statistical language. After S&DS 242 and MATH 222 or 225. QR

*** S&DS 317b, Applied Machine Learning and Causal Inference** P Aronow

We cover approaches to causal inference using machine learning. Machine learning methods include bagging, boosting, random forests, and neural networks. Causal topics include randomized experiments with and without noncompliance, observational studies with and without ignorable treatment assignment, instrumental variables, and regression discontinuity. Assignments provide students with hands-on experience with the methods. Applications are drawn from a variety of fields including political science, economics, public health, and medicine. Programming is central to the course and is based on the R programming language. Prerequisites: The equivalent of at least two of the following courses: S&DS 230, 238, 241 and 242; previous programming experience (e.g., R, Matlab, Python, C++), R preferred. Strong knowledge of OLS is assumed. SO

S&DS 351b / EENG 434b / MATH 251b, Stochastic Processes Ilias Zadik

Introduction to the study of random processes including linear prediction and Kalman filtering, Poisson counting process and renewal processes, Markov chains, branching processes, birth-death processes, Markov random fields, martingales, and random walks. Applications chosen from communications, networking, image reconstruction,

Bayesian statistics, finance, probabilistic analysis of algorithms, and genetics and evolution. Prerequisite: S&DS 241 or equivalent. QR

S&DS 352b / MB&B 452b / MCDB 452b, Biomedical Data Science, Mining and Modeling Mark Gerstein and Matthew Simon

Techniques in data mining and simulation applied to bioinformatics, the computational analysis of gene sequences, macromolecular structures, and functional genomics data on a large scale. Sequence alignment, comparative genomics and phylogenetics, biological databases, geometric analysis of protein structure, molecular-dynamics simulation, biological networks, microarray normalization, and machine-learning approaches to data integration. Prerequisites: MB&B 301 and MATH 115, or permission of instructor. SC

S&DS 361b / AMTH 361b, Data Analysis Brian Macdonald

Selected topics in statistics explored through analysis of data sets using the R statistical computing language. Topics include linear and nonlinear models, maximum likelihood, resampling methods, curve estimation, model selection, classification, and clustering. Extensive use of the R programming language. Experience with R programming (from e.g. S&DS 106, S&DS 220, S&DS 230, S&DS 242), probability and statistics (e.g. 106, 220, 238, 241, or concurrently with 242), linear algebra (e.g. MATH 222, MATH 225, MATH 118), and calculus is required. This course is a prerequisite for S&DS 425 and may not be taken after S&DS 425. QR

S&DS 363b, Multivariate Statistics for Social Sciences Jonathan Reuning-Scherer

Introduction to the analysis of multivariate data as applied to examples from the social sciences. Topics include principal components analysis, factor analysis, cluster analysis (hierarchical clustering, k-means), discriminant analysis, multidimensional scaling, and structural equations modeling. Extensive computer work using either SAS or SPSS programming software. Prerequisites: knowledge of basic inferential procedures and experience with linear models. QR

S&DS 364b / AMTH 364b / EENG 454b, Information Theory Staff

Foundations of information theory in communications, statistical inference, statistical mechanics, probability, and algorithmic complexity. Quantities of information and their properties: entropy, conditional entropy, divergence, redundancy, mutual information, channel capacity. Basic theorems of data compression, data summarization, and channel coding. Applications in statistics and finance. After STAT 241. QR

S&DS 365a, Intermediate Machine Learning John Lafferty

S&DS 365 is a second course in machine learning at the advanced undergraduate or beginning graduate level. The course assumes familiarity with the basic ideas and techniques in machine learning, for example as covered in S&DS 265. The course treats methods together with mathematical frameworks that provide intuition and justifications for how and when the methods work. Assignments give students hands-on experience with machine learning techniques, to build the skills needed to adapt approaches to new problems. Topics include nonparametric regression and classification, kernel methods, risk bounds, nonparametric Bayesian approaches, graphical models, attention and language models, generative models, sparsity and manifolds, and reinforcement learning. Programming is central to the course, and is based on the Python programming language and Jupyter notebooks. Prerequisites: a background in probability and statistics at the level of S&DS 242; familiarity with the

core ideas from linear algebra, for example through Math 222; and computational skills at the level of S&DS 265 or CPSC 200. QR

S&DS 400a / MATH 330a, Advanced Probability Sekhar Tatikonda

Measure theoretic probability, conditioning, laws of large numbers, convergence in distribution, characteristic functions, central limit theorems, martingales. Some knowledge of real analysis assumed. QR

S&DS 410a, Statistical Inference Staff

A systematic development of the mathematical theory of statistical inference covering methods of estimation, hypothesis testing, and confidence intervals. An introduction to statistical decision theory. Prerequisite: level of S&DS 241.

*** S&DS 425a or b, Statistical Case Studies** Staff

Statistical analysis of a variety of statistical problems using real data. Emphasis on methods of choosing data, acquiring data, assessing data quality, and the issues posed by extremely large data sets. Extensive computations using R statistical software. Prerequisites: S&DS 361, and prior course work in probability, statistics, and data analysis (e.g. 363, 365, 220, 230, etc., equivalent courses, or equivalent research/internship experience). Enrollment limited; requires permission of the instructor. QR

S&DS 431a / AMTH 431a / ECON 431a, Optimization and Computation Zhuoran Yang

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

S&DS 432b, Advanced Optimization Techniques Staff

This course covers fundamental theory and algorithms in optimization, emphasizing convex optimization. Topics covered include convex analysis; duality and KKT conditions; subgradient methods; interior point methods; semidefinite programming; distributed methods; stochastic gradient methods; robust optimization; and an introduction to nonconvex optimization. Applications accepted from statistics & data science, economics, engineering, and the sciences. Prerequisites: Knowledge of linear algebra, such as MATH 222, 225; multivariate calculus, such as MATH 120; probability, such as S&DS 241/541; optimization, such as S&DS 431/631; and, comfort with proof-based exposition and problem sets.

*** S&DS 480a or b, Individual Studies** Sekhar Tatikonda

Directed individual study for qualified students who wish to investigate an area of statistics not covered in regular courses. A student must be sponsored by a faculty member who sets the requirements and meets regularly with the student. Enrollment requires a written plan of study approved by the faculty adviser and the director of undergraduate studies.

S&DS 491a and S&DS 492b, Senior Project Brian Macdonald

Individual research that fulfills the senior requirement. Requires a faculty adviser and DUS permission. The student must submit a written report about results of the project.

Tamil (TAML)

* TAML 110a, Introductory Tamil I

 Staff

An in-depth introduction to modern Tamil, focusing on skills in comprehension, speaking, reading, and writing as well as on cultural understanding. Course work includes graded texts, written assignments, audiovisual material, and computer-based exercises. No prior background in Tamil assumed. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Credit only on completion of TAML 120. L1 1½ Course cr

Theater, Dance, and Performance Studies (THST)

* THST 098a, Composing and Performing the One Person Play

 Hal Brooks

First-year actors, playwrights, directors, and even students who have never considered taking a theater class, create their own work through a combination of reading, analysis, writing, and on-your-feet exercises. Students read texts and view performances that are generated by one actor in an attempt to discover the methodology that works best for their own creations. The course culminates with a midterm and final presentation created and performed by the student. Enrollment limited to first-year students. HU

* THST 099a / FILM 045a, Dance on Film

 Emily Coates

An examination of dance on film from c. 1920 to the present, including early Hollywood pictures, the rise of Bollywood, avant-garde films of the postwar period, translations of stage choreography to screen, music videos, and dance film festivals. The impact of industry, circulation and audience, aesthetic lineages, and craft in the union of the two mediums. Students develop an original short film for a final class project. No prior dance or filmmaking experience necessary. Enrollment limited to first-year students. WR, HU

THST 110a, Collaboration

 Hal Brooks and Renee Robinson

This foundational course introduces collaborative techniques at the core of topics, domains, and practices integral to the major in Theater and Performance Studies. We explore the seeds of performance from its basic essence as human expression, to movement, text, and storytelling, gradually evolving into collectively created works of performance. Techniques and readings may be drawn from improvisation, dance, music, design and spoken word contexts, and will encourage cohort building, critical reflection, and the join of individual and collective artistic expression. Guests from within and outside performance disciplines enhance the potential to investigate crossover between different media. HU RP

* THST 129a or b / ENGL 129a or b / HUMS 127a or b / LITR 168a or b, Tragedy in the European Literary Tradition

 Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family,

gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** THST 200a, Introduction to Theatrical Violence** Michael Rossmly and Kelsey Rainwater

Engagement in a theoretical and practical exploration of depicting violence in theater. Actors learn to execute the illusions of violence on stage both safely and effectively, and the skills of collaboration, partner awareness, concentration, and impulse response. Preference given to Theater Studies majors.

*** THST 210a, Performance Concepts** Hal Brooks and Sohina Sidhu

A studio introduction to the essential elements of performance. Grounded in the work of major twentieth- and twenty-first-century practitioners and theorists, this course guides students in exercises designed to cultivate physical expression, awareness of time and space, ensemble building, character development, storytelling, vocal production, embodied analysis, and textual interpretation. It is a prerequisite for several upper-level courses in Theater and Performance Studies including THST 211 and THST 300. It is open to students in all majors and in all years of study, with the permission of the instructor. RP

*** THST 215a / ENGL 434a, Writing Dance** Brian Seibert

The esteemed choreographer Merce Cunningham once compared writing about dance to trying to nail Jello-O to the wall. This seminar and workshop takes on the challenge. Taught by a dance critic for the New York Times, the course uses a close reading of exemplary dance writing to introduce approaches that students then try themselves, in response to filmed dance and live performances in New York City, in the widest possible variety of genres. No previous knowledge of dance is required. WR, HU

*** THST 224a / MUSI 228a, Musical Theater Performance I** Annette Jolles and Dan Egan

The structure, meaning, and performance of traditional and contemporary musical theater repertoire. Focus on ways to “read” a work, decipher compositional cues for character and action, facilitate internalization of material, and elicit lucid interpretations. This semester's course also embraces the online format to address performing and recording virtually as a vital tool in the current field of musical theater. The course combines weekly synchronous learning and private coaching sessions. For singers, music directors, and directors. Admission by audition and application only. Auditions/interviews will be scheduled during the first two weeks of August. May be repeated for credit. For audition information contact dan.egan@yale.edu. HU RP

*** THST 236a / MUSI 185a, American Musical Theater History** Dan Egan

Critical examination of relevance and context in the history of the American musical theater. Historical survey, including nonmusical trends, combined with text and musical analysis. Limited enrollment. Interested students should contact dan.egan@yale.edu for application requirements. WR, HU

*** THST 239a / AFAM 342a / ENGL 239a, African American Drama through 1959**

Shane Vogel

This course surveys the formal development and major themes of African American drama from the antebellum period through 1959. We examine how dramatists and performers reimagined the various meanings of Blackness in the U.S. public sphere, as well as individual and collective acts of self-fashioning on and off the stage. Special attention is given to aesthetic experimentation and its relationship to political theater; transformations of genre and form; Black dramatic theory; historical drama; diasporic connections and disconnections; the relationship between music, dance, spectacle, and drama; anti-lynching drama and folk drama; representations of class, gender, and sexuality; inter- and intra-racial conflict; Black radical theatre in the New Deal; and institutional histories of key Black theatre companies. HU

THST 241b / FILM 232b, Classical Hollywood Narrative 1920–1960 Staff

Survey of Classical Hollywood films. Topics include history of the studio system; origin and development of genres; the film classics of the Classical Hollywood period, and the producers, screenwriters, directors, and cinematographers who created them. WR, HU
o Course cr

*** THST 293a / GMAN 290a / HUMS 171a, Politics of Performance** Sophie Schweiger

The stage is, and always has been, a political space. Ever since its beginnings, theatre has offered ways to rethink and criticize political systems, with the stage serving as a “moral institution” (Schiller) but also as a laboratory for models of representation. The stage also delineates the limits of representation for democratic societies (Rousseau), as it offers the space for experimentation and new modes of being together, being *ensemble*. The stage also raises the question of its own condition of possibility and the networks it depends on (Jackson). This course revisits the history of German and German speaking theatre since the Enlightenment, and discusses the stage in its relationship to war, the nation state, the social question, femicide and gender politics, the Holocaust, globalization, and 21st-century migration. Readings include works by G.E. Lessing, Friedrich Schiller, Hugo v. Hofmannstahl, Georg Büchner, Peter Weiss, Ida Fink, Dea Lohar, Elfriede Jelinek, Christoph Schlingensief, Heiner Müller, and Elsa Bernstein. HU TR

*** THST 300a, The Director and the Text I** Dexter Singleton

Practicing fundamentals of the art of directing: close reading and deep text analysis in search of physical action; rehearsal preparation; mixing the elements of composition (scenography, light, sound & music, projections, movement, language); and most crucially—the work with the actor. Weekly assignments (some labor intensive), discussion of same, and regular on-the-floor experiments. While concentrating on basic practices, the course is designed for students to seek out an initial understanding of individual, even idiosyncratic, artistic directorial voice. Prerequisite: THST 210. HU

*** THST 301a, Making The Postdramatic Theatre: Radical Adaptations** David Chambers

This practicum course (theory and practice) will focus on the contemporary Postdramatic Theatre, and in particular the radical adaptation of works from many fields: fiction, poetry, theatre, and film. Each week a new case study will be examined through readings, videos, presentations, discussion, and students in class making their own pieces “in the manner of” the artist(s) under consideration. From the global literary canon we will look at radical theatrical adaptations of Dante,

Shakespeare, Anton Chekhov, Thornton Wilder, Dion Bouicault and others, as well as investigate postdramatic devising companies such as Complicité (UK), and Gob Squad (Germany). We will also delve into the “Live Cinema” pieces of Katie Mitchell (UK/Germany) and the powerful opera stagings of Robert Wilson (US). In each case, we will be investigating the “scream” of the production—the artistic intention behind the making of the piece—and physically exploring the rehearsal processes through which it was made. The throughline supposition here is that the material chosen by the artist(s) becomes a *pre*-text for performance games, radical interpretations, artistic innovation, and cultural disruption. Permission of instructor is required. HU RP

*** THST 314a / LITR 210a / RSEE 313a / RUSS 313a / SLAV 313a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

*** THST 315a / ENGL 211a, Acting Shakespeare** James Bundy

This practical studio class aims to build the actor’s comprehension and confidence in Shakespeare’s language, while developing each artist’s emotional, intellectual, and imaginative responsiveness to the demands and joys of acting Shakespeare. At the same time, we will explore how, as theater artists, we each bring our own history and psyche to Shakespeare’s stories and characters, so they may still speak to us and to our audiences today. The course will include work on sonnets, monologues, and scenes. Admission by audition. Preference to seniors and juniors; open to nonmajors. See Canvas for application. HU RP

*** THST 318b / MUSI 340b, Analyzing, Directing, and Performing Early Opera** Grant Herreid and Toni Dorfman

Study of a seventeenth-century Venetian opera, with attention to structural analysis of text and music. Exploration of period performance practice, including rhetorical expression, musical style, gesture, dance, Italian elocution, and visual design. Production of the opera in conjunction with the Yale Baroque Opera Project. Open to all students, but designed especially for singers, instrumentalists, and directors. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu. HU RP

*** THST 319a / AFAM 313a, Embodying Story** Renee Robinson

The intersection of storytelling and movement as seen through historical case studies, cross-disciplinary inquiry, and studio practice. Drawing on eclectic source materials

from different artistic disciplines, ranging from the repertory of Alvin Ailey to journalism, architectural studies, cartoon animation, and creative processes, students develop the critical, creative, and technical skills through which to tell their own stories in movement. No prior dance experience necessary. Limited Enrollment. See Canvas for application. HU

*** THST 320a / ENGL 453a, Playwriting** Donald Margulies

A seminar and workshop on reading for craft and writing for the stage. In addition to weekly prompts and exercises, readings include modern American and British plays by Pinter, Mamet, Churchill, Kushner, Nottage, Williams, Hansberry, Hwang, Vogel, and Wilder. Emphasis on play structure, character, and conflict. RP

*** THST 321a / ENGL 477a, Production Seminar: Playwriting** Deborah Margolin

A seminar and workshop in playwriting with an emphasis on exploring language and image as a vehicle for “theatricality.” Together we will use assigned readings, our own creative work, and group discussions to interrogate concepts such as “liveness,” what is “dramatic” versus “undramatic,” representation, and the uses and abuses of discomfort.

*** THST 322a / ENGL 481a, Advanced Playwriting** Branden Jacobs-Jenkins

A seminar and workshop in advanced playwriting that furthers the development of an individual voice. Study of contemporary and classical plays to understand new and traditional forms. Students write two drafts of an original one-act play or adaptation for critique in workshop sessions. Familiarity with basic playwriting tools is assumed. Open to juniors and seniors, nonmajors as well as majors, on the basis of their work; priority to Theater Studies majors. Writing samples should be submitted to the instructor before the first class meeting. Prerequisite: THST 320 or 321, or a college seminar in playwriting, or equivalent experience. RP

*** THST 324a, Playwright-Director Laboratory** Toni Dorfman

An exploration of the collaboration between the director and the playwright in the creation of new work. Particular attention to the shaping of dramatic action, structure, and characters. Short scenes are written, staged, critiqued, and revised. Prerequisites: THST 210; for directors: THST 300; for playwrights: THST 320, 321; or with permission of instructor. RP

*** THST 335a / AFST 435a, West African Dance: Traditional to Contemporary** Lacina Coulibaly

A practical and theoretical study of the traditional dances of Africa, focusing on those of Burkina Faso and their contemporary manifestations. Emphasis on rhythm, kinesthetic form, and gestural expression. The fusion of modern European dance and traditional African dance. Admission by audition during the first class meeting. HU

*** THST 340a, Ballet Now** Emily Coates and Daniel Ulbricht

A practical investigation of seminal ballets in the repertory of New York City Ballet. Tracing a sweeping history of artistic innovation from the early twentieth century to the present, this course covers the technique and aesthetic details that constitute New York City Ballet's style and follow the ways that these stylistic strengths are applied and transformed in the contemporary ballets of the 21st century. Repertory excerpts move through foundational works by George Balanchine and Jerome Robbins to ballets created in the past fifteen years by some of the most prominent ballet choreographers working today. Prior dance training required. Admission is by audition during the first class meeting. HU

*** THST 357a, History and Theory of Performer Training** Katherine Profeta

This seminar offers a look at selected ways theater and dance performers have been trained and rehearsed within the Euro-American tradition over the past century-and-a-half. Behind every hour of live public performance are hidden hours and hours spent in schools and rehearsal rooms, establishing well-worn patterns of use for body/mind, and determining highly variable standards for what will be considered desirable, undesirable, and exceptional in performance. In this seminar we historicize different modes of performer training, seeking to understand where they come from and what assumptions they are built on. We read contemporary theorizations of performer training (or, where they don't exist, devise them ourselves). The immediate practical result should be a better understanding of the working methods of our collaborators as performing artists; the larger results should include a more complete historical understanding of performer training and a philosophical appreciation of what exactly it means to perform. The seminar is designed for Juniors and Seniors with performance experience (curricular or extracurricular), and, by special permission, first-year, sophomore and/or graduate students with the same. HU

*** THST 358a, Introduction to Lighting Design** Jiyoun Chang and Hal Brooks

Exploration of the aesthetics and techniques of professional stage lighting. Priority to Theater Studies majors. RP

*** THST 361a / EDST 361a, Production Seminar: Theater in Education** Nathan Roberts and Deborah Margolin

Centering on the creation of a new production of Aurand Harris's *Arkansaw Bear*, this studio course will explore foundational Theatre in Education (TIE) theories and methods to bring performance and enrichment materials to New Haven area school children. Open to all majors, with opportunities for students to engage as performers (actors, acrobats, musicians) and designers, and to explore dramaturgy and production logistics through a small-scale educational tour, in conversation with regional leaders in the field. HU

*** THST 387a, Choreography in Practice and Theory** Lacina Coulibaly

A seminar and workshop in dance-theater composition. Focus on the history of dance composition, tools for generating and interpreting movement, basic choreographic devices, and dance in dialogue with media, music, and other art forms. Choreographic projects developed over the course of the term are presented in a final performance. Admission by application. May be repeated for credit. HU RP

*** THST 388a / HUMS 178a, Revenge Tragedy and Moral Ambiguity** Toni Dorfman

A study of plays and films variously construed as revenge tragedy that raise aesthetic and ethical issues, including genre, retribution, "just wars," public vs. private justice, and the possibility of resolution. How questions of crime, punishment, and justice have been posed in drama, from classical Greece through the twentieth century. HU

*** THST 411a, Special Topics in Performance Studies** Elise Morrison

This course accompanies the themed speaker series for the Performance Studies Working Group, a weekly meeting convened by faculty in Theater and Performance Studies and the Drama School's Dramaturgy and Dramatic Criticism program. For Fall 2024, the theme is "Eco Somatics." This concept invites inquiry into embodied relationships and somatic registers of communication with environments around us. Pairing the work of Bessel Van der Kolk and other pioneers of somatic therapy with

ecological activism and science, the course will trace shifts in contemporary discourse and practice towards the “soma” (the Greek concept that distinguishes the body from the mind) and consider how they indicate a growing need to include somatic engagements with environmental and interspecies partnerships in our cultural decisions and performance making. With a range of invited speakers sharing recent work on this theme—including partners of Arakawa and Gins “Reversible Destiny” architecture; disability and performance scholar Petra Kuppers on “Eco Soma,” and ornithologist Richard Prum on performativity in biological natural selection—we will consider how embodied processes of evolution, healing, and creativity partner with the earth itself as the largest body we as a species interact with on a daily basis. Students enrolled for credit complete weekly readings based on that week’s scholarship. They write weekly written responses and a final paper, which they present at the final PSWG meetings.

HU RP

*** THST 414a, Lyric Writing for Musical Theater** Michael Korie and Dan Egan

The craft of lyric writing in musical theater, opera, and crossover works. Both historical models and new composition used as objects of study. Analysis of song form and placement, and of lyric for character, tone, and diction. Creation of lyrics in context. Noted composers and lyricists of produced musical theater works join the class periodically to comment on the work created. Students also have the opportunity to conceive an original work of musical theater, a crossover work, or an opera libretto, and create portions of the score with original lyrics and music by student composers, with whom the writers will collaborate. Limited enrollment. Interested students should write to dan.egan@yale.edu for application requirements. May not be repeated for credit.

HU RP

*** THST 416a / ENGL 384a / FILM 461a / LITR 364a, British Cinema** Katie

Trumpener

Survey of the British film tradition, emphasizing overlap with literature, drama, and art; visual modernism; documentary’s role in defining national identity; “heritage” filmmaking and alternative approaches to tradition; and auteur and actors’ cinema. HU RP

*** THST 438a, Theater and Therapy in the Aftermath of War** Elise Morrison

From the burgeoning field of Drama Therapy to the psychological basis of much actor training to the prevalence of theater productions being made with, for, and about people that have experienced wartime trauma, the practices of theater and therapy have long borrowed terminology, methodology, and conceptual frameworks from one another. This course traces the shared rhetoric and dramaturgical similarities between theater and psychotherapy, paying particular attention to how each/both are being applied to the global epidemic of post-traumatic stress in the aftermath of war. Students engage with contemporary practitioners of drama therapy, study recent theater productions created with and/or for combat veterans and refugees, and create their own research projects that explore the intersections of theater and therapy. HU

*** THST 452a, Acting: Constructing a Character** Gregory Wallace

A practical exploration of the internal and external preparation an actor must undergo to effectively render the moment-to-moment life of a given character. Focusing on monologues, scenes, and group explorations of text the class engages in a rigorous investigation of how the actor uses the self as the foundation for transformation. Course consists of close readings, research presentations, rehearsals and in-class

scene presentations. Preference to senior and juniors. Open to non-majors. Limited enrollment. Admission by audition. See Syllabus page on Canvas for audition information and requirements. HU

*** THST 457a and THST 458b / AMST 463a and AMST 464b / EVST 463a and EVST 464b / FILM 455a and FILM 456b, Documentary Film Workshop** Staff

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

*** THST 471a, Directed Independent Study** Hal Brooks

An independent study should generally conform to the standards and procedures of the senior project, THST 491, even when not undertaken by a senior. If the independent study is a performance or directing project, the adviser visits rehearsals and performances at the mutual convenience of adviser and student. The project must be accompanied by an essay of about fifteen pages, worth about half the final grade. Although the paper's requirements vary with the project and its adviser, it must be more than a rehearsal log. The paper typically engages interpretative and performance issues as revealed in other productions of the work (if they exist). The writing should be concomitant with rehearsal, to enable each to inform the other, and a draft must be presented to, and commented on by, the adviser at least a week before – not after – the final performance. The final version of the paper, incorporating adjustments and reflections, should be turned in to the adviser no later than ten days after the performance closes, and no later than the first day of the final examination period. An essay project entails substantial reading, at least four meetings with the adviser, and a paper or papers totaling at least twenty pages. A playwriting project normally requires twenty new script pages every two weeks of the term and regular meetings with the adviser. A final draft of the entire script is the culmination of the term's work. Application forms are available from the director of undergraduate studies. Juniors may use one term of these courses to prepare for their senior projects. Open to juniors and seniors. Prerequisites: THST 210 and one seminar.

*** THST 491a, Senior Project in Theater, Dance, and Performance Studies** Nathan Roberts and Dan Egan

Students must submit proposals for senior projects to the Theater Studies office by the deadline announced by the director of undergraduate studies. Attendance at weekly section meetings is required for all students undertaking production projects. Application forms are available in the Theater Studies office, 220 York St.

*** THST 492a, Senior Seminar in Theater, Dance, and Performance Studies** Shilarna Stokes

This seminar/workshop supports senior majors in Theater, Dance, and Performance Studies who are pursuing thesis projects in three broad areas: 1) Literature, History, Theory, and Criticism; 2) Writing for Performance-based Art and Media; 3) Performance Research, Analysis, and Design. Seniors in this course present work-in-progress, receive peer and instructor feedback, and engage in discussions concerning a range of relevant topics.

Tibetan (TBTN)

* TBTN 110a, Elementary Classical Tibetan I Staff

First half of a two-term introduction to classical Tibetan. The script and its Romanization, pronunciation, normative dictionary order, and basic grammar. Readings from Tibetan literature and philosophy. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1

* TBTN 130a, Intermediate Classical Tibetan I Staff

Continuation of TBTN 120. Introduction to more complex grammatical constructions. Further development of reading ability in various genres of Tibetan literature written prior to 1959. Prerequisite: TBTN 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

TBTN 150a, Advanced Classical Tibetan I Staff

This two-semester sequence, of which this class is the first half, is designed to assist students who already have the equivalent of at least two-years of Classical Tibetan language study. The course is intended to build on this foundation so that students gain greater proficiency in reading a variety of classical Tibetan writing styles and genres, including texts relevant to their research. The course readings focus primarily on texts written during the Ganden Phodrang period up through the 19th century. Over two semesters, the class covers three sets of materials: 1) famous or otherwise influential classical works (mostly historical, some literary); 2) important historical texts that have come to light in recent years but are scarcely known in western scholarship; and 3) classical language texts that support the research needs of enrolled students. Classical Tibetan grammar and other conventions are identified and discussed in the course of the readings. Prerequisite: TBTN 140, or equivalent. L5 RP

Turkish (TKSH)

TKSH 110a, Elementary Modern Turkish I Meryem Yalcin

Integration of basic listening, reading, speaking, and writing skills through a variety of functional, meaningful, and contextual activities. Students become active users of modern Turkish and gain a deeper understanding of Anatolian culture through lessons based on real-life situations and authentic materials. L1 1½ Course cr

TKSH 120b, Elementary Modern Turkish II Meryem Yalcin

Continuation of TKSH 110. Prerequisite: TKSH 110 or permission of instructor. L2 1½ Course cr

TKSH 130a, Intermediate Turkish I Meryem Yalcin

Continued study of modern Turkish, with emphasis on advanced syntax, vocabulary acquisition, and the beginnings of free oral and written expression. Prerequisite: TKSH 120 or permission of instructor. L3 1½ Course cr

TKSH 140b, Intermediate Turkish II Meryem Yalcin

Continuation of TKSH 130. Prerequisite: TKSH 130. L4 1½ Course cr

TKSH 150a, Advanced Turkish I Meryem Yalcin

An advanced language course focused on improving students' reading, writing, listening, and speaking skills in modern Turkish. Extensive study of vocabulary and idiomatic expressions. Readings from genres including academic articles, critical essays, literature, newspaper articles, and formal business writing. Screening of films, documentaries, and news broadcasts. Prerequisite: TKSH 140. L5 RP

Twi (TWI)

Ukrainian (UKRN)

UKRN 110a, Elementary Ukrainian I Olha Tytarenko

The first half of a two-term introduction to Ukrainian for students with no previous knowledge of the language. Emphasis on speaking, reading, listening, and writing skills. Topics, vocabulary, and grammar lessons based on everyday linguistic interactions. L1 RP 1½ Course cr

UKRN 120b, Elementary Ukrainian II Olha Tytarenko

The second half of a two-term introduction to Ukrainian for students with no previous knowledge of the language. Emphasis on speaking, reading, listening, and writing skills. Topics, vocabulary, and grammar lessons based on everyday linguistic interactions. Prerequisite: UKRN 110 or equivalent. L2 RP 1½ Course cr

*** UKRN 130a, Intermediate Ukrainian I** Staff

Review and reinforcement of grammar fundamentals and of core vocabulary pertaining to common aspects of daily life. Special attention to verbal aspect and verbs of motion. Emphasis on continued development of oral and written communication skills on topics such as the self, family, studies and leisure, travel, and meals. Prerequisite: UKRN 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information.

L3 RP 1½ Course cr

*** UKRN 140b, Intermediate Ukrainian II** Staff

Continued review and reinforcement of grammar fundamentals and of core vocabulary pertaining to common aspects of daily life. Special attention to verbal aspect and verbs of motion. Emphasis on further development of oral and written communication skills on topics such as the self, family, studies and leisure, travel, and meals. UKRN 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

*** UKRN 150a, Advanced Ukrainian I** Staff

The course is for students who wish to develop their mastery of Ukrainian. Original texts and other materials drawn from classical and contemporary Ukrainian literature, press, electronic media, film, and the Internet are designed to give students familiarity with linguistic features typical of such functional styles as written and spoken, formal and informal, scientific and newspaper language, jargon, slang, etc. Ukrainian 140, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L5 RP

UKRN 160b, Advanced Ukrainian II Staff

The course is for students who wish to develop their mastery of Ukrainian. Original texts and other materials drawn from classical and contemporary Ukrainian literature, press, electronic media, film, and the Internet are designed to give students familiarity with linguistic features typical of such functional styles as written and spoken, formal and informal, scientific and newspaper language, jargon, slang, etc. UKRN 150, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L5 RP

Urban Studies (URBN)

*** URBN 307b / AMST 190b, Race, Class, and Gender in American Cities** Laura Barraclough

This seminar explores how racial, gender, and class inequalities have been built, sustained, and challenged in U.S. cities, with a focus on the twentieth and twenty-first centuries. The first part of the course examines historical processes that are especially salient for identity and inequality, such as the gendered organization of public and private space, the shifting fate of industrial work, and suburbanization. The second part of the course focuses on contemporary processes that reproduce or challenge the historical construction of urban inequality. Topics include gentrification, transit equity, environmental justice, and the relationships between public space, democracy, and community wellbeing. SO

*** URBN 314a / ARCH 314a, History of Landscape in Western Europe and the United States: Antiquity to 1950** Warren Fuermann

This course is designed as an introductory survey of the history of landscape architecture and the wider, cultivated landscape in Western Europe and the United States from the Ancient Roman period to mid-twentieth century America. Included in the lectures, presented chronologically, are the gardens of Ancient Rome, medieval Europe, the early and late Italian Renaissance, 17th-century France, 18th-century Britain, 19th-century Britain and America with its public and national parks, and mid-20th-century America. The course focuses each week on one of these periods, analyzes in detail iconic gardens of the period, and place them within their historical and theoretical context. HU RP

*** URBN 316a, Technological Innovation and the Future of the American City** Nathaniel Loewentheil

Technological innovation shapes the growth of cities and the lives of their inhabitants. This course examines historical technologies that were profoundly revolutionary at their time, such as the electric light and the automobile; the demands those technologies created for new kinds of infrastructure, like our electric grid and national highway system; and how that infrastructure in turn created new forms of urban development. We focus on archetypal U.S. cities whose most significant periods of growth corresponded to different technological innovations: New York City, Chicago, Boston, Los Angeles, and Phoenix. With that history in mind, the second part of the course explores how emerging technologies like ride hailing, electric scooters, drones, autonomous vehicles, flying cars, and smart infrastructure will impact our urban future. This course is not open to students who previously took CSBF 370.

*** URBN 327a / ARCH 327a, Difference and the City** Justin Moore

Four hundred and odd years after colonialism and racial capitalism brought twenty and odd people from Africa to the dispossessed indigenous land that would become the United States, the structures and systems that generate inequality and white supremacy persist. Our cities and their socioeconomic and built environments continue to exemplify *difference*. From housing and health to mobility and monuments, cities small and large, north and south, continue to demonstrate intractable disparities. The disparate impacts made apparent by the COVID-19 pandemic and the reinvigorated and global Black Lives Matter movement demanding change are remarkable. Change, of course, is another essential indicator of *difference* in urban environments, exemplified by the phenomena of disinvestment or gentrification. This course explores how issues like climate change and growing income inequality intersect with politics, culture, gender equality, immigration and migration, technology, and other considerations and forms of disruption.

URBN 345a / ARCH 345a, Civic Art: Introduction to Urban Design Alan Plattus

Introduction to the history, analysis, and design of the urban landscape. Principles, processes, and contemporary theories of urban design; relationships between individual buildings, groups of buildings, and their larger physical and cultural contexts. Case studies from New Haven and other world cities. HU

*** URBN 360a / ARCH 360a, Urban Lab: An Urban World** Joyce Hsiang

Understanding the urban environment through methods of research, spatial analysis, and diverse means of representation that address historical, social, political, and environmental issues that consider design at the scale of the entire world. Through timelines, maps, diagrams, collages and film, students frame a unique spatial problem and speculate on urbanization at the global scale. Prerequisites: For non-majors: permission of the instructor is required. For ARCH majors: ARCH 150, 200, and 280. HU 1½ Course cr

*** URBN 382b / EVST 349b / HIST 449Jb / HSHM 449b / HUMS 446b, Critical Data**

Visualization: History, Theory, and Practice Bill Rankin

Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshoping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

*** URBN 412b / ANTH 318b / SAST 308b, Peril and Possibility in the South Asian City** Kalyanakrishnan Sivaramakrishnan

For the first time in human history, at some point in the last decade a majority of humankind became city dwellers. A fifth of these city-dwelling masses inhabit the massive and massifying megacities of the Indian sub-continent. Karachi, Dhaka, and Bombay frequently threaten to be the most populous urban centers on earth, and it may only be faith in the accuracy of government census data that defers this dubious honor. For while these cities are plugged into the global flows of people, ideas, things,

and capital; such developments also bring with them anomie, alienation, dispossession, and depredations. Historical social conflicts born of a century of European colonialism and millennia of caste society have in some cases been mitigated, in others intensified in ways both insidious and invidious. Much ink has been spilt on contouring both the perils and possibilities attending the urbanization of the sub-continent. This course explores a ground-up view of the many ways in which the urban denizens of these bustling cities where pasts and futures collide, experience this collision. While this course draws on interdisciplinary scholarly examinations engaging the urban emergent, it focuses on the realm of experience, desire and affect germinating in the city. Students sample ethnography, art, speculative fiction, and film to map out the textures of this complex and mutating fabric. In doing so we chart the emergence and application of new ideas and cultures, practices and constraints, identities and conflicts in the contemporary urban landscapes. SO

*** URBN 490a / ARCH 490a, Senior Research Colloquium** Kyle Dugdale

Research and writing colloquium for seniors in the Urban Studies and History, Theory, and Criticism tracks. Under guidance of the instructor and members of the Architecture faculty, students define their research proposals, shape a bibliography, improve research skills, and seek criticism of individual research agendas. Requirements include proposal drafts, comparative case study analyses, presentations to faculty, and the formation of a visual argument. Guest speakers and class trips to exhibitions, lectures, and special collections encourage use of Yale's resources.

Vietnamese (VIET)

VIET 110a, Elementary Vietnamese I Quang Van

Students acquire basic working ability in Vietnamese, developing skills in speaking, listening, writing (Roman script), and reading. Discussion of aspects of Vietnamese society and culture. Intended for students with no previous knowledge of Vietnamese.

L1 1½ Course cr

VIET 120b, Elementary Vietnamese II Quang Van

Continuation of VIET 110. L2 1½ Course cr

*** VIET 132a, Accelerated Vietnamese** Quang Van

This course follows a community-based language model designed for heritage students or speakers who comprehend and speak informal Vietnamese on topics related to everyday situations but do not read or write Vietnamese. Study of interpersonal, interpretive, and presentational communicative modes, as well as standard foreign language education (communication, cultures, connections, comparisons, and communities). Students will engage with Vietnamese American communities in New Haven and beyond. Admits to VIET 140. L3

*** VIET 142b, Accelerated Vietnamese II** Quang Van

An accelerated course designed for heritage students who wish to build a higher level of proficiency and develop sociocultural competence in speaking, reading, and writing. Topics include health care, rituals, community, linguistic landscape, education, mass communication, literature, history, values, and traditional and pop cultures. VIET 132 or equivalent. L4

VIET 150a, Advanced Vietnamese Quang Van

Students improve their fluency and accuracy in Vietnamese and solidify their reading, writing, speaking, and listening skills. Topics include social, economic, and cultural practices, gender issues, notions of power, and taboo. Prerequisite: VIET 140 or equivalent. L5

*** VIET 471b, Independent Tutorial** Quang Van

For students with advanced Vietnamese language skills who wish to engage in concentrated reading and research on material not otherwise offered in courses. The work must be supervised by an adviser and must terminate in a term paper or its equivalent. Permission to enroll requires submission of a detailed project proposal and its approval by the program adviser.

Wolof (WLOF)

Women's Gender and Sexuality Studies (WGSS)

*** WGSS 031a / AMST 031a, LGBTQ Spaces and Places** Scott Herring

Overview of LGBTQ cultures and their relation to geography in literature, history, film, visual culture, and ethnography. Discussion topics include the historical emergence of urban communities; their tensions and intersections with rural locales; race, sexuality, gender, and suburbanization; and artistic visions of queer and trans places within the city and without. Emphasis is on the wide variety of U.S. metropolitan environments and regions, including New York City, Los Angeles, Miami, the Deep South, Appalachia, New England, and the Pacific Northwest. Enrollment limited to first-year students. HU

*** WGSS 032b, History of Sexuality** Maria Trumpler

Exploration of scientific and medical writings on sexuality over the past century. Focus on the tension between nature and culture in shaping theories, the construction of heterosexuality and homosexuality, the role of scientific studies in moral discourse, and the rise of sexology as a scientific discipline. Enrollment limited to first-year students.

WR, HU

*** WGSS 036b / AMST 032b, Gender, Sexuality, and U.S. Empire** Talya Zemach-Bersin

This course explores the cultural history of America's relationship to the world across the long twentieth century with particular attention to the significance of gender, sexuality, and race. We locate U.S. culture and politics within an international dynamic, exposing the interrelatedness of domestic and foreign affairs. While exploring specific geopolitical events like the Spanish-American War, World War I and II, and the Cold War, this course emphasizes the political importance of culture and ideology rather than offering a formal overview of U.S. foreign policy. How have Americans across the twentieth century drawn from ideas about gender to understand their country's relationship to the wider world? In what ways have gendered ideologies and gendered approaches to politics shaped America's performance on the world's stage? How have geopolitical events impacted the construction of race and gender on the home front? In the most general sense, this course is designed to encourage students to understand American cultural and gender history as the product of America's engagement with the world. In so doing, we explore the rise of U.S. global power as an enterprise deeply

related to conceptions of race, sexuality, and gender. We also examine films, political speeches, visual culture, music, and popular culture. Enrollment limited to first-year students. HU

WGSS 105b / PHIL 105b, Strong Men, Fascism, and Patriarchy Robin Dembroff and

Jason Stanley

Fascist and patriarchal politics are intertwined. Why? In this course, we examine systems of gender inequality and far right nationalism from a philosophical perspective in order to more fully understand the intimate connections between them. HU

o Course cr

WGSS 117a / AFAM 117a / AMST 207a / MUSI 156a, Beyonce Makes History: Black Radical Tradition History, Culture, Theory & Politics through Music Staff

This class centers the 2010s and 2020s' sonic and visual repertoire of Beyonce Knowles-Carter (from 2013's self-titled album through 2024's *Cowboy Carter*) as the portal through which to rigorously examine key interdisciplinary works of Black intellectual thought and grassroots activist practices across the centuries. Its aim is two-fold: to both explore and analyze the dense, robust and virtuosic aesthetics, socio-historical and political dimensions of Beyonce's pathbreaking, mid-career body of work and to, likewise, use her aesthetics; the multi-dimensional form and content of her recordings; her boundary-transgressing performance politics; her history-making visual albums; her innovative concert films; her unprecedented pop music archival endeavors and more as the occasion to explore landmark Black Studies scholarship and Black freedom struggle scholarly and cultural texts (in history, Black feminist theory, philosophy, anthropology, art history, performance studies, musicology, political science, sociology, dance, American Studies, religious studies, archival studies etc.) that directly resonate with Beyonce's sonic, visual and live performance endeavors. In short, this is a class that traces the relationship between Beyonce's artistic genius and Black intellectual practice.

HU o Course cr

WGSS 125a / AFAM 115a, "We Interrupt this Program: The Multidimensional Histories of Queer and Trans Politics" Staff

In 1991, the arts organizations Visual AIDS and The Kitchen collaborated with video artist and filmmaker Charles Atlas to produce the live television broadcast "We Interrupt this Program." Part educational presentation, part performance piece, the show was aired in millions of homes across the nation. The program, in The Kitchen's words, "sought to feature voices that had often been marginalized within many discussions of AIDS, in particular people of color and women." This course builds upon and is inspired by this aspect of Atlas's visionary presentation, an aspect that used the show to produce a critically multicultural platform that could activate cultural histories and critical traditions from various communities. In effect, the course uses this aspect as a metonym for the racial, gender, sexual, and class heterogeneity of queer art and organizing. It conducts its investigation by looking at a variety of primary materials that illustrate the heterogeneous makeup of queer and trans politics. The course also draws on more recent texts and visual works that arose from the earlier contexts that the primary texts helped to illuminate and shape. HU RP o Course cr

**WGSS 154a / ER&M 154a / FILM 154a / LAST 154a / PORT 154a, Advanced Studies:
Women Filmmakers and Photographers of the Portuguese-Speaking World**
Giseli Tordin

Women Filmmakers and Photographers of the Portuguese-Speaking World is a Portuguese advanced course that delves into the language and culture of the Lusophone world through the lens of women filmmakers and photographers. Organized into three interconnected units, namely, “Diasporas and (De)Territorialities,” “Memories They Told Me,” and “Reframing Other Existences,” students explore how these authors bring forth other perspectives, including those of indigenous people, Afro-Lusophone women, immigrants, and LGBTQIA+ community, among others, challenging societal norms and dominant portrayals. It also explores how their films and photographs reconnect with cultural roots in Africa and Latin America, fragmented by patriarchy, colonialism, and capitalism. By exploring a variety of productions by photographers like Yassmin Forte, Madalena Schwartz, Claudia Andujar, and filmmakers like Anna Muylaert, Carolina Paiva, and Lúcia Murat, among others, students investigate links between identities, memory, and language, enabling them to describe, interpret and make inferences about how cultural environments have been historically constructed and how these artistic productions reshape perceptions of our societies. By the course’s end, students have a deeper understanding of the Portuguese language and diverse cultural aspects within the Lusophone world. Conducted in Portuguese. Portuguese 140 or equivalent. 15, HU

*** WGSS 171b / ENGL 202b / LITR 176b, Medieval Women Writers and Readers**
Jessica Brantley

This course explores writings by and for women in medieval Britain, with attention to questions of authorship, authority, and audience. Readings include the *Lais* of Marie de France, *Ancrene Wisse*, *The Life of Christina of Markyate*, the *Showings* of Julian of Norwich, *The Book of Margery Kempe*, the Digby *Mary Magdalene* play, and the Paston letters. WR, HU

WGSS 200b / AMST 200b / HUMS 165b / SOCY 207b, Topics in Human Sexuality
Joseph Fischel

In 1970, Yale professors and sexuality scholars Lorna and Philip Sarrel introduced what came to be their wildly popular lecture, “Topics in Human Sexuality.” The course, offered at the height of the sexual revolution and shortly after Yale University admitted women undergraduates, was multipurpose: to teach students about pressing, contemporary social problems around sex, gender, and sexuality; to help students learn about their bodies, sexualities, and relationships; to direct students to resources and information about their sexual and reproductive health; and to advance the mission of a liberal arts education, namely, the cultivation of well-rounded, critically engaged, curious, participatory young citizens. This iteration of the course is inspired by the Sarrels’ ambitions, even if we are unlikely to realize them in full. The course is offered in the spirit of a critical sexuality education, critical as in 1) theory- rather than practicum-driven, but nonetheless 2) urgent. As political movements that endanger transgender children, suppress sexual expression, and rescind reproductive rights gain traction, the course offers candid, careful focus on: abortion, sexual education, queer and trans kids, pornography, university sexual politics, hooking up, and breaking up. Along the way, we watch a season of Netflix’s “Sex Education” together. The class (nonexclusively) focuses on social and political problems in the contemporary

United States, and examines those problems by drawing upon scholarship in Gender & Sexuality Studies, American Studies, Sociology, Psychology, and Public Law. HU, SO

*** WGSS 202b / AFAM 239b / AMST 461b / EDST 209b / ER&M 292b, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

WGSS 204a / PLSC 203a, Women, Politics, and Policy Staff

This course is an introduction to the way gender structures how we interpret the political world, exploring topics such as women's access to power, descriptive and substantive representation, evaluation of the functioning of political institutions, and analysis of government policy. It also serves as an introduction to reading and producing empirical research on gender in the social sciences. SO o Course cr

*** WGSS 209a / CLCV 216a / LITR 239a / MGRK 216a, Dionysus in Modernity** George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU

WGSS 212a, Monogamy and its Discontents Staff

While monogamy is central to Michel Foucault's formulation of normative sexuality that arose in the 19th century (the Malthusian couple as adult, monogamous, heterosexual, married, and reproductive), little attention has been paid to it as a particular historical form of intimacy. We investigate this structure of intimacy through theoretical, historical, ethnographic, literary, and visual materials and think about the various meanings of monogamy historically as well as transnationally. Monogamy is entangled with relations of private property, with colonial civilizational narratives, with scientific theories about human nature. Polygamy in return has historically been understood as religious and/or cultural difference, and as a remnant of pre-modernity. The course weaves together theoretical readings that equip students with the tools to understand some key concepts that we need for our discussion, such as private property; the private family; colonialism and (cultural) imperialism; law and liberalism; and bourgeois morality with readings that more directly address some of the key ways in which monogamy is imagined, understood and framed. We discuss the turn to a recent rise in nonmonogamy in the "West" as a radical and "liberated" alternative to life-long or serial monogamy, at times featuring a critique of the private family, which constitutes a curious contrast to the nonmonogamy of religious and cultural Others of the West. Understanding the contemporary discourses and industries (books, podcasts, therapists' youtube channels) around polyamory and nonmonogamy as a 21st-century strategic unity, we analyze how liberalism has framed our understanding of sexual liberation and discuss alternative approaches to freedom. HU o Course cr

*** WGSS 217b / AMST 315b / ANTH 319b, Writing Anthropology: Digital Fan Communities** Staff

Are you a Twihard? BTS ARMY? A Chalamaniac? This course investigates the communities and practices that emerge around popular media. In this course we think critically about fan responses to popular media through fanfiction, fanvids, shipping, and online fandoms. Through which we explore how fan responses point to and rely on the questioning and rethinking of media texts, to reinvent them as powerful but covert means of access and transformation. We examine fandoms/online fan communities as addressing the needs of marginalized communities to adapt, expand, and challenge books, movies, music, and other media to meet their needs. This course engages fan cultural practices as robust networks of critique through examinations of gender, race, sexuality, intellectual property ownership, and the production of fan labor. WR, SO

*** WGSS 218b / AMST 218b, Sex, Gender, and American Moderns** Scott Herring
What did being “modern” mean to those whose marginalized aesthetics negotiated sexual, racial, regional, national, and gender norms in the first half of the twentieth-century United States? This course functions as an intensive immersion into the creeds and concerns of recent scholarship regarding modes of U.S. modernity as the field overlaps with current forays into sexuality and gender studies. Via painting, photography, print culture, a “homosexual comedy,” oral history and other resources, we discuss the popularization of heteronormativity in US sex manuals; the emergence of LGBTQ subcultures within and without urban East Coast environments; queer feminist agency through experimental photography in Provincetown; slumming and sensationalism in the Chicago Loop; and modern crip intimacies in Connecticut. Students meet the artists of the PaJaMa collective; James Weldon Johnson’s *Ex-Colored Man*; avant-garde Pacific Rim poets such as José García Villa; a Nepali American surrealist; and a bohemian of the Harlem Renaissance whose drawings are held at the Beinecke. HU

*** WGSS 226a / AMST 222a, Pop Sapphism** Staff

Lesbian popular culture, despite rare waves of visibility, is construed as generically niche and embalmed in past eras like the 1970s and 1990s. As we enter deeper into the millennium, the lesbian presence in pop—from music and literature, to film, TV, and other media—is revived through the more expansive sexual and aesthetic imaginary of “sapphism,” a term that signals the explicitly gay, as well as the more implicitly “queer coded.” Female-identified artists and creators, whether they’re out or not, inspire a sapphic pop culture comprised of both artists and a robust fan culture, that calls upon the historical archives and intimate reading practices of lesbian cultures and queer theory, including the resurgence of Sapphic poetry itself. This seminar revisits the key historical and aesthetic touchstones of “sapphism,” while engaging contemporary iterations of sapphic pop culture, from figures like K-Stew (Kristen Stewart), Janelle Monáe, and a slew of “converted” reality contestants, to the controversies surrounding “Gaylorism” itself. The seminar teaches genealogical and historiographic approaches to sexuality studies, along with techniques of close reading and analysis in Queer Studies—especially recent books on lesbian aesthetics, as well as earlier iterations queer of color critique. HU

WGSS 230a / ANTH 230a, Evolutionary Biology of Female Bodies Claudia Valeggia
Evolutionary, biosocial, and situated perspectives on the female body. Physiological, ecological, social and cultural aspects of the development of female bodies from puberty

through menopause and aging, with special attention to lived experiences. Variation in female life histories in a variety of cultural and ecological settings. Examples from both traditional and modern societies. SC o Course cr

*** WGSS 233a / FILM 341a / MGRK 238a, Weird Greek Wave Cinema** George Syrimis
The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term “weird Greek wave” applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers’ expectations of national stereotypes of classical luminosity – the proverbial “Greek light” – Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its ‘quaint’ people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness and violence, aggression, corporeality, and xenophobia). The course also pays particular attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. HU

*** WGSS 238b, Foucault and the Sexual Self** Igor De Souza
This course explores the main ideas and influence of Foucault’s *History of Sexuality*. Alongside the methods and conclusions of the *HS*, we examine the implications of the *HS* for feminist studies and queer theory, and the approach of the *HS* towards ancient Greek sexuality. HU

*** WGSS 239a / EDST 235a, Education and the Culture Wars** Talya Zemach-Bersin
Examination of the historical development and politics of the “culture wars” with a focus on how battles over the “soul of America” have focused on the American education system. Conflict over “American values” issues like abortion, gay marriage, and religion are compounded by legal battles over federal funding and school choice. Study of interdisciplinary readings from law, politics, history, and cultural studies. Preference for enrollment will be given to Education Studies Scholars.

*** WGSS 260a, Food, Identity and Desire** Maria Trumpler
Exploration of how food – ingredients, cooking practices, and appetites – can intersect with gender, ethnicity, class, and national origin to produce profound experiences of identity and desire. Sources include memoir, cookbooks, movies, and fiction.

WGSS 282b / HSAR 282b / HSHM 237b, Renaissance Bodies: Art, Magic, Science

Marisa Bass

An introduction to issues surrounding the representation of the body in both art and science, spanning from the late Middle Ages to the seventeenth century, and with a particular focus on the Northern Renaissance. Topics include medicine, reproduction, witchcraft, the gender spectrum, torture, race, disability, desire, dreams, and theories of imagination and invention. Sections and assignments will make ample use of the Yale collections. Previous experience with art history welcome but not required. HU

*** WGSS 291b / HIST 240b / RLST 347b / SOCY 331b, Sexual Minorities from Plato to the Enlightenment** Igor De Souza

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging

ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham.

HU

*** WGSS 298b / AFAM 326b / AMST 312b / ER&M 310b, Postcolonial Cities of the West** Fadila Habchi

Examination of various texts and films pertaining to the representation of postcolonial cities in the global north and a range of social, political, and cultural issues that concern those who inhabit these spaces. HU

*** WGSS 305a / AFAM 315a, Black Feminist Theory** Gail Lewis

This course is designed to introduce you to some of the major themes in black feminist theory. The course does so by presenting classic texts with more recent ones to give you a sense of the vibrancy of black feminist theory for addressing past and present concerns. Rather than interpret black feminist theory as a critical formation that simply puts race, gender, sexuality, and class into conversation with one another, the course apprehends that formation as one that produced epistemic shifts in how we understand politics, empire, history, the law, and literature. This is by no means an exhaustive list of the areas into which black feminism intervened. It is merely a sample of some of the most vibrant ideological and discursive contexts in which black feminism caused certain epistemic transformations. SO

*** WGSS 306b / AMST 314b / ER&M 314b, Gender and Transgender** Greta LaFleur

Introduction to transgender studies, an emergent field that draws on gender studies, queer theory, sociology, feminist science studies, literary studies, and history. Representations of gender nonconformity in a cultural context dominated by a two-sex model of human gender differentiation. Sources include novels, autobiographies, films, and philosophy and criticism. RP

*** WGSS 328a / AMST 428a / ENGL 332a / ER&M 448a, "I Don't Like to Argue": The Styles and Politics of Humility** Sunny Xiang and Minh Vu

What can academic writing do besides argue? Why does critical thinking so often compel an idiom of claiming, exploring, discovering, and mastering? What might writers strive for, if not newness, rigor, excellence, or even one's own voice? In this class, we defamiliarize and repair the habits of mind and body that have been normalized by the university. Some of our time goes toward identifying the racial and colonial logics as well as presumptions about gender and ability that inform the conventions, genres, and styles of scholarly prose. For example, we contemplate the power relations and tonal effects embedded in the familiar maneuvers of advancing and defending arguments. Most of the class's energy, however, is devoted to testing out less combative modes of inhabiting the page. We pursue these experiments not in the name of novelty but with the hope that our compositional practices can move us toward different values and different futures for writing, conversing, and living as subjects of the university. To guide us in this endeavor, we look to scholars who have critiqued the

politics of knowledge by mobilizing alternative styles of knowing. Some, for example, have turned footnotes into an occasion for giving thanks instead of exhibiting mastery. Others have repurposed quotations and images in ways that challenge traditional regimes of evidence. HU

*** WGSS 335a / AMST 336a, LGBTQ Life Spans** Scott Herring

Interdisciplinary survey of LGBTQ life spans in the United States concentrating primarily on later life. Special attention paid to topics such as disability, aging, and ageism; queer and trans creative aging; longevity and life expectancy during the AIDS epidemic; intergenerational intimacy; age and activism; critiques of optimal aging; and the development of LGBTQ senior centers and affordable senior housing. We explore these topics across multiple contemporary genres: documentary film (*The Joneses*), graphic memoir (Alison Bechdel's *Fun Home*), poetry (Essex Hemphill's "Vital Signs"), fabulation (Saidiya Hartman's *Wayward Lives, Beautiful Experiments*), and oral history. We also review archival documents of later LGBTQ lives—ordinary and iconic—held at the Beinecke Rare Book and Manuscript Library as well as the Lesbian Herstory Archives. HU

*** WGSS 339b / ENGL 385b, Fiction and Sexual Politics** Margaret Homans

Historical survey of works of fiction that have shaped and responded to feminist, queer, and transgender thought from the late eighteenth century to the present. Authors include Wollstonecraft, C. Bronte, H. Jacobs, C. P. Gilman, R. Hall, Woolf, Wittig, Walker, Anzaldua, Morrison, Kingston, Winterson, and Bechdel. WR, HU

*** WGSS 340a, Feminist and Queer Theory** Craig Canfield

Historical survey of feminist and queer theory from the Enlightenment to the present, with readings from key British, French, and American works. Focus on the foundations and development of contemporary theory. Shared intellectual origins and concepts, as well as divergences and conflicts, among different ways of approaching gender and sexuality. WR, HU

*** WGSS 343a / AFAM 352a / AMST 438a / ER&M 291a / LITR 295a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

*** WGSS 350a / AMST 300a, The Invention of Love** Igor De Souza

This course proposes a historical, theoretical, and cultural investigation of what we call "romantic love," the kind of love we tend to associate with courtship, with relationships that include a sexual-erotic component, and with marriage. We begin with Denis de Rougemont's controversial thesis that romantic love was invented around the 1200s in the courtly culture of Southern France. We examine manifestations of romantic love in medieval Arab cultures as precedents to the invention of courtly love. In the second part of our course, we turn to modern humanistic theories about romantic love. Among the questions that critical theorists and philosophers have posed, we consider: How is love related to desire? Is sexual desire an indispensable component of romantic love? Is romantic love ultimately a selfish, exclusionary act, or is it about renouncing the self, losing the self in the other? In the third part of our course, we apply the insights of

parts 1 and 2 to discuss case studies of romantic love in the contemporary United States. In this section, we explore reining assumptions between romantic love and: marriage; monogamy; dating; the digital environment; queerness; age; and transnationalism.

*** WGSS 364a / ER&M 236a / ITAL 337a / LITR 395a, Feminism without Women:**

Modernist and Postcolonial Textual Experiments Serena Bassi

Antifeminist critics charge the feminist movement with having forgotten “real women” in favor of inaccessible theories rejecting the supposedly incontrovertible fact that there are only two sexes and genders. This seminar turns the charge on its head by exploring a theoretical and literary canon that - by questioning the ontological status of the male/female binary - has transformed feminism into a capacious, radically inclusive, revolutionary 21st Century movement. The texts and the theories that we discuss put pressure on the very category of “woman” as they strive to rethink feminism as a non-identitarian world-making project. The class focuses on two movements that employ art and literature to push back against the idea of “women” as the monolithic subject of feminism: Italian vanguard modernism and Italophone literary postcolonialism. We discuss modernist and postcolonial novels, poems, essays, and performative art pieces together with classics of feminist, queer and postcolonial theory. We push our own political imagination further by asking ever more sophisticated questions about gender, sexuality, ethnicity, race, and the way these intersecting social formations mediate the way we see, experience, and represent our material and social reality. The course is taught entirely in English. No previous knowledge of Italian language, art, or literature required. Students seeking departmental credit for Italian do their writing and reading in the original language, and attend a discussion session in Italian. HU

*** WGSS 388b / AFAM 349b / AMST 326b / HIST 115Jb, Civil Rights and Women’s**

Liberation Crystal Feimster

The dynamic relationship between the civil rights movement and the women’s liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

*** WGSS 390a / ER&M 360a / HLTH 370a / HSHM 432a / SOCY 390a, Politics of**

Reproduction Rene Almeling

Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality. WR, SO

*** WGSS 407b / ANTH 308b, Feminist & Queer Ethnographies: Borders and**

Boundaries Eda Pepi

This seminar gives students a storm’s eye view of contemporary crises, where borders are as volatile as the ring of a wedding bell or the birth of a child. Feminist and queer ethnographies explore the geopolitical lines and social divides that define and confine us. Manifesting through laws, social norms, and physical barriers, borders and boundaries shape our identities, turning the intimate act of living into a fiercely political one. We consider them as lived experiences that cross militarized lines – as the everyday

realities of families, detention centers, workplaces, universities, and even nightclubs. Our readings trace the fluidity of borders, the extension of the global north's influence, and the internal colonialism that redraws the landscapes of nations. Contemporary ways of bridging time and space are profoundly gendered, sexualized racialized, and class-specific, capable of materializing with sudden intensity for some and remaining imperceptible to others, morphing from ephemeral lines to seemingly permanent barriers. The course is an invitation to think beyond the map – to understand borders as something people live, challenge, and transform. Our intellectual battleground is the liminal space where geopolitics meets the raw human struggle for recognition, peeling back the layers of political theatre to witness the making and unmaking of our borderlands. Anchored by a “radical hope for living otherwise,” the seminar also aims to expand the intellectual horizons necessary for dreaming of, and working towards, the world to come. HU, SO

*** WGSS 426b / ENGL 344b, Virginia Woolf** Margaret Homans

A study of the major novels and other writings by Virginia Woolf, with additional readings in historical contexts and in Woolf biography and criticism. Focus on Woolf's modernist formal experimentation and on her responses and contributions to political movements of her day, principally feminism and pacifism; attention also to the critical reception of her work, with emphasis on feminist and queer literary criticism and theory. WR, HU

*** WGSS 430a / ANTH 441a / MMES 430a, Gender and Citizenship in the Middle East**
Eda Pepi

This seminar explores the complex interplay between gender, sexuality, and citizenship in the Middle East and North Africa. We examine how they are both shaped by and shape experiences of nationality, migration, and statelessness. Highlighting how gender and sexual minorities, and the gendered regulation of life, more broadly, both animate and contest colonial legacies tied to a racialized notion of “modernity.” Through ethnography, history, and literature, students confront a political economy of intimacies that continuously reshape what it means to be or not to be a citizen. Our approach extends beyond borders and laws to include the everyday acts of citizenship that rework race, religion, and ethnicity across transnational fronts. We discuss how people navigate their lives in the everyday, from the ordinary poetry of identity and belonging to the spectacular drama of war and conflict. Our goal is to challenge orientalist legacies that dismiss theoretical insights from scholarship on and from this region by labeling it as focused on exceptional cases instead of addressing “universal” issues. Instead, we take seriously that the specific historical and social contexts of the Middle East and North Africa reveal how connections based on gender and sexuality within and across families and social classes are deeply entwined with racial narratives of state authority and political sovereignty on a global scale. SO

*** WGSS 431b / ANTH 451b, Intersectionality and Women's Health** Staff

The intersections of race, class, gender, and other axes of “difference” and their effects on women's health, primarily in the contemporary United States. Recent feminist approaches to intersectionality and multiplicity of oppressions theory. Ways in which anthropologists studying women's health issues have contributed to social and feminist theory at the intersections of race, class, and gender. SO

*** WGSS 435b / HIST 444Jb / HSHM 418b, Queer Science** Joanna Radin and Juno Richards

Why are there so many studies involving trans brain scans? Can facial recognition technology really tell if you're queer? Why is everyone so obsessed with gay penguins? For that matter, how did science come to be the right tool for defining and knowing sex, gender, and sexuality at all? How does that history influence our collective lives in the present, and what are some alternatives? This course gives students a background in the development of sex science, from evolutionary arguments that racialized sexual dimorphism to the contemporary technologies that claim to be able to get at bodily truths that are supposedly more real than identity. It introduces scholarly and political interventions that have attempted to short-circuit the idea that sex is stable and knowable by science, highlighting ways that queer and queering thinkers have challenged the stability of sexual categories. It concludes by asking how to put those interventions into practice when so much of the fight for queer rights, autonomy, and survival has been rooted in categorical recognition by the state, and by considering whether science can be made queer. HU

*** WGSS 438a, Subjectivity and its Discontents: Psychosocial Explorations in Black, Feminist, Queer** Gail Lewis

Questions of subjectivity stand at the base of much feminist, black, queer scholarship yet how subjectivity is constituted, whether it is fixed or fluid, how it links to narratives of experience, and how it can be apprehended in critical inquiry is often left implicit. Beginning with a brief consideration of psychoanalytic conceptions of 'the subject', 'subjectivity' and their relation to social formations, this course examines some of the ways in which subjectivity has been theorized and brought under critical scrutiny by black diasporic, feminist and queer scholars. It draws on work produced in reference to multiple sites, including the UK, the USA and the Caribbean within the fields of psychoanalysis, social science, the humanities and critical art practice. It aims to critique the divide between 'interior' psychic life and 'exterior' social selves, as well as considering the relation between 'freedom' and subjectivity, including the extent to which 'freedom' might require rejection of 'subjectivity' as a mode of personhood. SO

*** WGSS 461a / AMST 450a / ER&M 430a, Islam in the American Imagination** Zareena Grewal

The representation of Muslims in the United States and abroad throughout the twentieth century. The place of Islam in the American imagination; intersections between concerns of race and citizenship in the United States and foreign policies directed toward the Middle East. WR, SO

*** WGSS 465b / HIST 447Jb / HSHM 467b, History of the Body** Ziv Eisenberg

What does it mean to have a "bad hair day?" How should you care for your skin? What happens when you eat a burger and drink wine? How are babies made? What happens when you die? The answers depend not only on who provides them, but also on where and when. This seminar examines historical production of systems of corporeal knowledge and power, as well as the norms, practices, meanings, and power structures they have created, displaced, and maintained. Structured thematically, the course familiarizes students with major topics in the history of the body, health, and medicine, with a particular focus on US history. WR, HU

*** WGSS 490a, The Senior Colloquium** Dara Strolovitch

A research seminar taken during the senior year. Students with diverse research interests and experience discuss common problems and tactics in doing independent research.

*** WGSS 491b, The Senior Essay** Igor De Souza

Independent research on, and writing of, the senior essay.

Yoruba (YORU)

YORU 110a, Beginning Yorùbá I Oluseye Adesola

Training and practice in speaking, listening, reading, and writing. Initial emphasis is on the spoken aspect, with special attention to unfamiliar consonantal sounds, nasal vowels, and tone, using isolated phrases, set conversational pieces, and simple dialogues. Multimedia materials provide audio practice and cultural information. L1 1½ Course cr

YORU 130a, Intermediate Yorùbá I Oluseye Adesola

Refinement of students' speaking, listening, reading, and writing skills. More natural texts are provided to prepare students for work in literary, language, and cultural studies as well as for a functional use of Yorùbá. After YORU 120. L3 1½ Course cr

YORU 150a, Advanced Yorùbá I Oluseye Adesola

An advanced course intended to improve students' aural and reading comprehension as well as speaking and writing skills. Emphasis on acquiring a command of idiomatic usage and stylistic nuance. Study materials include literary and nonliterary texts; social, political, and popular entertainment media such as movies and recorded poems (*ewi*); and music. After YORU 140. L5

YORU 170a, Topics in Yorùbá Literature and Culture Oluseye Adesola

Advanced readings and discussion concerning Yorùbá literature and culture. Focus on Yorùbá history, poetry, novels, movies, dramas, and oral folklore, especially from Nigeria. Insight into Yorùbá philosophy and ways of life. Prerequisite: YORU 160. L5, HU

YORU 180a, Advanced Topics in Yorùbá Literature and Culture Oluseye Adesola

Designed for students with superior proficiency in Yorùbá who have an interest in topics not otherwise covered by existing courses. Development of language proficiency to the level of an educated native speaker. Discussion of advanced readings on Yorùbá philosophy, history, literature, and culture. L5

Zulu (ZULU)

ZULU 110a, Beginning isiZulu I Nandipa Sipengane

A beginning course in conversational isiZulu, using Web-based materials filmed in South Africa. Emphasis on the sounds of the language, including clicks and tonal variation, and on the words and structures needed for initial social interaction. Brief dialogues concern everyday activities; aspects of contemporary Zulu culture are introduced through readings and documentaries in English. L1 1½ Course cr

ZULU 130a, Intermediate isiZulu I Nandipa Sipengane

Development of fluency in speaking, listening, reading, and writing, using Web-based materials filmed in South Africa. Students describe and narrate spoken and written

paragraphs. Review of morphology; concentration on tense and aspect. Materials are drawn from contemporary popular culture, folklore, and mass media. After ZULU 120. L3 1½ Course cr

*** ZULU 150a, Advanced isiZulu I** Nandipa Sipengane

Development of fluency in using idioms, speaking about abstract concepts, and voicing preferences and opinions. Excerpts from oral genres, short stories, and television dramas. Introduction to other South African languages and to issues of standardization, dialect, and language attitude. After ZULU 140. Course includes students from Cornell University via videoconference. L5

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This is a detailed street map of the Yale University campus in New Haven, Connecticut. The map shows a grid of streets including Elm, Chapel, Crown, George, North Frontage, and South Frontage. Key buildings are labeled, such as the Yale Library, Harkness Auditorium, and the Yale-New Haven Hospital. The map also shows the location of the Yale Athletic Fields and the Yale University Golf Course. A north arrow is located in the upper left corner.

The University is committed to affirmative action under law in employment of women, minority group members, individuals with disabilities, and protected veterans. Additionally, in accordance with Yale's Policy Against Discrimination and Harassment (<https://your.yale.edu/policies-procedures/9000-yale-university-policy-against-discrimination-and-harassment>), Yale does not discriminate in admissions, educational programs, or employment against any individual on account of that individual's sex; sexual orientation; gender identity or expression; race; color; national or ethnic origin; religion; age; disability; status as a special disabled veteran, veteran of the Vietnam era, or other covered veteran; or membership in any other protected classes as set forth in Connecticut and federal law.

Inquiries concerning these policies may be referred to the Office of Institutional Equity and Access, 203.432.0849; equity@yale.edu. For additional information, please visit <https://oiea.yale.edu>.

Title IX of the Education Amendments of 1972 protects people from sex discrimination in educational programs and activities at institutions that receive federal financial assistance. Questions regarding Title IX may be referred to the University's Title IX Coordinator, Elizabeth Conklin, at 203.432.6854 or at titleix@yale.edu, or to the U.S. Department of Education, Office for Civil Rights, 8th Floor, 5 Post Office Square, Boston MA 02109-3921; tel. 617.289.0111, TDD 800.877.8339, or ocr.boston@ed.gov. For additional information, including information on Yale's sexual misconduct policies and a list of resources available to Yale community members with concerns about sexual misconduct, please visit <https://smr.yale.edu>.

In accordance with federal and state law, the University maintains information on security policies and procedures and prepares an annual campus security and fire safety report containing three years' worth of campus crime statistics and security policy statements, fire safety information, and a description of where students, faculty, and staff should go to report crimes. The fire safety section of the annual report contains information on current fire safety practices and any fires that occurred within on-campus student housing facilities. Upon request to the Yale Police Department at 203.432.4400, the University will provide this information to any applicant for admission, or to prospective students and employees. The report is also posted on Yale's Public Safety website; please visit <http://publicsafety.yale.edu>.

In accordance with federal law, the University prepares an annual report on participation rates, financial support, and other information regarding men's and women's intercollegiate athletic programs. Upon request to the Director of Athletics, PO Box 208216, New Haven CT 06520-8216, 203.432.1414, the University will provide its annual report to any student or prospective student. The Equity in Athletics Disclosure Act (EADA) report is also available online at <http://ope.ed.gov/athletics>.

For all other matters related to admission to Yale College, please write to the Office of Undergraduate Admissions, Yale University, PO Box 208234, New Haven CT 06520-8234; telephone, 203.432.9300; website, <http://admissions.yale.edu>.

Yale University's website is www.yale.edu; the Yale College Programs of Study is online at <http://catalog.yale.edu/ycps>.

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