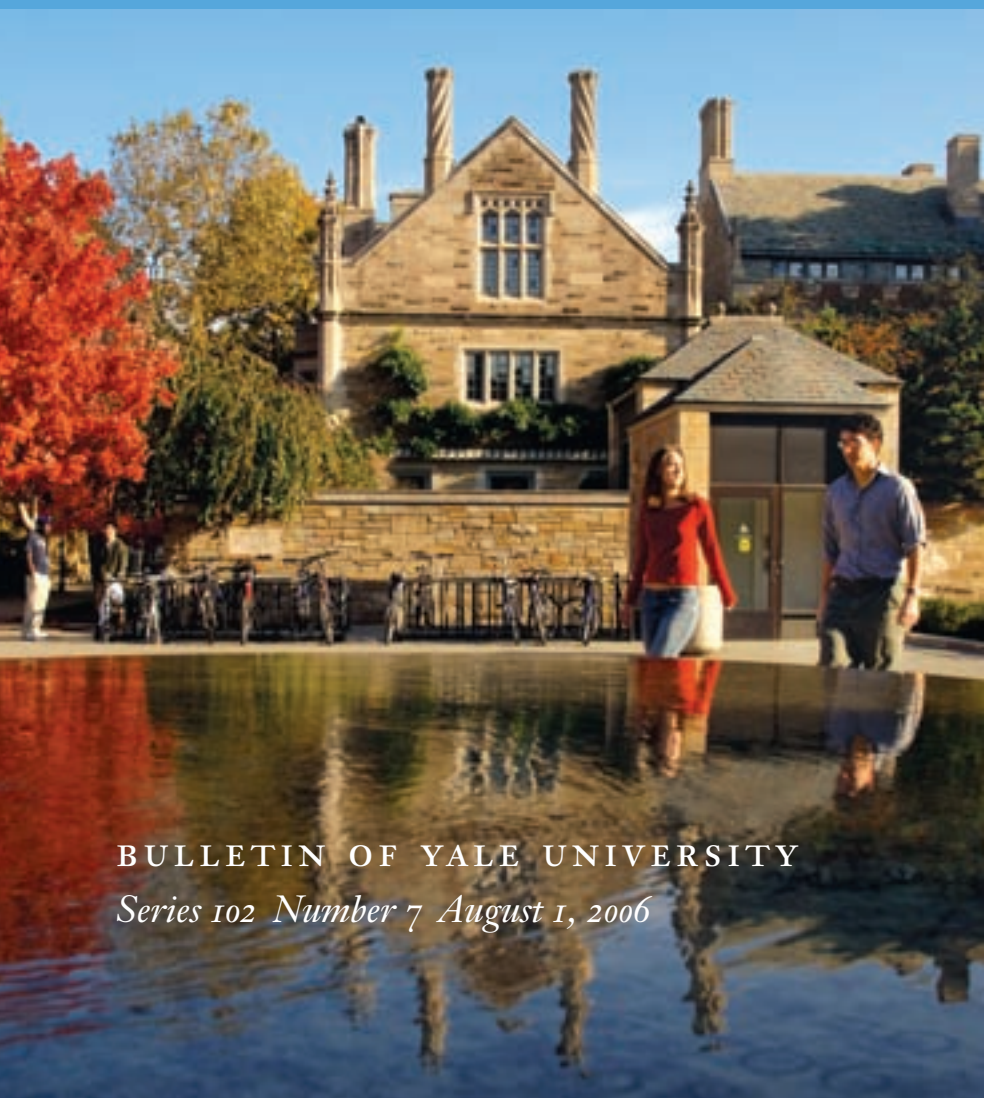


Yale College Programs of Study

Fall and Spring Terms

2006–2007



BULLETIN OF YALE UNIVERSITY

Series 102 Number 7 August 1, 2006

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Front cover: View of *The Women's Table* and Rose Walk, with Berkeley College
in the background

Back cover: Wrexham Tower reflected in the windows of Branford College
Photos by Michael Doolittle

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Yale College
Programs of Study
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BULLETIN OF YALE UNIVERSITY

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YALE UNIVERSITY CAMPUS SOUTH & YALE MEDICAL CENTER



BUILDING ABBREVIATIONS

A&A	Art & Architecture Building	LC	Linsly-Chittenden Hall
AKW	Arthur K. Watson Hall	LEIGH	Abby and Mitch Leigh Hall
BAC	Yale Center for British Art	LEITOBBS	Leitner Observatory
BASS	Bass Center for Molecular and Structural Biology	LOM	Leet Oliver Memorial Hall
BCMM	Boyer Center for Molecular Medicine	LUCE	Henry R. Luce Hall
BECTON	Becton Engineering and Applied Science Center	LWR	Lanman-Wright Memorial Hall
BK	Berkeley College	MARSH	Marsh Hall
BM	Charles W. Bingham Hall	MC	Morse College
BR	Branford College	MEC	Malone Engineering Center
BRBL	Beinecke Rare Book and Manuscript Library	ML	Mason Laboratory
C	Connecticut Hall	MUDD	Seeley Mudd Library
CC	Calhoun College	OAG	Old Art Gallery
CCL	Cross Campus Library	OML	Osborn Memorial Laboratories
CRB	Chemistry Research Building	PC	Pierson College
CSC	Child Study Center	PHELPS	Phelps Hall
D	Durfee Hall	PM	Peabody Museum
DAVIES	Davies Auditorium, Becton Center	PWG	Payne Whitney Gymnasium
DC	Davenport College	RTH	Ray Tompkins House
DL	Dunham Laboratory	SB	Sage-Bowers Hall
EAL	Electron Accelerator Laboratory	SCL	Sterling Chemistry Laboratory
EM	Edwin McClellan Hall	SDQ	Sterling Divinity Quadrangle
ERB	Engineering Research Building	SHM	Sterling Hall of Medicine
ES	Ezra Stiles College	SLB	Sterling Law Buildings
ESC	Environmental Science Center	SM	Silliman College
F	Farnam Hall	SMH	Sprague Memorial Hall
GML	Greeley Memorial Laboratory	SML	Sterling Memorial Library
GREEN	Holcombe T. Green, Jr., Hall	SPL	Sloane Physics Laboratory
HENDRIE	Hendrie Hall	SSS	Sheffield-Sterling- Strathcona Hall
HGS	Hall of Graduate Studies	ST	Street Hall
HH	Hammond Hall	STOECK	Stoekel Hall
JE	Jonathan Edwards College	SY	Saybrook College
JWG	Josiah Willard Gibbs Research Laboratories	TAC	The Anlyan Center
K	Kirtland Hall	TC	Trumbull College
KBT	Kline Biology Tower	TD	Timothy Dwight College
KCL	Kline Chemistry Laboratory	UT	University Theatre
KGL	Kline Geology Laboratory	V	Vanderbilt Hall
L	Lawrance Hall	W	Welch Hall
		WEIR	Weir Hall
		WLH	William L. Harkness Hall
		WNSL	Wright Laboratory
		WNSL-W	Wright Laboratory West
		WOOD	Woodbridge Hall
		WOOL	Woolsey Hall
		YUAG	Yale University Art Gallery

Contents

Map of Yale University	ii
Building Abbreviations	iv
Key to Course Listings	4
A Message from the Dean of Yale College	6
Yale College Calendar with Pertinent Deadlines	7
Final Examination Schedules	10
Yale College Administrative Officers	11
I Yale College	13
The Undergraduate Curriculum	13
Distributional Requirements	14
Major Programs	19
The Residential Colleges	22
International Study	23
Yale Summer Session	24
Special Programs	25
Honors	30
Miscellaneous	31
II Freshman Placement and Acceleration	32
Course Selection in Freshman Year	32
Enrollment in Advanced Courses and Acceleration Credit	33
Criteria for the Award of Acceleration Credit	35
III Academic Regulations	38
A Requirements for the B.A. or B.S. Degree	38
B Grades	45
C Course Credits and Course Loads	49
D Promotion and Good Standing	51
E Registration and Enrollment in Courses	51
F Withdrawal from Courses	54
G Reading Period and Final Examination Period	55
H Completion of Course Work	58
I Academic Penalties and Restrictions	61
J Leaves of Absence, Withdrawals, and Readmission	63
K Special Arrangements	66
L Transfer Students	77
M Eli Whitney Students Program	78
N Nondegree Students Program	80
O Credit from Other Universities	81
P Acceleration Policies	84
Q Amendments	88
IV Subjects of Instruction	89
Majors in Yale College	89
Subject Abbreviations	90

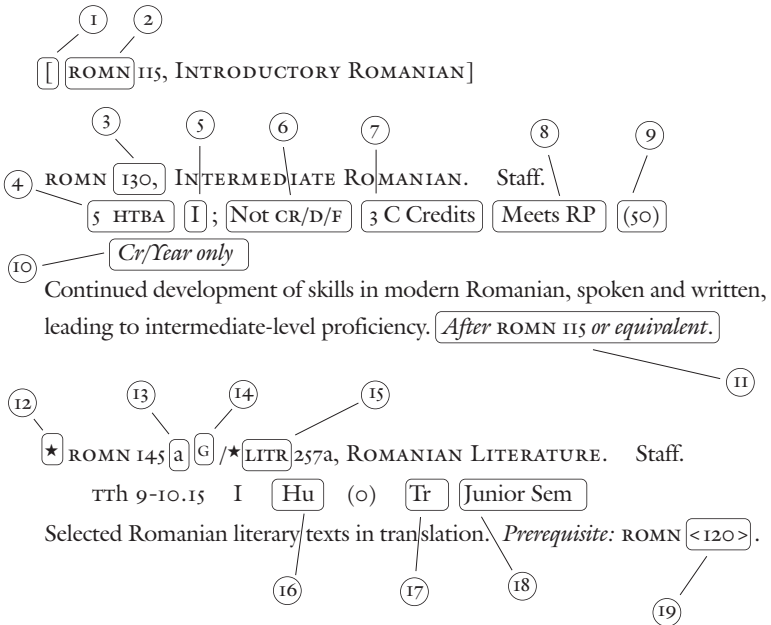
Subjects of Instruction (*cont.*)

Accounting	91
African American Studies	91
African Studies	98
American Studies	105
Anthropology	115
Applied Mathematics	126
Applied Physics	129
Archaeological Studies	134
Architecture	138
Art	144
Astronomy	151
Biology	157
Biomedical Engineering	176
British Studies	180
Chemical Engineering	181
Chemistry	185
Child Study Center	196
Classical Languages and Literatures	197
Cognitive Science	209
College Seminars in the Residential Colleges	213
Computer Science	214
Computer Science and Mathematics	223
Computer Science and Psychology	223
DeVane Lecture Course	224
Directed Studies	224
East Asian Languages and Literatures	226
East Asian Studies	235
Economics	240
Economics and Mathematics	252
Electrical Engineering	253
Electrical Engineering and Computer Science	262
Engineering	263
Engineering and Applied Science	264
English Language and Literature	267
Environment	283
Environmental Engineering	284
Environmental Studies	288
Ethics, Politics, and Economics	296
Ethnicity, Race, and Migration	304
Film Studies	311
Forestry & Environmental Studies	319
French	321
Freshman Seminar Program	330
Geology and Geophysics	332
Germanic Languages and Literatures	341
German Studies	348
Hellenic Studies	352
History	354
History of Art	378

Subjects of Instruction (*cont.*)

History of Science, History of Medicine	386
Humanities	390
International Studies	398
Italian	405
Judaic Studies	411
Latin American Studies	418
Linguistics	423
Literature Major, The	429
Mathematics	441
Mathematics and Philosophy	449
Mathematics and Physics	450
Mechanical Engineering	450
Molecular Biophysics and Biochemistry	456
Music	464
Near Eastern Languages and Civilizations	474
Operations Research	485
Peking University–Yale University Joint Undergraduate Program	486
Philosophy	488
Physics	497
Physics and Philosophy	505
Political Science	506
Portuguese	526
Psychology	530
Public Health	540
Religious Studies	541
Renaissance Studies	549
Russian and East European Studies	551
Science	555
Slavic Languages and Literatures	555
Sociology	563
South Asian Studies	572
Southeast Asia Studies	575
Spanish	577
Special Divisional Majors	586
Statistics	589
Study of the City	592
Teacher Preparation and Education Studies	593
Theater Studies	596
Urban Studies	604
Women's, Gender, and Sexuality Studies	605
Index	613
Yale University	620

KEY TO COURSE LISTINGS



1. Courses in brackets are not offered during the current year but are expected to be given in the succeeding academic year.
2. Subjects are listed by three- or four-letter abbreviations in small capitals. A list of subject abbreviations is included at the beginning of chapter IV.
3. Yearlong courses are designated by the Arabic number alone, without any letter.
4. Hour or hours to be arranged. 3 HTBA usually denotes a lecture course, 2 HTBA a seminar.
5. For the Class of 2008 and previous classes, the roman numeral denotes the distributional group to which the course is assigned. (See chapter I.)
6. For the Class of 2008 and previous classes, not open to the Credit/D/Fail option. (See section B of chapter III.) For all classes, the Credit/D/Fail option is not available in graduate and professional school courses.
7. The course earns the specified amount of course credit. Most courses earn one course credit per term. Variations from the normal number of course credits are noted.
8. Classes or other meetings are held during reading period. (See section G of chapter III.) The absence of the phrase means that classes or other meetings will not be held during reading period.
9. The examination group number. Final examination times are given on page 10.

10. A student must complete the full year satisfactorily to receive credit. No credit is granted for the first term alone, but the course remains on the transcript with the grade earned.
11. Prerequisites and recommendations are italicized.
12. The instructor must grant permission to take a course marked by a star. All seminars are starred.
13. Fall-term courses are indicated by the letter “a,” spring-term courses by the letter “b.” A course designated “a or b” (e.g., ECON 150a or b) is the same course given in both fall and spring terms. (The transcript does not indicate “a” or “b.”)
14. Open to both undergraduate and graduate students. Undergraduate students enrolling in these courses, unless already accepted into the program for the simultaneous award of the bachelor’s and master’s degrees, must enroll under the undergraduate number.
15. Courses with multiple titles, i.e., those with two or more departments in the title line (such as ITAL 310a/LITR 183a), count toward the major in each department where they appear. For each multiple-titled course, the time pattern and course description appear under only one department. Students indicate on the course schedule which department should appear on their transcripts.
 Cross-listed courses appear in departments other than their own (e.g., AMST 258a is listed in Environmental Studies). They may appear either at the end of a department’s courses under a heading, among the courses of the department in numerical order, or grouped under subject headings. Such courses may count toward the major of the cross-listing department.
16. For the Class of 2009 and subsequent classes, foreign language courses are designated L₁ (first term of language study), L₂ (second term), L₃ (third term), L₄ (fourth term), or L₅ (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 chapter I and section A of chapter III.)
17. Literature course with readings in translation.
18. The abbreviations Junior sem, Senior sem, Fr sem, Major sem, Core, Libr, Pre-1800, Pre-1900, and PreInd indicate Junior seminar, Senior seminar, Freshman seminar, Major seminar, Core course, Library course, Pre-1800 course, Pre-1900 course, and Preindustrial, respectively. These designate courses whose relevance to the requirements of the major is explained in the description of each major.
19. A course number in angle brackets indicates a course that is not currently listed or bracketed but that has been offered within the past three years.

Changes in course information after May 4, 2006, appear on line at www.yale.edu/courseinfo.

A Message from the Dean of Yale College

This catalog presents the 2,000 courses offered to students in Yale College. Taken together they provide a remarkable opportunity to study a wide array of subjects taught by some of the finest scholars in the world. Along with the vibrant community of your residential college and the extracurricular activities in which you engage, these courses are designed to help you to develop the intellectual knowledge, skills, and sense of citizenship that will serve you throughout your lives.

Of course, a collection of individual courses does not constitute an education. We count on you, our students, with the counsel of faculty and deans, Yale's distributional requirements, and your own interests and passions, to shape your liberal education in ways that will help 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 perusing the pages of this bulletin 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. This book 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.

Peter Salovey
Dean of Yale College
Chris Argyris Professor of Psychology

Yale College Calendar with Pertinent Deadlines

This calendar includes a partial summary of deadlines given in chapters I and III, along with those in the Yale College publication *Undergraduate Regulations*. Unless otherwise specified, references are to sections in chapter III of this bulletin, and deadlines fall at 5 P.M.

2006 FALL TERM

August

30 Wed. Residences open to upperclassmen, 9 A.M.

September

1 Fri. Residences open to freshmen, 9 A.M.
Required registration meetings for freshmen, 7:30 P.M.

4 Mon. Labor Day

5 Tues. Required registration meetings for upperclassmen.

6 Wed. Fall-term classes begin.

15 Fri. Final deadline to apply for a fall-term Leave of Absence (section J). Withdrawal from Yale College on or before this date entitles a student to a full rebate of fall-term tuition (*Undergraduate Regulations*, chapter 7).

18 Mon. Course schedules due for the Class of 2010.*

19 Tues. Course schedules due for the Classes of 2008 and 2009.*

20 Wed. Course schedules due for the Class of 2007.*

All students planning to complete degree requirements at the end of the fall term must file a petition by this date. (See section K for penalties resulting from failure to meet this deadline.)

30 Sat. Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of fall-term tuition (*Undergraduate Regulations*, chapter 7).

October

16 Mon. Deadline to apply for a spring-term 2007 Junior Term Abroad (chapter I).

20 Fri. Deadline to complete applications for financial aid for the spring term, for students not enrolled in the 2006–2007 fall term (*Undergraduate Regulations*, chapter 8).

27 Fri. Midterm.

Last day to withdraw from a fall-term course without having the course appear on the transcript (sections F and B).

Deadline to apply for double credit in a single-credit course (section K).

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*, chapter 7).

*Late schedules from all classes are fined and may not include the Credit/D/Fail option. See chapter III, sections B and E.

November

- 10 Fri. Last day to convert from the Credit/D/Fail option in a fall-term course to a letter grade (section B).
- 17 Fri. Fall recess begins, 5.20 P.M.
- 27 Mon. Classes resume.
- 30 Thurs. Last day to relinquish on-campus housing for the spring term without charge (*Undergraduate Regulations*, chapter 7).

December

- 8 Fri. Classes end; reading period begins.
Last day to withdraw from a fall-term course (sections F and B).
- 14 Thurs. Reading period ends.
Deadline for all course assignments, including term papers. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
- 15 Fri. Final examinations begin, 9 A.M.†
- 22 Fri. Examinations end; winter recess begins, 5.30 P.M.
- 23 Sat. Residences close, 12 noon.

2007 SPRING TERM

January

- 10 Wed. Residences open, 9 A.M.
- 15 Mon. Martin Luther King, Jr., Day; classes do not meet.
Freshman registration meetings, 9 P.M.
- 16 Tues. Spring-term classes begin.
Registration for all students.
- 24 Wed. Course schedules due for the Class of 2010.*
- 25 Thurs. Course schedules due for the Classes of 2008 and 2009.*
Final deadline to apply for a spring-term Leave of Absence (section J).
Withdrawal from Yale College on or before this date entitles a student to a full rebate of spring-term tuition (*Undergraduate Regulations*, chapter 7).
- 26 Fri. Course schedules due for the Class of 2007.*
Last day for students in the Class of 2007 to petition for permission to complete the requirements of two majors.

† Please note that examinations will be held on Saturday and Sunday, December 16 and 17, 2006.

* Late schedules from all classes are fined and may not include the Credit/D/Fail option. See chapter III, sections B and E.

February

- 10 Sat. Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of spring-term tuition (*Undergraduate Regulations*, chapter 7).

March

- 9 Fri. Midterm.
Spring recess begins, 5.20 P.M.
Last day to withdraw from a spring-term course without having the course appear on the transcript (sections F and B).
Deadline to apply for double credit in a single-credit course (section K).
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*, chapter 7).
- 26 Mon. Classes resume.

April

- 2 Mon. Last day to convert from the Credit/D/Fail option in a spring-term course to a letter grade (section B).
Deadline to apply for a fall-term 2007 Junior Term Abroad or a 2007–2008 Junior Year Abroad (chapter I).
- 30 Mon. Classes end; reading period begins.
Last day to withdraw from a spring-term course (sections F and B).

May

- 1 Tues. Applications for fall-term Leaves of Absence due (section J).
- 7 Mon. Reading period ends.
Deadline for all course assignments, including term papers. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
- 8 Tues. Final examinations begin, 9 A.M.†
- 15 Tues. Examinations end, 5.30 P.M.
- 16 Wed. Residences close for underclassmen, 12 noon.
- 18 Fri. Deadline to complete applications for financial aid for the fall and spring terms, 2007–2008 (*Undergraduate Regulations*, chapter 8).
- 28 Mon. University Commencement.
- 29 Tues. Residences close for seniors, 12 noon.

† Please note that examinations will be held on Saturday and Sunday, May 12 and 13, 2007.

FINAL EXAMINATION SCHEDULES

Rules governing the conduct of final examinations are given in section G of chapter III. (See “Reading Period” and “Final Examinations.”)

An examination group number appears in the data line for each course in chapter IV. 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, 8.30 A.M. | |
| (32) M, W, or F, 9 or 9.30 A.M. | (22) T or Th, 9 or 9.30 A.M. |
| (33) M, W, or F, 10.30 A.M. | (23) T or Th, 10.30 A.M. |
| (34) M, W, or F, 11.30 A.M. | (24) T or Th, 11.30 A.M. |
| (35) M, W, or F, 12.30 P.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, and accounting; (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 (0) 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.

Final examination dates and times for 2006–2007 are:

2006	9 A.M.	2 P.M.	7 P.M.	2007	9 A.M.	2 P.M.	7 P.M.
15 Dec. F	(61)	(27)		8 May Tu	(61)	(23)	
16 Dec. Sa	(64)	(22)		9 May W	(33)	(34)	(64)
17 Dec. Su		(63)		10 May Th	(26)	(32)	
18 Dec. M	(33)	(34)	(35)	11 May F	(69)	(36)	(31)
19 Dec. Tu	(26)	(37)		12 May Sa	(22)	(35)	
20 Dec. W	(69)	(32)	(31)	13 May Su		(63)	
21 Dec. Th	(36)	(24)		14 May M	(24)	(37)	
22 Dec. F	(23)			15 May Tu	(27)		

A student who in a given term elects two courses with the same examination group number will be charged \$35 for a makeup examination. (See section H of chapter III, “Postponement of Final Examinations.”)

Yale College

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I

Yale College

Yale College, founded in 1701, is a coeducational undergraduate institution offering instruction in the liberal arts and sciences to about 5,200 students. The College is the oldest and the largest school of the University, which comprises also the Graduate School of Arts and Sciences and ten professional schools.

THE UNDERGRADUATE CURRICULUM

Yale College offers a liberal arts education, one that aims to train a broadly based, highly disciplined intellect without specifying in advance how that intellect will be used. Such an approach regards college as a phase of exploration, a place for the exercise of curiosity and the discovery of new interests and abilities, rather than the development of interests fully determined in advance. The College does not primarily train students in the particulars of a given career, although some students may elect to receive more of that preparation than others. Instead, its main goal is to instill in students the development of skills that they can bring to bear in whatever work they eventually choose. This philosophy of education corresponds with that expressed in the Yale Report of 1828, which draws a distinction between the “furniture” and the “discipline” of the mind. Acquiring facts is important, but learning how to think in a variety of ways takes precedence.

To ensure that study is neither too narrowly focused nor too diffuse, the College stands behind the principle of distribution of studies as strongly as it supports the principle of concentration. It requires that study be characterized, particularly in the earlier years, by a reasonable diversity of subject matter and approach, and in the later years by concentration in one of the major programs or departments. In addition, the College requires that all students in the Class of 2009 and subsequent classes take courses in certain foundational skills—writing, quantitative reasoning, and foreign language. These skills hold the key to many things students will want to know and do in later study and later life. People who fail to develop them at an early stage are limiting their futures without knowing what opportunities they are eliminating. In each of the three skills, students are required to travel some further distance from where they were in high school for the reason that these competences mature and deepen. The best high school writer is still not the writer he or she could be; students who do not use their mathematics or foreign language skills in college commonly lose abilities they once had, and can graduate knowing less than when they arrived.

The academic study of the international world and firsthand experience of foreign cultures are crucial for citizens of the global future. No Yale College student can afford to remain ignorant of the forces that shape our increasingly transnational world. Yale College urges all of its students to consider a summer or a term abroad sometime during their college careers.

A student working toward a bachelor’s degree takes four or five courses each term, and normally receives the B.A. or B.S. degree after completing

thirty-six term courses or their equivalent in eight terms of enrollment. To balance structure with latitude, and to achieve a balance of breadth and depth, a candidate for the bachelor's degree is required, in completing the thirty-six term courses, to fulfill the distributional requirements described in this chapter as well as the requirements of a major program.

ADVISING

What students ultimately derive from four years of study at Yale depends in large measure on their careful planning of a program of study. It would be impossible, and surely imprudent, for students to attempt to map out at the beginning of their studies a firm schedule of courses for the next eight terms. Yet it is important for students to think ahead, and always to plan while keeping in mind the principles outlined above.

Rather than prescribing a program of study, Yale College expects students to choose their courses, believing that students who select their courses are inevitably more engaged in them—a first precondition for serious learning—than students who have their program of study chosen by others. In shaping their educational goals, students should seek informed advice. The best advising comes when students and faculty members develop relationships out of shared intellectual interests. Because incoming students have not yet formed such relationships, Yale College has a special constellation of advising in place for them during their first days of school. The residential college dean connects freshmen with available advising resources, including presentations by faculty representatives from academic departments and by the Health Professions Advisory Board, by Undergraduate Career Services, and by International Education and Fellowship Programs. Incoming students also confer with individual advisers, assigned to them by their residential college dean, who can listen to their interests, aims, and concerns and offer them general guidance. No adviser will prescribe a particular set of courses, and the responsibility for shaping a program is the student's, but each student should make use of all the advice available in order to plan the most effective program.

DISTRIBUTIONAL REQUIREMENTS

The distributional requirements, described below, are intended to assure that by graduation all students have gained a broad acquaintance with a variety of fields of inquiry and approaches to knowledge. The distributional requirements are the only specific rules limiting the selection of courses outside a student's major program. The distributional requirements constitute a minimal education, not a complete one. They are a schematic representation of the least that an educated person should seek to know. They are to be embraced as starting points, not goals.

DISTRIBUTIONAL REQUIREMENTS FOR THE CLASS OF 2009 AND SUBSEQUENT CLASSES

Distributional requirements for the bachelor's degree. Students are required to take no fewer than two course credits in the humanities and arts, two course credits in the sciences, and two course credits in the social sciences. In addition

to completing courses in these disciplinary areas, students must fulfill skills requirements by taking two course credits in quantitative reasoning, two course credits in writing, and courses to further their foreign 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 a combination of course work and approved study abroad.

Courses that fulfill the distributional requirements are designated in the data line of course listings in chapter IV by the abbreviations Hu, Sc, So, QR, WR, and, for the foreign language requirement, L1, L2, L3, L4, or L5.

No courses taken on a Credit/D/Fail basis may be used to fulfill the distributional requirements. Acceleration credits may not be used to fulfill the distributional requirements.

Distributional requirements for the freshman, sophomore, and junior years. Students benefit most from fulfilling the distributional requirements early in their college careers and then building on their new knowledge and capabilities. Yale College recognizes this benefit by requiring partial fulfillment of the distributional requirements during the freshman, sophomore, and junior years.

Distributional requirements for the freshman year:

Students must have enrolled for at least one course credit in two skills categories (foreign language, quantitative reasoning, writing) by the end of the second term of enrollment in order to be eligible for promotion to sophomore standing. They may elect no more than four course credits in a single department, and no more than six course credits in a single disciplinary area (humanities and arts, sciences, social sciences), except that a student taking a laboratory course may elect as many as seven course credits in the sciences.

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 by the end of the sixth term of enrollment in order to be eligible for promotion to senior standing.

Area requirement in the humanities and arts (two course credits). Study of the humanities and arts—those subjects that explore the full range of human thought, expression, and endeavor—cultivates an educated appreciation of the greatest accomplishments of the past and enriches the capacity to participate consciously in the life of our time. By engaging other civilizations, both ancient and modern, students gain insight into the experiences of others and enhance the critical examination of their own culture. Those who create or perform works of art experience firsthand the joy and discipline of artistic expression. Because students of the humanities and arts examine the

value and purpose of all that surrounds them in a rigorous and systematic way, they acquire essential preparation for careers in many areas of modern life. But independently of any specific application, study of these subjects also fosters understanding of, and delight in, some of the highest achievements of the human spirit.

Area requirement in the sciences (two course credits). 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. Closer study of a science develops the critical faculties that educated citizens need. These include an ability to evaluate the opinions of experts, to distinguish quackery from responsible science, and to realize which things are known and which unknown—which are knowable and which unknowable—to science. Studying a science gives rise to new patterns of thought, as students participate in theoretical inquiry, experimental analysis, and firsthand problem solving. To know science is to appreciate a thousand intricate coherences in nature, which are hidden from casual observation but which, once revealed, lend richness to everyday life.

Area requirement in the social sciences (two course credits). Insights attained through the social sciences take on a critical significance at a time when the world's population is increasing rapidly and diverse cultures are coming into closer contact and even conflict. Among the major subjects of inquiry in the social sciences are international and area studies. Those who have been educated in the United States ought especially to acquire knowledge of the societies of Africa, Latin America, Asia, and eastern Europe, as well as broaden their familiarity with the range of cultures in North America and western Europe. Questions of class, gender, and identity are also central to work in the social sciences. Methods in the social sciences test for connections between the familiar and the exotic, 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: from governments and economies to social organizations, communicative systems, cultural practices, and the psychology of individuals.

Skills requirement in foreign language (at least one course, depending on preparation). The study of languages has long been understood to be 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 has become 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 foreign language, regardless of the level of study achieved at the time of matriculation. Students who have not studied a foreign language before arriving at Yale, and those whose prior language study does not qualify them for placement into a second-year course, are required to study a single foreign language through three terms to fulfill the distributional requirement.

Students who can place into the third term of a language program must successfully complete two terms, and those who can place into a fourth term must successfully complete one term, of further study in that same language. Students who can demonstrate ability beyond the fourth term of language study, either by a score of 4 or 5 on an Advanced Placement test or by a requisite score on a placement test at Yale, must either successfully complete one term of further study in that language, or successfully complete instruction in a different language through the level designated L2. Students must enroll for at least one course credit toward satisfaction of the foreign language requirement by the end of the fourth term of enrollment, and the requirement must be completed by the end of the sixth term of enrollment.

Students may complete an approved study abroad program in lieu of intermediate or advanced language study at Yale. Further details of the foreign language distributional requirement are listed under “Distributional Requirements” in chapter III, section A.

Skills requirement in quantitative reasoning (two course credits). The mental rigor resulting from quantitative study has been celebrated for as long as formal education has existed, and applications of quantitative methods have proven critical to a wide range of disciplines. Mathematics and statistics are the basic languages of the natural and the social sciences, and they have become useful tools in many of the humanities. Algorithms and formal logical constructs are the foundation of contemporary information technology, of mathematics itself, and of the rigorous dissection of logical arguments in any discipline. An educated person must be able to make, understand, and evaluate arguments on the basis of quantitative information.

To ensure that they have an opportunity to improve their quantitative reasoning skills, all students must take two courses designated QR in this bulletin; at least one of these courses must be taken by the fourth term, and two by the sixth term. Many such courses are taught through the departments of Mathematics, Statistics, and Computer Science, but appropriate courses may also be found in Astronomy, Biology, Chemistry, Economics, Engineering, Geology and Geophysics, Philosophy, Physics, Political Science, and Psychology.

Skills requirement in writing (two course credits). Writing well is the hallmark of an educated person, and is indispensable to advanced research in most disciplines. In leading students beyond merely recording other people’s knowledge to making their own critical contributions, writing fosters and supports the intellectual practices that distinguish active from passive learners.

All students are required to take two courses that focus on writing clearly and cogently. Courses that fulfill this requirement are designated WR in this bulletin; at least one must be taken by the fourth term of enrollment, and two by the sixth term. Over 150 courses, spanning more than 20 different academic departments, may be applied toward the WR requirement. The English department in particular offers many courses that provide special attention to writing skills, and freshmen should strongly consider taking one of the following: ENGL 114a or b, 115a or b, 116b, 117b, 120a or b.

*DISTRIBUTIONAL REQUIREMENTS FOR THE
CLASS OF 2008 AND PREVIOUS CLASSES*

For the purpose of distribution in Yale College, courses are classified into four groups according to the following general scheme:*

Group I: language and literature, English and foreign, ancient or modern

Group II: architecture; art; classical civilization; film; history; history of art; history of science, history of medicine; humanities; music; philosophy; religious studies

Group III: anthropology; archaeology; economics; linguistics; political science; psychology; sociology

Group IV: astronomy; biology; chemistry; computer science; engineering; forestry and environmental studies; geology and geophysics; mathematics; molecular biophysics and biochemistry; physics; statistics.

Distributional requirements for the freshman year, for the first two years, and for the bachelor's degree. The distributional requirements seek to insure that students achieve breadth and depth in their program of study, and that in the first two years of their undergraduate education they become exposed to different ideas and various ways of thinking by electing courses from a variety of departments. Many students come to Yale with advanced preparation in one or more fields. Early in their college careers, such qualified students ought to take advantage of any head start they may have in a subject to pursue it at a higher level than would otherwise be possible; a college course in a familiar subject at a more advanced level often discloses unfamiliar aspects of the subject. In addition, in disciplines like mathematics and languages, where the maintenance and improvement of skills greatly depend on continuity of application, students ought not lightly to consider interrupting the progress of their studies during their first years of college. During these years, nevertheless, they should also explore some subjects that they have never studied before. At the beginning of sophomore year students are expected to make at least a tentative choice of the department or program in which they will major; science majors must do so. In choosing freshman and sophomore courses, therefore, students should give attention to the prerequisites for any major in which they anticipate having a particular interest. But they should not close their minds to other possibilities. They should use the first year to explore, and then not hesitate to change their plans during the second year. Students who have selected courses wisely will have the groundwork to enter most majors.

For these reasons, in addition to the distributional requirements for the bachelor's degree, there are two sets of distributional requirements that students are expected to fulfill before the end of their sophomore year: one for the freshman year and one for the first two years.

Distributional requirements for the freshman year:

Freshmen must enroll for at least two course credits in Group I or II and two course credits in Group III or IV. They may elect no more than four course credits in a single department, and no more

*Some courses may fall into another distributional group in addition to the one indicated in this classification. The group number of a course is the roman numeral in the data line of the course listed in chapter IV.

than six course credits in a single distributional group (except that a student taking a course in a foreign language may elect as many as seven course credits in Group I, and a student taking a laboratory course may elect as many as seven course credits in Group IV).

Distributional requirement for the first two years:

In meeting the distributional requirements for the bachelor's degree, the student must enroll for at least two course credits in each of the four distributional groups by the end of the student's first four terms of enrollment.

Distributional requirements for the bachelor's degree:

To qualify for the bachelor's degree, a student must successfully complete at least twelve course credits drawn from outside the distributional group that includes the major. At least three course credits must be earned in each one of the three distributional groups falling outside the major; for a student whose major lies in Group I, II, or III, at least two of the three course credits in Group IV must be earned in the natural sciences. In addition, a student must fulfill the foreign language requirement by demonstrating competence in a foreign language at the intermediate level. Acceleration credits may not be employed to meet any of the distributional requirements for the bachelor's degree except for the foreign language requirement. For the sake of this requirement, "natural science" refers to Group IV courses (except mathematical, applied mathematical, and computational courses) in the following departments or programs: Applied Physics; Astronomy; Biomedical, Chemical, Electrical, Environmental, and Mechanical Engineering; Chemistry; Ecology and Evolutionary Biology; Engineering and Applied Science; Forestry & Environmental Studies; Geology and Geophysics; History of Science, History of Medicine; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; and Physics.

A student may apply no more than one course credit earned on the Credit/D/Fail basis (see "Credit/D/Fail Option" in chapter III, section B) in any distributional group toward satisfaction of the distributional requirements for the bachelor's degree.

A student is required to demonstrate competence at the intermediate level in a foreign language either upon entrance or before graduation, preferably by the end of the junior year. This requirement may be met by presenting an appropriate Advanced Placement test score, or by passing an examination at Yale, or by passing intermediate courses in a foreign language at Yale. Details about the foreign language requirement are contained in chapter III, section A, "Requirements for the B.A. or B.S. Degree."

MAJOR PROGRAMS

All candidates for a bachelor's degree in Yale College must elect one of the major programs listed at the beginning of chapter IV. The requirements for a major are described in general terms in the sections below, and in more detail preceding the course descriptions of each department or program in chapter IV. In every case students plan their schedule of courses in their

major subjects or fields in consultation with a representative of the department or program concerned, and must secure the consultant's written approval. Students should acquaint themselves fully with all the requirements of the major they plan to enter, considering not only the immediate choice of courses but also the plan of their entire work in the last two or three years in college.

Students seeking the B.S. or the B.A. degree with a major in science are expected to elect their majors at the beginning of sophomore year, although a major in science may still be elected later if the student has completed the courses required to enter it. Sophomores interested in majoring in science should have their schedules approved by the director of undergraduate studies or the adviser designated by the department in which they wish to major. Students seeking the B.A. degree with a major in a field other than a science are typically expected to elect their major at the beginning of the junior year. In the sophomore year these students' schedules must be signed by a sophomore adviser, chosen by the student, with whom the program has been discussed.

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 one of the most rewarding and liberating experiences a person can secure and can form the basis of the interests and occupations of a lifetime. Although no one should specialize to the neglect of distribution, knowledge advances by specialization, and one can gain some of the excitement of discovery by pressing toward the outer limits of human knowledge in a particular field. Intense study of a seemingly narrow area of investigation will often disclose ramifications and connections that alter perspectives on every other subject. Such study also sharpens judgment and acquaints a person with processes by which new truths can be found.

In order to expose themselves to this kind of experience, students must choose a field of study that will be their major field, that is, the subject in which they will work more intensively than in any other. A list of the more than seventy possible majors in Yale College from which such a choice is to be made is given at the beginning of chapter IV. Specific requirements for each major are established by the department or program concerned and are explained in chapter IV.

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 natural sciences or the humanities—without being certain of the particular department or program they intend to major in. Still others will be completely undecided. Past experience shows that students who arrive with their minds made up often 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 the first two years, students should have in mind not only the principles of distribution described above, but also the need for a preliminary exploration of the subjects to which they may feel drawn, in order to become aware of their own tastes, talents, and capacities.

A few general principles may help students in selecting courses.

1. In most of the humanities and social sciences, a student may choose from a variety of paths by which to progress from elementary to advanced study. It is possible to begin a major in, for example, English, psychology, or

history at the end of the sophomore year. There are few prerequisites to these majors, and students may satisfy them in either the freshman or sophomore year, or even, in some cases, on the basis of work done in secondary school.

2. In some other fields of study, such as the natural sciences, engineering, and foreign languages and literatures, a sequence of courses must be taken in a specified order from the freshman to the senior year. The introductory courses are prerequisites for the intermediate courses, and so on. In order to major in one of these disciplines, a student should lay the groundwork in the freshman year. Otherwise, it may be difficult to begin a major in these subjects in the sophomore year without undertaking study during the summer.

3. In order, therefore, to attain the maximum range and freedom of options for the upperclass years, each student should think about probable choices of a major before arriving at college. A student who is considering the possibility of majoring in a science should begin the appropriate foundational work during the freshman year. This will normally include one or more courses in mathematics along with courses in the natural sciences. Students in the biological sciences normally complete the general chemistry requirement or begin organic chemistry during the freshman year and, if appropriate, begin course work in biology. Students in the physical sciences and in engineering normally pursue course work in chemistry, physics, or both.

4. No matter what major a student selects, knowledge of a foreign language is one of the hallmarks of a liberal education. Students who cannot comfortably use a foreign language would be well advised to take during freshman or sophomore year courses that will enable them to do so. Anyone who intends postgraduate study should keep in mind that the requirements for a Ph.D. degree usually include a reading knowledge of two foreign languages.

5. Many of the courses open to freshmen will build on work they began in secondary school. Students will probably want to choose some of their freshman courses in areas in which they have already acquired some familiarity and interest, but for the sake of intellectual stimulation and to avoid being unduly limited in their range of future choices, they should also elect some courses in fields that are wholly new to them.

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

The major consists of a number of courses in the same area. A major program usually includes twelve term courses taken for the most part in the junior and senior years. Majors are offered by departments or by interdepartmental 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 of two term courses taken in the freshman and sophomore years; in some majors, depending on the requirements of the discipline and the student's level of preparation, there may be more prerequisite courses.

In all majors, the student must satisfy a senior requirement, such as 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.

Descriptions of the various majors appear at the head of the course descriptions, which are arranged alphabetically by department and program in chapter IV. Major programs are listed at the beginning of chapter IV.

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 in chapter IV. A Special Divisional Major thus provides an opportunity for students to design programs of concentration attuned to their particular interests and aptitudes. It may not be offered as one of two majors.

Special Divisional Majors differ so widely in content that there is no uniform format, but two patterns prevail. Some Special Divisional Majors combine two disciplines (e.g., religious studies and anthropology), while others draw from several departments to focus on a particular culture, period, or problem (e.g., medieval studies, urban studies).

THE RESIDENTIAL COLLEGES

The most conspicuous advantage of a university is that it presents students with a great breadth of learning and gives them access to scholars who are engaged not only in communicating knowledge but also in discovering it. But the potential disadvantages of a large university are that its size and complexity may discourage communication, and that teachers and students may become less of a challenge to each other. In such an event, the discovery of new knowledge suffers as much as do teaching and learning.

In order to avoid such disadvantages, Yale established residential colleges. Initially made possible through gifts from Edward Stephen Harkness, B.A. 1897, the colleges are more than living quarters; they are small communities of men and women, whose members know one another well and learn from one another. Each college has its own dining hall, where the students eat together, as well as its own library, common rooms, and athletic teams; each college offers courses for which academic credit is given; and each college celebrates the progress of the academic year with various festivities, concerts, and dramatic presentations.

There are twelve colleges: Berkeley, Branford, Calhoun, Davenport, Timothy Dwight, Jonathan Edwards, Morse, Pierson, Saybrook, Silliman, Ezra Stiles, and Trumbull. At the head of each college is a resident master; and in each college a dean advises students on both academic and nonacademic matters. Associated with the master and the dean as fellows are about fifty members of the faculty drawn from different departments and schools of the University. A few fellows reside in the college; others have offices there.

Upon entrance, each freshman is assigned to one of the twelve residential colleges. Most freshmen reside in a quadrangle known as the Old Campus. Whether freshmen live there or elsewhere on campus, they participate fully in the life of their residential college and may take a certain number of meals in their college. All freshmen and sophomores are required to live on campus. After freshman year most students live in their colleges, with about ten to fifteen percent of juniors and seniors choosing to live off campus. Whether they live on campus or off, undergraduates normally continue as members of the same college throughout their undergraduate careers.

INTERNATIONAL STUDY

While an understanding of the dynamics of a globalizing world can be gained in part from the rich variety of course offerings at Yale, experience abroad is an invaluable complement to academic training. Such experience may include course work in foreign universities, intensive language training, directed research, independent projects, internships, laboratory work, and volunteer service. 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 support students' experiences abroad.

Students may seek advice about summer or term-time study abroad and fellowship funding at the Office of International Education and Fellowship Programs, 55 Whitney Avenue, third floor, or on the Web at www.yale.edu/iefp. Summer courses abroad are offered by Yale Summer Session; more information is available on line at www.yale.edu/summer. Advice about internships abroad is available at Undergraduate Career Services, 55 Whitney Avenue, third floor, and on the Web at www.yale.edu/career. Students may search for all grants and fellowships at Yale that support international activities at <http://studentgrants.yale.edu/welcome.asp>. Students on financial aid may be eligible for summer funding through the International Summer Award program; information is available on the Web at www.yale.edu/isa.

JUNIOR YEAR OR TERM ABROAD

In recognition of the special value of formal study abroad, Yale College allows students to earn a full term or year of credit toward the bachelor's degree through the Junior Year or Term Abroad program. Participation in the Junior Year or Term Abroad program provides students the opportunity to approach academic study through a different cultural perspective and, most significantly, to speak, write, and learn in a foreign language. Students apply to the Yale College Committee on the Junior Year or Term Abroad for approval of a program of study abroad. Application procedures and regulations pertaining to the Junior Year or Term Abroad program are listed in chapter III, section K. Additional information is available from the Office of International Education and Fellowship Programs, 55 Whitney Avenue, third floor, or on the Web at www.yale.edu/iefp.

YALE-IN-LONDON

The Yale-in-London program offers spring-term courses in British culture and society at the Paul Mellon Centre for Studies in British Art, located in central London. The program is open to undergraduate students, carries full Yale course credit, and counts as a term of enrollment. Instruction is specially designed to utilize the cultural resources of London and its environs. Regular field trips (including overnight stays) to museums, historic houses, and other sites of interest are an integral part of the program. Accommodations are provided for students in shared apartments. Further information about the courses offered in spring 2007 and application forms will be available on the Web by September 15, 2006, at www.yale.edu/ycba/education. Inquiries may also be directed to the Yale-in-London office, Yale Center for British Art, 1080 Chapel Street, P.O. Box 208280, New Haven, CT 06520-8280, 432-2824. The application deadline for spring 2008 is Monday, April 9, 2007. A second application deadline for spring term 2007 is Friday, October 13,

2006. Students will be notified of acceptance within one month of the application deadline.

YALE-IN-LONDON SUMMER PROGRAM

Yale-in-London offers two overlapping summer sessions at the Paul Mellon Centre for Studies in British Art, each lasting six weeks. There are two courses in each session, with topics in history, history of art, architecture, literature, and drama. The courses carry full Yale course credit, but enrollment in Yale-in-London summer session does not count as a term of enrollment in Yale College. Admission is open to a limited number of undergraduates. Instruction is primarily based on the study of original works of art and architecture and, where appropriate, theater visits. Overnight field trips may be included. Accommodations are provided in University of London dormitories. Further information about the courses offered in summer 2007 and application forms will be available on the Web by September 15, 2006, at www.yale.edu/ycba/education. Inquiries may also be directed to the Yale-in-London office, Yale Center for British Art, 1080 Chapel Street, P.O. Box 208280, New Haven, CT 06520-8280, 432-2824. Applications for summer 2007 are due January 12, 2007.

PEKING UNIVERSITY–YALE UNIVERSITY JOINT UNDERGRADUATE PROGRAM

Established in 2006, the Peking University–Yale University Joint Undergraduate Program in Beijing provides Yale students the unique opportunity to study and live with Chinese students on the Peking University campus. The program is open to Yale College sophomores, juniors, and, in some cases, first-term seniors, and to Peking University Yuanpei Honors Program students. The program accepts students from all majors who are in good academic standing, for the fall or spring term or for the academic year. A term at Peking University carries full Yale course credit and counts as a term of enrollment. No prior Chinese language knowledge is necessary for Yale participants, although each student is required to take an appropriate level language course while in the program. All other courses, in a variety of disciplines, are taught in English by Yale and Peking University faculty members. Students from both universities live as roommates in a new residence hall centrally located on the Peking University campus. Further information about the program, the application process, and the courses offered is available on the Web at www.yale.edu/iefp/pku-yale or from the Office of International Education and Fellowship Programs, 55 Whitney Avenue, third floor.

YALE SUMMER SESSION

Courses in the Yale Summer Session are in most cases equivalent to courses offered in Yale College during the regular academic year, but they are presented in a more concentrated and intensive form during the shorter summer period. Yale College students may, if they wish, receive credit in Yale College for work successfully completed in these courses. Further information about all courses is available from Yale Summer Session, P.O. Box 208355, New Haven, CT 06520-8355, 432-2430, or on the Web at www.yale.edu/summer.

Courses offered during two five-week sessions, beginning in June and July, normally include the following disciplines and fields of study: African American studies; African studies; American studies; anthropology; art; astronomy; chemistry; classics; computer science; creative writing; drama; ecology and evolutionary biology; economics; engineering; English; film; history; history of art; literature; mathematics; molecular, cellular, and developmental biology; music; philosophy; political science; psychology; religious studies; sociology; statistics; and women's, gender, and sexuality studies.

The Summer Language Institute normally offers courses in the following languages: Arabic, Chinese, French, German, ancient Greek, Italian, Kiswahili, Latin, Nahuatl, Portuguese, Russian, and Spanish. Other languages may be added to this list, and it is possible to apply for Directed Independent Language Study during the summer (see under section K, "Special Arrangements," in chapter III). Most summer language courses are the equivalent of one year of instruction during a regular fall and spring term, and may be used toward the fulfillment of the foreign language distributional requirement.

A number of language and culture courses feature an intensive preparatory component on the Yale campus (generally four weeks) followed by several weeks of study abroad. Additional courses in culture and language (five weeks) meet exclusively abroad. Subjects offered recently include Kiswahili, Italian, French language and literature, Russian, Czech culture and film, Nahuatl, Southeast Asia studies (in Singapore), music (in Austria), and German studies.

In two consecutive five-week sessions, Yale Summer Sciences normally offers courses in biology, mathematics, physics, and general and organic chemistry.

There are no auditing privileges in Yale Summer Session.

SPECIAL PROGRAMS

DIRECTED STUDIES

Directed Studies is a selective interdisciplinary program in Western civilization for freshmen. Students in Directed Studies take three yearlong courses—literature, philosophy, and historical and political thought—in which they read the central works of the Western tradition.

One hundred twenty-five freshmen are admitted to the program each year. The *Freshman Handbook*, mailed in May to all students who plan to matriculate at Yale, describes the program and explains the application procedure. Some students are offered admission to the program on the basis of their Yale College application.

PERSPECTIVES ON SCIENCE

Perspectives on Science is a lecture and discussion course designed to supplement the standard academic program of a selected group of freshmen who have unusually strong backgrounds in science and mathematics. It explores a broad range of topics and exposes students to questions at the frontiers of science. It also highlights the interdependence of the various fields of science and raises issues about the relation between science and

society. Participants attend biweekly lectures given by invited members of the Yale science faculty. In the intervening weeks, groups of ten to fifteen students and two faculty participants meet to discuss the previous lecture. The course runs through the entire year; one course credit is awarded for successful completion of both terms.

Enrollment is limited to about sixty freshmen who, having applied, are selected on the basis of outstanding admissions records in mathematics and natural science. The *Freshman Handbook*, mailed in May to all students who plan to matriculate at Yale, describes the program and explains the application procedure.

FRESHMAN SEMINAR PROGRAM

The Freshman Seminar program offers incoming students the opportunity to enroll in small classes that have been designed specifically with freshmen in mind. In addition to fostering a stimulating intellectual environment, these seminars help first-year students forge relationships with faculty members and peers. Many of the seminars offer an introduction to a particular field of study and provide an opportunity for students to join the community of inquiry in that discipline. The number and the range of courses vary from year to year; current seminar offerings are listed in chapter IV. Students must apply and preregister for freshman seminars over the summer before freshman year. Registration information is available on the Web at www.yale.edu/yalecollege/freshmen/special/seminars.

RESIDENTIAL COLLEGE SEMINARS

The Residential College Seminar program, instituted in 1968, is devoted to the development within the residential colleges of innovative courses that fall outside departmental structures and that are created by the joint initiative of students and members of the faculty who are fellows of the residential colleges. In each of the residential colleges, committees consisting of both students and faculty review the course proposals that meet the criteria of student interests and intellectual merit. Those selected are forwarded to the Yale College Committee on Teaching in the Residential Colleges, which oversees the program. Courses accepted by this committee then go forward to the Yale College Course of Study Committee and, after scrutiny, are presented for final approval to the Yale College Faculty.

While the approval procedure involves a number of distinct stages, it assures that the courses meet the academic standards of Yale College. The program's roster includes about forty courses each year, many of them interdisciplinary, an important proportion of them in the arts, and some engaging instructors with unusual life experiences.

The faculty for the seminar program is drawn from many backgrounds, including Yale College and professional school faculty. The program also attracts some of the leading scholars of other academic institutions in the New York and New England areas. At the same time, the services of individuals outside of academic life are enlisted: writers, artists, participants in government and the public sector, and experts from television, journalism, and film.

In a great variety of ways, these seminars attempt to realize the hope expressed at the time of the program's inception: that the residential colleges will help "to keep alive the dialogue between faculty and student body which

alone can nourish a mutual respect for each other's interests and problems, which can reveal to the faculty the intimate concerns of the student, and to the student the relevance of his course of study." The college seminars have encouraged innovation and experimentation within the framework of academic excellence that is the hallmark of the Yale curriculum.

Most of the seminars in the Residential College Seminar program are supported by grants from the Old Dominion Foundation. Descriptions of the seminars are found on line at www.yale.edu/collegeseminar.

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 members of the Yale community. They were established in 1969 in honor of William Clyde DeVane, Dean of Yale College from 1939 to 1963. The next set of DeVane Lectures will be offered in spring 2007. James Gustave Speth, Dean and Professor in the Practice of Sustainable Development, School of Forestry & Environmental Studies, will offer "Modern Capitalism and Environment: Pathways to Sustainability or End of the Road?" Details of the course are listed in chapter IV under DeVane Lecture Course. Supplementary meetings will be held for those students taking the lectures for credit.

FRANCIS WRITER-IN-RESIDENCE

The Francis Writer-in-Residence in Yale College is a distinguished writer of nonfiction who teaches either one or two terms each academic year. The Francis Writer-in-Residence is actively engaged with undergraduates and serves as an academic mentor through seminars, readings, open office hours, and other activities. The Francis Writer-in-Residence for 2006–2007 is Anne Fadiman. For further information see under English in chapter IV.

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, who is appointed to live and teach at Yale. Both as a fellow of a residential college and as a teacher for one or two terms of each academic year, the Rosenkranz Writer-in-Residence meets formally and informally with students through classes and through readings and extracurricular activities. The Rosenkranz Writer-in-Residence for 2006–2007 is Louise Glück. For further information see under English in chapter IV.

YALE JOURNALISM INITIATIVE

The Journalism Initiative brings a distinguished writer to campus each term to teach an advanced journalism seminar. Students who complete the seminar may apply to become Yale Journalism Scholars, a distinction that provides access to summer support for internships, career counseling with a journalism specialist in the Writing Center, and invitations to meet professional journalists at events both on and off campus. The visiting journalist for fall 2006 is Steven Brill; the seminar is ENGL 467a, Journalism. For more information on the Initiative or on becoming a Journalism Scholar, see www.yale.edu/writing/journalism.

UNDERGRADUATE PROGRAM FOR TEACHER PREPARATION

The Teacher Preparation and Education Studies program offers students an opportunity to explore educational issues while enabling them to meet the requirements for certification to teach in early childhood settings or in public secondary schools. Students must apply for admission to the program during the sophomore year in order to plan a schedule that will allow sufficient time to meet requirements both for the Yale degree and for the teaching certificate. See under Teacher Preparation and Education Studies in chapter IV.

CENTER FOR LANGUAGE STUDY

The Center for Language Study (CLS), located at 370 Temple Street, provides guidance and support to students of foreign languages. The Guide to Language Study for Undergraduates, on the Web at www.cls.yale.edu/undergrad, includes detailed information about the Yale College foreign language requirement, placement testing, and tutoring, and it answers many frequently asked questions about language study at Yale. The Center's staff members can offer advice about opportunities for independent study, the use of computers and other technology in language study, and careers that require foreign language skills. Students may use foreign language video and audio materials in the CLS labs, as well as computers that support work with multimedia and foreign languages. The CLS facilities are open to all language learners at Yale, whether or not they are formally enrolled in language courses. More information, including open hours and a list of available resources, is on the Web at www.cls.yale.edu.

EXPOSITORY WRITING

To encourage the improvement of undergraduate writing, the Yale College Writing Center offers various courses and tutorials within the curriculum and outside it. Some of the most intensive writing courses in the curriculum are offered by the English department, including Writing Seminars I and II (ENGL 114a or b and 116b), Writing about Literature I and II (ENGL 115a or b and 117b), Reading and Writing the Modern Essay (ENGL 120a or b), and Daily Themes (ENGL 450b). For further information, see course listings under English in chapter IV.

Outside the English department, courses designated WR in chapter IV give special attention to the writing of students. Departments in the humanities, social sciences, and sciences offer a wide variety of writing courses.

Beyond the regular departmental offerings, the Yale College Writing Center provides several ways for students to get help with writing. The most important of these is the presence of a Writing Tutor in each residential college. Tutors usually meet with students on a one-to-one basis to discuss rough drafts of work in progress; they may also meet with small groups of students to discuss research techniques, revision strategies, or other matters relevant to effective college writing. Tutors are available to help with any writing project: senior essays, course papers, graduate school and fellowship applications, or anything intended for publication. The Writing Partners, another resource, are undergraduate and graduate students who offer drop-in help to students at any stage of writing. Finally, the Writing Center offers

occasional workshops and meetings on special topics, such as editing for crisper style or learning the conventions of American argument.

The Yale College Writing Center is maintained through the continuing support of the Bass family, the Newhouse Foundation, and other foundations. Its mission is to support excellence in writing and the use of writing for learning throughout the College. More detailed information is available from the Writing Center Web site at www.yale.edu/writing.

SCIENCE AND QUANTITATIVE REASONING

Tutoring in science and quantitative reasoning (QR), including economics, is provided through two programs, the Residential College Math and Science Tutoring program and the Science and QR Tutoring program.

The Residential College Math and Science Tutoring program offers tutoring at scheduled times in the residential colleges and in the Science and Quantitative Reasoning Center, located in 20 SSS. The tutors are advanced graduate students chosen for their teaching ability and their expertise in science and quantitative disciplines. Tutoring is available to all Yale College students on a walk-in basis, and is provided in all areas of math and science as well as in economics. Because tutors specialize in their own areas, freshmen are encouraged to seek out the help they most need from tutors in any of the colleges or at the Science and Quantitative Reasoning Center. Tutors' areas of expertise and office hours are available at each residential college dean's office and on the Residential College Math and Science Tutoring Web site at www.yale.edu/mstutor. For any further questions, contact the Math and Science Tutoring program, 432-1037.

To assist students who are experiencing difficulties in their course work and who require more personalized or longer-term support than is available through the Residential College Math and Science Tutoring program, the Science and Quantitative Reasoning Center administers a Science and QR Tutoring program that provides individual tutoring to undergraduates in the full range of science and quantitative disciplines, including economics. Tutors are advanced undergraduate, graduate, or professional school students who have been certified by their academic departments or programs as qualified to provide academic support in one or more specific Yale College courses. Any student enrolled in Yale College who is experiencing academic difficulty in a course, as confirmed by the instructor, is eligible for up to ten hours of tutoring per course each term free of charge. Applications to request a tutor are available at the offices of the residential college deans and at the Science and Quantitative Reasoning Center. More detailed information is available on the Web at www.yale.edu/yalecollege/students/academics/tutoring/sqr_tutors.html or from the program coordinator at 432-7128.

RESOURCE OFFICE ON DISABILITIES

Yale College seeks students who will become active and contributing citizens of America and the world. In order to ensure that all students have equal opportunity to make the most of their Yale education, the Resource Office on Disabilities facilitates individual accommodations for students with disabilities, and works to remove physical and attitudinal barriers to their full participation in the University community. The Office provides technical assistance, information, and disability awareness training to any member of the Yale community.

Current and prospective students with disabilities are encouraged to contact the Resource Office on Disabilities in person at William L. Harkness Hall, 100 Wall St., room 103, or by mail at Resources Office on Disabilities, Yale University, P.O. Box 208305, New Haven, CT 06520-8305. Voice callers may reach staff at 432-2324 or 432-2325, and TTY/TDD callers at 432-8250. Further information is available on the Web at www.yale.edu/rod.

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

Yale College students with appropriate qualifications may enroll in courses in the Graduate School of Arts and Sciences. Such enrollment requires permission of the course's instructor and of the director of graduate studies of the department in which the course is offered.

A limited number of students of distinguished ability 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. Students apply to this program through their director of undergraduate studies. Details of the requirements are listed in chapter III, section K.

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

Well-qualified undergraduates majoring in Engineering, Forestry & Environmental Studies, or Music may be able to structure their undergraduate programs so as to become eligible for a master's degree after one additional year of graduate study at Yale. Further details of the combined programs may be found under the respective headings in chapter IV.

ELI WHITNEY STUDENTS PROGRAM

The Eli Whitney Students program is designed for persons for whom full-time study is not possible, but who wish to obtain a bachelor of arts or bachelor of science degree from Yale University. A minimum of eighteen course credits from Yale as a matriculated student is required, and the degree must be completed within seven years. The program is described more fully in chapter III, section M. Additional information, including details about eligibility, application deadlines, and admission to the program, is available from the Director of Eli Whitney Students Program Admissions, 38 Hillhouse Avenue, Yale University, P.O. Box 208234, New Haven, CT 06520-8234, 432-9301.

HONORS

GENERAL HONORS

The bachelor's degree *cum laude*, *magna cum laude*, or *summa cum laude* is awarded at graduation on the basis of the student's general performance in courses taken at Yale. At Commencement, General Honors will be awarded to no more than 30 percent of the class. The bachelor's degree will be awarded *summa cum laude* to no more than the top 5 percent of the graduating class; it will be awarded *magna cum laude* to no more than the next 10 percent of the graduating class; and it will be awarded *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.) Marks of CR in courses taken on a Credit/D/Fail basis are included in the calculations for election to Phi Beta Kappa as non-A grades.

DISTINCTION IN THE MAJOR

Distinction in the Major will be conferred at graduation upon 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 may be awarded to students who have earned grades of A or A- in three-quarters of the credits in the major subject or program, with 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 as well as marks of CR in courses taken on a Credit/D/Fail basis are included as non-A grades.

PRIZES

For a list of the numerous prizes open annually to students in Yale College, consult the Web at www.yale.edu/secretary/prizes.

MISCELLANEOUS

Expenses and expected patterns of payment are described in the *Undergraduate Regulations*, published by the Yale College Dean's Office, Yale University, P.O. Box 208241, New Haven, CT 06520-8241, and on the Web at www.yale.edu/yalecollege/publications/uregs. The *Undergraduate Regulations* also provides details of student coverage in the Yale Health Plan. Information about programs designed to assist families in financing a Yale education is included in the *Yale College Viewbook*, available from the Office of Undergraduate Admissions, Yale University, P.O. Box 208234, New Haven, CT 06520-8234, and on the Web at www.yale.edu/admit/freshmen/financial_aid.

II

Freshman Placement and Acceleration

Yale recognizes that freshmen enter college with different degrees of preparation and proficiency in various subjects. A substantial number of freshmen have completed advanced or honors work either on their own, or under the auspices of the Advanced Placement program of the College Board, or by enrollment in college courses before coming to Yale. The University strongly supports superior attainments like these, and offers placement in advanced courses to all freshmen who have successfully undertaken such work.

Eligibility for placement in advanced courses may be demonstrated in several ways: by excellent scores on the Advanced Placement or SAT II Subject tests of the College Board, by superior performance on a departmental placement examination, or through consultation with the appropriate director of undergraduate studies or placement officer.

In addition, Yale offers students the opportunity to accelerate, that is, to earn the bachelor's degree in fewer than eight terms of regular enrollment. Acceleration may occur either by the early accumulation of thirty-six course credits or by the employment of acceleration credits. Acceleration credits are awarded at matriculation to freshmen on the basis of Advanced Placement tests (or equivalent international tests) or may be earned by completing a designated advanced course during freshman year. Freshmen with superior preparation in biology, chemistry, computer science, economics, English, foreign languages (ancient and modern), history, history of art, mathematics, music, or physics have the opportunity of acquiring credits that may be used for acceleration.

COURSE SELECTION IN FRESHMAN YEAR

Many departments offer introductory courses specifically designed for students beginning the study of a subject. In some of these departments (e.g., Anthropology, Economics, Linguistics, Philosophy, Political Science, and Sociology), a number of different introductory courses are available, all presented on the same level of difficulty but each approaching the subject from a different vantage point. In other departments, courses are organized on different levels of difficulty and require different degrees of preparation or skill. The level at which a student should begin or continue the study of a subject at Yale is primarily a matter of common sense. What is desired is placement at a level that will mean energetic work without a disproportionate slighting of one's other courses, productive tension without frustration, and the enjoyment that comes from a new challenge rather than from the comfortable recognition of familiar territory. When in doubt, freshmen should, after seeking advice, trust to their energies and choose the more challenging courses.

In deciding about appropriate courses, freshmen should first read carefully the material in this chapter and in the *Freshman Handbook*, and then examine the introductory information about particular fields in chapter IV of this bulletin. (The *Freshman Handbook* is mailed to all freshmen during the summer.) The introductory passages in chapter IV of this bulletin contain information concerning courses especially appropriate for freshmen as well as explanations of the differences in level or approach among various introductory courses. After considering the descriptions of course offerings, freshmen should consult their freshman faculty advisers. Since advisers cannot know everything about every subject of instruction, the student should regard the faculty adviser not only as a source of information but also as a point of contact with other members of the faculty who have the more precise and specific information a particular freshman may need. The faculty adviser may therefore refer a student with special qualifications or problems to the director of undergraduate studies of a department or program, to a departmental placement officer, or to a departmental adviser in the student's residential college. The names of these members of the faculty are given with the introductory information on each subject described in chapter IV, and no freshman should hesitate to consult them at any point during the academic year, particularly during the first weeks of the term.

In deciding the most appropriate level of placement, a student may want to attend courses on a trial basis. Freshmen have ample time after freshman registration in which to submit their course schedules, so that a student can resolve doubts about placement by attending courses at two levels (or on two different aspects) of the same subject. Discussions with the instructors of these courses will usually be helpful, because in that context the question of a student's placement can be explored in a concrete and exact way. Even after the term is under way, with the permission of the department a change of level in such subjects as foreign languages or mathematics may be arranged if the instructor and student agree that it is appropriate.

Departments offering instruction in subjects for which students may take Advanced Placement or SAT II Subject tests have drawn up placement policies fully described in the *Freshman Handbook*. Although these policies are intended to answer most questions that freshmen may have, they cannot take into account everyone's individual situation. Freshmen with questions about placement that are not answered in the *Freshman Handbook* or in this bulletin are invited to discuss their qualifications with the appropriate director of undergraduate studies or departmental representative.

ENROLLMENT IN ADVANCED COURSES AND ACCELERATION CREDIT

Enrollment in an advanced course is permitted any freshman whose academic preparation has anticipated the main content of the prerequisite course or courses in that subject in Yale College. All students are encouraged, indeed, expected, to place themselves in the courses most appropriate to their preparation. At the same time, any student seeking to enroll in an advanced course should expect to furnish proof of being ready to continue work at an advanced level. Most students present good or excellent scores on such recognized, nationally administered, standardized tests as the Advanced Placement, SAT II Subject, International Baccalaureate, or GCE A-levels. Some

students—for example, native speakers of foreign languages or students who have studied languages or other subjects independently—may not have taken such tests, but should still expect to establish their qualifications by taking a departmental placement examination (where one is available), or by speaking with the director of undergraduate studies or an instructor.

Placement in an advanced course does not award more than normal credit or reduce the total number of credits required for graduation. Successfully completing certain advanced courses during freshman year may award acceleration credits, or may allow students to skip some, or even all, *prerequisite* courses in certain majors (though may not be used to reduce the number of *required* courses in any major). Interested freshmen should consult the *Freshman Handbook*, and then seek advice from the appropriate director of undergraduate studies or departmental representative.

An *acceleration credit* is the equivalent of one course credit that may be applied to the 36-course-credit requirement for the bachelor's degree only by students who are permitted to accelerate their progress toward graduation, that is, to complete the requirements of the bachelor's degree in fewer than eight terms. The rules governing how acceleration credits may be used to reduce the number of terms required for the bachelor's degree are complex and strictly enforced. Students seeking to accelerate should take special care to familiarize themselves with appendix A of the *Freshman Handbook*.

For the Class of 2008 and previous classes, acceleration credits may *not* be employed to meet any distributional requirement, except for the foreign language requirement and the distributional requirement for the first two years. For the Class of 2009 and subsequent classes, acceleration credits may *not* be employed to meet the distributional requirements for the freshman, sophomore, or junior years, or the distributional requirements for the bachelor's degree, including the foreign language requirement.

Acceleration credits may be acquired in two ways:

1. On entrance: Freshmen who have scored 4 or 5 on an Advanced Placement test of the College Board will in many subjects be awarded two acceleration credits at matriculation. See below, "Criteria for the Award of Acceleration Credit." Similarly, for subjects in which acceleration credits are awarded for specified scores on Advanced Placement tests, freshmen may be awarded the same number of acceleration credits for scores of 6 or 7 on higher-level International Baccalaureate examinations or for scores of B or A on the General Certificate of Education (GCE) A-level examinations. Students who have taken such examinations, or such established national examinations as the German *Abitur* or the French *Baccalauréat*, should bring the fact to the attention of their residential college deans and submit copies of their scores to the Registrar's Office. For a score on a test to result in the award of acceleration credit, that test must have been taken while the student was enrolled in secondary school.

2. At Yale: Students may be granted acceleration credit in some subjects at the end of freshman year if during the year they successfully complete an appropriate advanced course in that subject. Such acceleration credit is in addition to the course credit earned, but is not in addition to acceleration credit already granted in that subject on the basis of an Advanced Placement test. Thus, for example, a freshman eligible to take ENGL 125 who has not received acceleration credits in English but who completes both terms of ENGL 125 with a grade of B or above receives course credit for ENGL 125 as well as two acceleration credits in English. See below, "Criteria for the Award of Acceleration Credit."

In order to be awarded acceleration credit on the basis of advanced course work completed at Yale, the student must earn a grade of B or above in the course stipulated below during the freshman year. Other grades, including the mark of CR on the Credit/D/Fail option, will not yield acceleration credit. Acceleration credit cannot be awarded upon completion of advanced courses after a student's first two terms of enrollment in Yale College.

In some subjects, such as economics, a high score on the Advanced Placement test does not in itself award acceleration credits. But the Advanced Placement test score may qualify students to enroll in intermediate-level courses, by which they may earn acceleration credits during freshman year. The chart below gives the acceleration criteria for each department.

Yale does not award course credit to students who took college courses while they were enrolled in secondary school. (Courses taken in Yale College or Yale Summer Session are exceptions.) However, a student who has taken such a course may be able to complete satisfactorily an advanced course in that subject during the freshman year at Yale and thus receive acceleration credit on that basis.

A student expecting acceleration credits must select courses with particular care throughout his or her years at Yale, because acceleration credits in a subject will be forfeited if a student takes a course that duplicates or is the equivalent of the work for which the acceleration credits are granted. Acceleration credit is usually forfeited if a student completes any course with a lower number than the lowest-numbered course earning acceleration credit in the subject. For specific information on the courses that result in the forfeit of acceleration credit, see the chart below.

Two is the maximum number of acceleration credits that may be earned in any subject, whether those credits are earned on matriculation or through course work at Yale.

CRITERIA FOR THE AWARD OF ACCELERATION CREDIT

Following are the criteria by which acceleration credit will be awarded to members of the freshman class. Also see appendix A of the *Freshman Handbook*.

	<i>Acceleration Credit Awarded on Entrance</i>	<i>Acceleration Credit Earned during Freshman Year</i>	<i>Courses Resulting in the Forfeit of Acceleration Credit</i>
<i>Arabic</i>	None.	2 credits for ARBC 104, 105a or b, or 106b.	2 acceleration credits lost for either term of ARBC 101 or 102 or the first term of 103; 1 lost for the second term of 103.
<i>Art</i>	None.	None.	None.
<i>Biology</i>	1 credit for 5 on AP Biology test. No credit given for AP Environmental Science test.	1 credit for MCDB 200b, 202a, 205b, 210a, or 300a.	MCDB 105a or 120a.
<i>Chemistry</i>	1 credit for 5 on AP Chemistry test.	1 credit for CHEM 118a; 1 credit for 1 term, 2 credits for 2 terms of 125, 220a, 221b, 225b, 252b, 328a, 332a, or 333b.	CHEM 113, 114.

	<i>Acceleration Credit Awarded on Entrance</i>	<i>Acceleration Credit Earned during Freshman Year</i>	<i>Courses Resulting in the Forfeit of Acceleration Credit</i>
<i>Chinese</i>	None.	2 credits for CHNS 150 or higher-numbered course not in translation.	2 acceleration credits lost for either term of CHNS 115, 118, or the first term of 130 or 133; 1 lost for the second term of 130 or 133.
<i>Computer Science</i>	1 credit for 4 or 5 on AP Comp Sci AB test. No credit given for AP Comp Sci A test.	1 credit for CPSC 201a or b or 223b; 2 credits for 323a.	CPSC 112a or b.
<i>Economics</i>	None.	1 credit for ECON 150a or b; 1 credit for 154a or b; 2 credits for both.	Microeconomics credit lost by ECON 110a, 115a or b, or 117a; macroeconomics credit lost by 111b or 116a or b.
<i>English</i>	2 credits for 5 on either AP English Lang and Comp or AP English Comp and Lit tests. None for AP International English Language (APIEL) test.	1 credit for ENGL 120a or b; 1 credit for 1 term, 2 credits for 2 terms of ENGL 125, 127, 129, or DRST 001.	ENGL 114a or b, 115, 116b.
<i>French</i>	2 credits for 4 or 5 on either AP French test (Lang or Lit). No additional credit for taking both tests.	2 credits for FREN 138a or higher-numbered course not in translation.	2 acceleration credits lost for either term of FREN 115 or for 117a, 118a, 120a or b, 130a or b, or 132b; 1 lost for 131a or b.
<i>German</i>	2 credits for 4 or 5 on AP German Lang test.	2 credits for GMAN 138a or 139b or higher-numbered course not in translation.	2 acceleration credits lost for either term of GMAN 125 or for 115a or b, 116a or b, 119a, 120b, or 130a or b; 1 lost for 131a or b.
<i>Greek (ancient)</i>	None.	2 credits for GREK 300a or higher-numbered course.	2 acceleration credits lost for GREK 110a; 1 lost for 111b.
<i>Hebrew</i>	None.	2 credits for HEBR 103a or 104b.	2 acceleration credits lost for either term of HEBR 101 or the first term of 102; 1 lost for the second term of 102.
<i>History</i>	1 credit for 4 or 5 on AP test in either American or European History; 2 credits for 4 or 5 on both tests.	None.	European history credit lost by HIST 202a.
<i>History of Art</i>	2 credits for 4 or 5 on AP test in Art History.	None.	HSAR 115b.
<i>Italian</i>	None.	2 credits for ITAL 146a or higher-numbered course not in translation.	2 acceleration credits lost for either term of ITAL 115, or for 116a or b, 120b, or 126a, or for the first term of 130; 1 lost for the second term of 130.

	<i>Acceleration Credit Awarded on Entrance</i>	<i>Acceleration Credit Earned during Freshman Year</i>	<i>Courses Resulting in the Forfeit of Acceleration Credit</i>
<i>Japanese</i>	None.	2 credits for JAPN 150 or higher-numbered course not in translation.	2 acceleration credits lost for JAPN 115 or the first term of 140; 1 lost for the second term of 140.
<i>Korean</i>	None.	2 credits for KREN 150.	2 acceleration credits lost for either term of KREN 115 or the first term of 130 or 133; 1 lost for the second term of 130 or 133.
<i>Latin</i>	1 credit for 4 or 5 on one AP Latin test; 2 credits for 4 or 5 on two tests.	2 credits for LATN 300a or higher-numbered course.	2 acceleration credits lost for LATN 110a; 1 lost for 111b.
<i>Mathematics</i>	1 credit for 5 on AB Mathematics AP test; 1 credit for 4 on BC test; 2 credits for 5 on BC test.	1 credit for MATH 115a or b; 1 credit for 118a or b; 2 credits for 120a or b or higher-numbered course (except 190a, 290b, and multiple-titled courses).	If 2 acceleration credits awarded: 2 lost by MATH 112a or b; 1 lost by 115a or b or 118a or b. If 1 awarded: 1 lost by 112a or b.
<i>Music</i>	1 credit for 4 or 5 on AP Music Theory test.	2 credits for MUSI 210a or b, 211a or b, 310a, or 311b.	MUSI 110a or b or 112a.
<i>Physics</i>	1 credit for 4 or 5 on either AP Physics C test, with 5 on AP Math AB test or 4 or 5 on Math BC test. 2 credits for 4 or 5 on both parts of Physics C test with requisite score on Math AB or BC tests. No credit given for AP Physics B test.	2 credits for PHYS 260a, 261b, or for course numbered PHYS 400 or higher.	If 1 acceleration credit awarded, 1 lost, and if 2 acceleration credits awarded, 2 lost, by PHYS 110a or b, 150a, 151b, 180a, 181b.
<i>Political Science</i>	None.	None.	None.
<i>Psychology</i>	None.	None.	None.
<i>Russian</i>	None.	2 credits for RUSS 130 or higher-numbered course not in translation.	2 acceleration credits lost for either term of RUSS 115 or 125; 1 lost for the second term of 122.
<i>Spanish</i>	2 credits for 4 or 5 on either AP Spanish test (Lang or Lit). No additional credit for taking both tests.	2 credits for SPAN 060a or for SPAN 220a or higher-numbered course not in translation.	2 acceleration credits lost for SPAN 115a or b, 116a or b, 117a or b, 130a or b, 132a or b, or 135a; 1 lost for 131a or b or 136b.
<i>Statistics</i>	None.	None.	None.

The registrar automatically awards acceleration credit by these criteria during the summer between freshman and sophomore years after an examination of the records of each member of the freshman class.

III

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 bring them to 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 or their equivalent in Yale College. 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. Students enrolled in the Eli Whitney Students program should consult section M, "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, except in the Eli Whitney Students program.

DISTRIBUTIONAL REQUIREMENTS

The distributional requirements are defined in chapter I. Please note that there is one set of requirements for students who matriculated with the Class of 2008 or earlier classes, and another set for students who matriculate with the Class of 2009 or subsequent classes.

1. *Multiple distributional designations and distributional groups. For the Class of 2008 and earlier classes:* Although some courses may carry more than one distributional group number, a single course may be applied to only one distributional group. For example, if a course is designated "I or II" in chapter IV of this bulletin, it may be applied toward either Group I or Group II, but not both.

For the Class of 2009 and subsequent classes: 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 in chapter IV of this bulletin, 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.

2. *Foreign language distributional requirement. For the Class of 2008 and earlier classes:* Languages currently offered at Yale in which a student may attain the required competence are: Arabic, Chinese, Czech, Egyptian,

French, German, ancient Greek, modern Greek, Hebrew, Hindi, Indonesian, isiZulu, Italian, Japanese, Kiswahili, Korean, Latin, Persian, Portuguese, Russian, Serbian and Croatian, Spanish, Tamil, Turkish, Vietnamese, and Yorùbá. Information about appropriate Advanced Placement test scores, relevant courses, and the nature of the examinations in these languages is contained in chapter IV in the introductory statements of the departments offering courses in foreign languages.

Students who possess competence in a language other than those listed here (including American Sign Language), either because it is their native language, or because they learned it abroad or by study at another university, or by some other means, should consult the appropriate director of undergraduate studies or the director of the Center for Language Study to arrange for an 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 waiver of the requirement. In granting such a waiver, the committee will normally require that a student complete six course credits in the study of a specific non-English-speaking culture. The committee may, in individual cases and on petition of the student's major program, partially or fully waive the requirement for sound and weighty academic reasons.

Students who arrive at Yale after having graduated from a secondary school or having transferred from another university at which the primary language of instruction was other than English are considered to have satisfied the foreign language requirement. This provision does not apply to students who have attended English-speaking secondary schools in other countries or who may speak a language other than English in their home, who still must undergo testing.

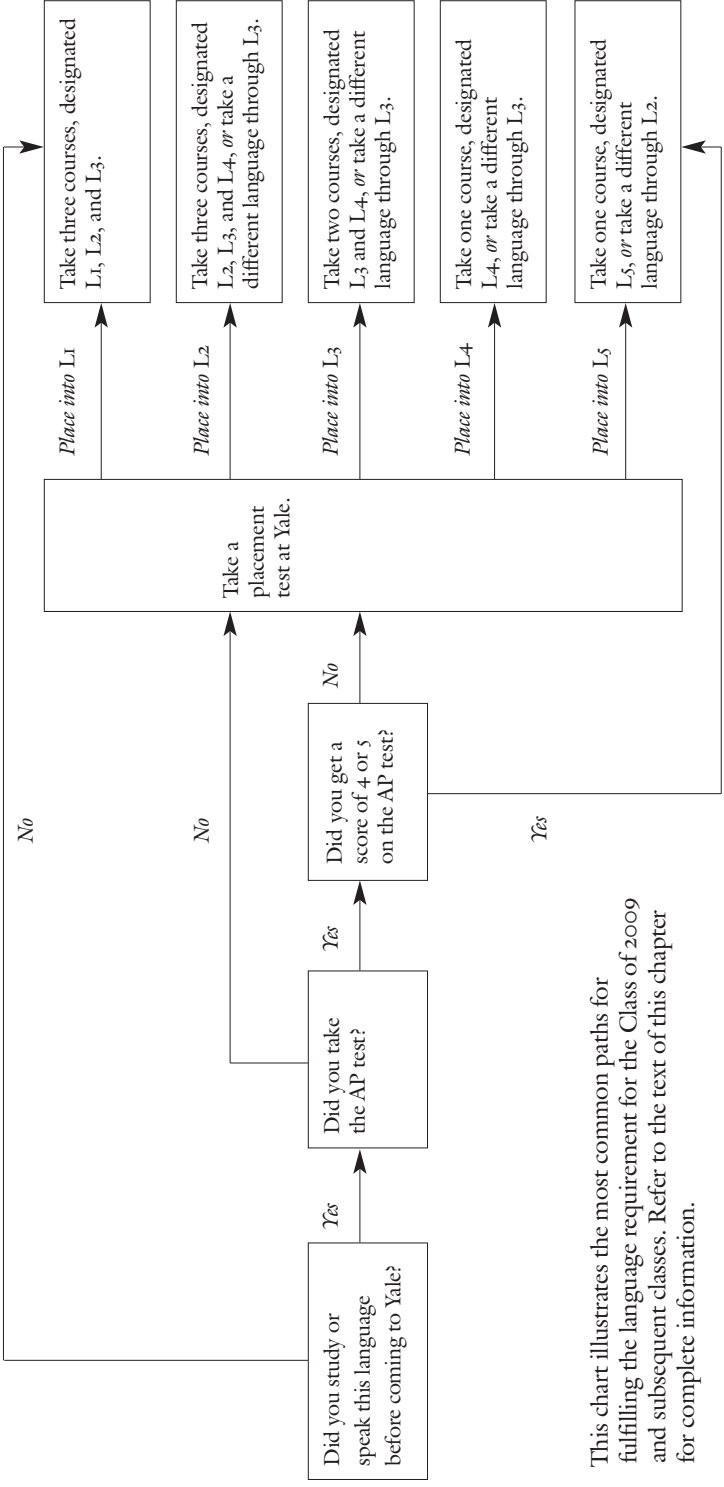
For the Class of 2009 and subsequent classes: All students are required to engage in the study of a foreign language while enrolled in Yale College. The most common paths to fulfillment of the foreign language distributional requirement are illustrated in the chart on the following page.

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

Students who have taken the Advanced Placement examination in a foreign language and who present scores of 4 or 5 are recognized as having completed the intermediate level of study. Scores of 6 or 7 on the International Baccalaureate Advanced-Level examination are also accepted as evidence of intermediate-level accomplishment. Students at this level fulfill the language distributional requirement by completing one course designated L5 in chapter IV of this bulletin. Alternatively, they may successfully complete instruction in a different foreign language through the level designated L2.

Students who have studied a foreign language before matriculating at Yale but who have not achieved a score of 4 or 5 on the Advanced Placement test must take a placement test offered by the appropriate language department. Dates and times of placement tests are given in the *Calendar for the Opening Days of College* and in the departmental program descriptions in chapter IV of this bulletin. 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 in chapter IV of this bulletin), or whether they qualify for language courses beyond the fourth term of study (L5).

THE LANGUAGE REQUIREMENT FOR THE CLASS OF 2009 AND SUBSEQUENT CLASSES



This chart illustrates the most common paths for fulfilling the language requirement for the Class of 2009 and subsequent classes. Refer to the text of this chapter for complete information.

Students who place into the first term of a foreign language must complete three terms of instruction in that language, designated L₁, L₂, and L₃ in chapter IV of this bulletin.

Students who matriculate at Yale able to place into the second term of a foreign language must successfully complete three terms of instruction in that language, designated L₂, L₃, and L₄ in chapter IV of this bulletin. Alternatively, they may successfully complete instruction in a different foreign language through the level designated L₃.

Students who matriculate at Yale able to place into the third term of a foreign language must successfully complete two terms of instruction in that language, designated L₃ and L₄ in chapter IV of this bulletin. Alternatively, they may successfully complete instruction in a different foreign language through the level designated L₃.

Students who matriculate at Yale able to place into the fourth term of a foreign language must successfully complete one term of instruction in that language, designated L₄ in chapter IV of this bulletin. Alternatively, they may successfully complete instruction in a different foreign language through the level designated L₃.

Students who matriculate at Yale able to place into the fifth term of a foreign language must successfully complete one term of instruction in that language, designated L₅ in chapter IV of this bulletin. Alternatively, they may successfully complete instruction in a different foreign language through the level designated L₂.

Intensive language courses provide the equivalent of a full year of instruction in a single term. A course designated L₁–L₂ in chapter IV of this bulletin fulfills both the L₁ and the L₂ levels of the foreign language distributional requirement. Similarly, a course designated L₃–L₄ satisfies both the L₃ and the L₄ levels.

In order to promote firsthand experience in foreign cultures and the learning of language in real-world settings, students are permitted to satisfy the foreign language requirement by either completing or placing out of a language course designated L₂ in chapter IV of this bulletin and then completing an approved study abroad program in a foreign-language-speaking setting. A student may seek permission from the appropriate director of undergraduate studies or the director of the Center for Language Study to substitute a term or a summer abroad in an approved program for intermediate or advanced language study at Yale. Study abroad may be used in place of L₁ and L₂ courses only if it is part of a Yale College program. Study abroad opportunities are described in chapter I under the heading “International Study.”

Students who present a secondary school transcript showing that the language of instruction was other than English may fulfill the foreign language requirement either by taking ENGL 114a or b, 120a or b, or 450b, or by successfully completing instruction in a third language, neither English nor the language of instruction in the secondary school, through the level designated L₂. Students who demonstrate by testing that they are native speakers of a language other than English may fulfill the foreign language requirement in the same way. This provision does not apply to students who have attended English-speaking secondary schools in other countries.

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, Arabic, Chinese, Coptic, Czech, hieroglyphic Egyptian, French, German, ancient Greek, modern Greek, biblical Hebrew, modern Hebrew, Hindi, Indonesian,

isiZulu, Italian, Japanese, Kiswahili, Korean, Latin, Persian, Portuguese, Russian, Sanskrit, Serbian and Croatian, Spanish, Syriac, Tamil, Turkish, Vietnamese, and Yorùbá. Students wishing to fulfill the foreign language requirement in a less commonly taught language should consult the director of undergraduate studies 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 (including American Sign Language) should consult the appropriate director of undergraduate studies 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 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.

3. *Courses taken on the Credit/D/Fail basis. For the Class of 2008 and earlier classes:* A student may offer as many as four course credits earned on the Credit/D/Fail basis toward the bachelor's degree (see "Credit/D/Fail Option" in section B). A student may apply no more than one course credit earned on the Credit/D/Fail basis in any distributional group toward satisfaction of the distributional requirements for the bachelor's degree.

For the Class of 2009 and subsequent classes: A student may offer as many as four course credits earned on the Credit/D/Fail basis toward the bachelor's degree (see "Credit/D/Fail Option" in section B). A student may not apply any course credit earned on the Credit/D/Fail basis toward satisfaction of the distributional requirements for the bachelor's degree.

4. *Acceleration credits. For the Class of 2008 and earlier classes:* Acceleration credits may not be employed to meet the distributional requirements for the freshman year or the distributional requirements for the bachelor's degree. Acceleration credits may be employed to meet the foreign language requirement and the distributional requirement for the first two years, whether or not the student uses those credits in order to accelerate.

For the Class of 2009 and subsequent classes: Acceleration credits may not be employed to satisfy the distributional requirements for the bachelor's degree. Acceleration credits may not be employed to meet the distributional requirements for the freshman, sophomore, or junior years.

5. *Course credit earned at Yale before matriculation. For the Class of 2008 and earlier classes:* Course credit earned at Yale before a student's matriculation, either at the Yale Summer Session or in the Nondegree 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 the distributional requirement for the first two years, but it may not be applied to the distributional requirements for the freshman year.

For the Class of 2009 and subsequent classes: Course credit earned at Yale before a student's matriculation, either at the Yale Summer Session or in the Nondegree 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 freshman year.

6. *Credit from outside Yale. For the Class of 2008 and earlier classes:* Course credit earned at another university may be applied toward the distributional requirements for the bachelor's degree and the distributional requirement for

the first two 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 freshman year. See “Rules on Credit from outside Yale” in section O. 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.

For the Class of 2009 and subsequent classes: 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 freshman year. See “Rules on Credit from outside Yale” in section O. 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.

7. *Major programs. For the Class of 2008 and earlier classes:* A student in an interdisciplinary major program that includes more than one distributional group should, in consultation with the director of undergraduate studies, determine the group in which the proposed studies chiefly lie. The student must then fulfill the distributional requirements accordingly, with that group being considered the group of the major. In this way some courses offered for the major may, for the purposes of the distributional requirements, be counted as falling outside the group of the major. Tutorial, directed reading, or directed research courses in interdisciplinary major programs may be applied toward satisfaction of the distributional requirements only in the group in which the project chiefly lies, as determined by the director of undergraduate studies.

A student who has been given permission to complete the requirements of two major programs, each of them in a different group, may, for the purposes of the distributional requirements, be considered as having only one major; in such a case, courses in the other major count toward the distributional requirements. See “Two Majors” in section K.

For the Class of 2009 and subsequent classes: Courses taken in fulfillment of a student’s major requirements may be applied toward satisfaction of the distributional requirements for the freshman, sophomore, and junior years and toward the distributional requirements for the bachelor’s degree.

8. *Permission for a partial waiver of the distributional requirements for the freshman year. For the Class of 2008 and earlier classes:* If, with the permission of the residential college dean, a freshman 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 distributional group. Under no circumstances may a student be promoted to sophomore standing without having enrolled for at least two course credits in Group I or II and two course credits in Group III or IV.

For the Class of 2009 and subsequent classes: If, with the permission of the residential college dean, a freshman 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. Under no circumstances may a student be promoted to sophomore standing without having enrolled for at least one course credit in two skills categories (foreign language, quantitative reasoning, writing).

9. *Permission to postpone fulfillment of the distributional requirement for the first two years (Class of 2008 and earlier classes) and the distributional requirements for the sophomore year (Class of 2009 and subsequent classes).* For the Class of 2008 and earlier classes: In exceptional circumstances, a student may petition the Committee on Honors and Academic Standing for permission to fulfill the distributional requirement for the first two years in the fifth term of enrollment. Such a petition must be filed no later than the date of midterm of the fourth term of enrollment; it should explain the sound academic reasons why this requirement cannot be satisfied within four terms of enrollment and give an exact description of how it shall be fulfilled in the fifth term. Students who have not fulfilled the distributional requirement for the first two years 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 its fulfillment will normally not be promoted to junior standing.

For the Class of 2009 and subsequent classes: In exceptional circumstances, 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 must be filed no later than the date of midterm of the fourth term of enrollment; it 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 shall 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.

10. *Permission to postpone fulfillment of the distributional requirements for the junior year.* For the Class of 2009 and subsequent classes: 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 director of undergraduate studies in the student's major and the residential college dean, should be filed no later than the date of midterm of the fifth term of enrollment; in no case will a petition be accepted 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 shall 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 in chapter IV. 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 Junior 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 Junior 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 P, "Acceleration Policies." (Attendance at the Summer Program at the Paul Mellon Centre in London or the 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 director of undergraduate studies and residential college dean. For a student to exceed eight terms of enrollment usually means that another student cannot be admitted to Yale; a petition for a ninth term will therefore be approved only in extraordinary circumstances. 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. A student given permission to enroll for a ninth term is not eligible for scholarship assistance from Yale, although other forms of financial aid may be available (see chapter VIII, "Financial Aid Regulations," in the Yale College publication *Undergraduate Regulations*).

Graduation in fewer than eight terms of enrollment is possible: see section P, "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 L, "Transfer Students."

B. GRADES

LETTER GRADES

The letter grades in Yale College are as follows:

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

CREDIT/D/FAIL OPTION

In order to encourage academic exploration and to promote diversity in students' programs, the Yale College Faculty has provided that students may elect a certain number of courses on a Credit/D/Fail basis.

1. A student may offer as many as four course credits earned on the Credit/D/Fail basis toward the bachelor's degree.

2. 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. In each term, a student must elect at least two courses, representing at least two course credits, for letter grades.

3. *For the Class of 2008 and earlier classes:* No more than one course credit earned on the Credit/D/Fail basis may be applied in any distributional group toward satisfaction of the distributional requirements for the bachelor's degree.

For the Class of 2009 and subsequent classes: A student may not apply any course credit earned on the Credit/D/Fail basis toward satisfaction of the distributional requirements for the bachelor's degree.

4. *For the Class of 2008 and earlier classes:* Each course offered in Yale College during the fall and spring terms carries an indication of whether or not it has been designated by the instructor or by the department as available for election under the Credit/D/Fail option. The notation "Not CR/D/F" in the course listing means that the course must be taken for a letter grade. The designation "Not CR/D/F" may not subsequently in the academic year be changed by the instructor. A course without the notation "Not CR/D/F" is available for election on the Credit/D/Fail basis; the instructor may not subsequently in the year withdraw the option. Program descriptions in chapter IV of this bulletin specify whether or not courses taken on the Credit/D/Fail basis count toward the requirements of particular majors.

For the Class of 2009 and subsequent classes: All courses offered in Yale College during the fall and spring terms are available for election under the Credit/D/Fail option. Program descriptions in chapter IV of this bulletin specify whether or not courses taken on the Credit/D/Fail basis count toward the requirements of particular majors.

5. Students must indicate on their course schedules at the beginning of a term the use they wish to make during that term of the Credit/D/Fail option. 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 a student must elect at least two courses, representing at least two course credits, for letter grades. If a student indicates on the course schedule more than two course credits being taken on the Credit/D/Fail option, the registrar will record only the first two of them, in the order in which they are listed, as being taken on that basis, and the student will not be permitted to take the others on the Credit/D/Fail option.

6. Because a decision to employ the Credit/D/Fail option in a course must be declared at the beginning of the term on the student's course schedule, and because conversion from a letter grade to the Credit/D/Fail option is not possible for students who submit their schedules on time, a student who submits the schedule after the date on which it is due may not employ the Credit/D/Fail option in any course during that term. See "Enrollment in Courses" in section E. The only exception to this rule may be in the case of

a student who for some valid and extraordinary reason cannot submit the course schedule on time and who has the permission of the residential college dean and the registrar to submit it late. If the college dean approves, such a student may employ the Credit/D/Fail option only by submitting to the college dean by the date on which the course schedule is due (as published in the calendar at the beginning of this bulletin) a written statement specifying the course (or courses) that the student wishes to take on the Credit/D/Fail basis.

7. In order to employ the Credit/D/Fail option, students whose registration is being withheld by the Office of Student Financial Services or any other administrative office of the University must submit their schedules on time, before the deadline indicated on the student's course schedule and listed in the calendar at the beginning of this bulletin.

8. Until November 10, 2006, in the fall term (two weeks after midterm), and until April 2, 2007, in the spring term (a week after the date of the resumption of classes following spring recess), a student who has elected a course on the Credit/D/Fail basis may choose to receive a letter grade in that course by filing the appropriate form in the office of the residential college dean. After these dates such conversion is not possible. If a student converts from the Credit/D/Fail option to a letter grade before the deadline, the option may not again be resumed even if the student desires to do so before the deadline.

9. A course once elected for a letter grade may not subsequently be converted to a course taken on the Credit/D/Fail basis.

10. A student who for any reason has been granted extraordinary permission by the Committee on Honors and Academic Standing to elect a new course after the deadline for submitting a course schedule may not employ the Credit/D/Fail option in that course. A change of level in courses in which the subject is taught in an ordered progression is not considered the election of a new course.

11. 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 that is available on that basis, 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.

12. Work completed under the Credit/D/Fail option cannot yield acceleration credit (see "Enrollment in Advanced Courses and Acceleration Credit" in chapter II).

13. 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 (see "General Honors" and "Distinction in the Major" in chapter I).

14. 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" in chapter I).

GENERAL REGULATIONS CONCERNING GRADES AND TRANSCRIPTS

1. 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, passing and failing, thus appear on the transcript. 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 W (for Withdrew) appears on the transcript in association with the course. See paragraph 5 below.

2. 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. 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. If a student has elected a course on the course schedule but formally withdraws from it before midterm (October 27, 2006, in the fall term; March 9, 2007, in the spring term), the student's transcript will contain no indication of that course after the withdrawal has been recorded by the registrar. See "Withdrawal from Courses," section F.

5. If a student enrolled in a 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 (Withdrew) for the course. 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 obviously 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 deadline (December 8, 2006, in the fall term, and April 30, 2007, in the spring term) is not possible. See "Withdrawal from Courses," section F.

6. 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 period of time that is specified by the academic regulations 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 "Postponement of Final Examinations" and "Work Incomplete at the End of Term" in section H.

7. Whether a student withdraws from Yale College for personal, medical, academic, or disciplinary reasons, the entry placed in each case on the student's transcript is the word "Withdrew" together with the date of the withdrawal.

8. A transcript may show as a student's major subject only a designation approved for that purpose by the Yale College Faculty; "tracks" or programs within majors may not appear on transcripts. The majors approved by the faculty are listed in this bulletin at the beginning of chapter IV under "Majors in Yale College."

9. The Registrar's Office sends grade reports to students each term from six to eight weeks after the close of the term. At registration each year, a student is given the opportunity to declare whether his or her grades may be released to certain other parties. If the student gives permission for grades to be released to a guardian or to parents, after the fall term of that year the Registrar's Office will send a grade report to them. After the spring term, the Registrar's Office sends a grade report to each student at the student's home address, and this report may be shared with parents if the student wishes. If a student gives permission for grades to be released to a secondary school or Alumni Schools Committee, grade reports will be furnished to them only upon specific request of the school or the committee. Upon written request of the student, the Registrar's Office will also send a copy of the grade report to any additional person or agency designated by the student.

10. Early access to recorded grades is available on line 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 University Student Information Systems.

11. Transcripts may be ordered at the Registrar's Office, 246 Church Street. A transcript order must include the signature of the student or former student requesting the transcript. In each transcript order, the charge for the first transcript is \$7, with a charge of \$3 for each additional transcript ordered at the same time. A transcript is almost always dispatched from the Registrar's Office within 48 hours after the receipt of an order for it. It is frequently possible for the Registrar's Office to provide a transcript within twenty-four hours; there is an additional charge of \$10 for each transcript so ordered. Each fall the registrar provides in each student's registration packet, free of charge, an unofficial copy of the student's academic record to date. This record may serve as a convenient aid in discussions with the student's adviser of the student's academic plans during the coming year.

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. There are a few double-credit courses.
2. There are a few yearlong courses in which two course credits are awarded upon the satisfactory completion of both terms of the course; most introductory and intermediate modern foreign language courses give three course credits for the successful completion of the full year's work. A student who fails the work of the first term of a year course may be permitted to continue the course 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 work of the first term of a year course may receive course credit routinely for that term's work, except in those courses marked *Cr/Year only*. (See "Key to Course Listings" at the

beginning of this bulletin.) Except in intensive, double-credit courses in which the equivalent of one year of language study is covered in one term, *credit may not be given in any circumstance for the first term only of a yearlong course in an introductory modern foreign language*; neither instructors nor departments have the authority to make an exception to this rule. With some exceptions, credit will be given for successful completion of the second term only of an introductory modern foreign language course, or for the first term only or the second term only of an intermediate modern foreign language course.

3. 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. All courses that carry .5 or 1.5 course credits and that are not bound by the *Cr/Year only* restriction count toward the 36-course-credit requirement for the bachelor's degree. This policy applies to all courses completed by students enrolled in fall term 2004–2005 or in subsequent terms, including courses taken by those students in prior years.

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. A student may not enroll in a program of study worth fewer than three course credits in one term. A student enrolled for three course credits may withdraw from one course credit between midterm and the first day of the reading period, receiving the neutral designation W (Withdrawn) in that course. Similarly, a student enrolled for four or more course credits may withdraw from one or more courses as described above, but at no time may any student carry a schedule of courses that will earn fewer than two course credits in a term.

2. 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 more than five course credits does not intend to drop any of them.

3. A student must petition the Yale College Committee on Honors and Academic Standing 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. 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, independent, individual, or special tutorials, and the senior essay or project, among others. 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. In the petition the student must give sound academic reasons for exceeding these limits.

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 freshman 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 either the distributional requirement for the first two years (Class of 2008 and earlier classes) or the distributional requirements for the sophomore year (Class of 2009 and subsequent classes).
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. Students in the Class of 2009 and subsequent classes are also 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 the following: failure, in a term or over two or three successive terms, to receive credit for three courses from which the student did not formally withdraw. "Successive terms" means successive terms in which the student enrolls, whether or not broken by a withdrawal or by a leave of absence. See "Dismissal for Academic Reasons" and "Makeup of Course Deficiencies for Promotion or Academic Good Standing" in section I.

E. REGISTRATION AND ENROLLMENT IN COURSES

REGISTRATION

Every student is required to register at the beginning of each term in which he or she is to be enrolled in courses at Yale College.

1. To register for the fall term, all freshmen must attend a registration meeting with their residential college dean and freshman counselor on Friday, September 1, 2006. Upperclassmen must attend the registration meeting

conducted by the office of the residential college dean on Tuesday, September 5, 2006. Students whose registration is being temporarily withheld by the Office of Student Financial Services or by any administrative office of the University are nonetheless required to attend the appropriate registration meeting.

2. To register for the spring term, every student is required to pick up registration materials from the office of the residential college dean no later than 5 P.M. on the first day of classes, Tuesday, January 16, 2007. Students whose registration is being temporarily withheld by the Office of Student Financial Services or by any administrative office of the University are nonetheless required to report in person to the office of the residential college dean no later than 5 P.M. on the first day of classes.

3. A student who, for reasons other than incapacitating illness, the death of a family member, or a comparable emergency, fails to follow the registration procedures in paragraph 1 or 2 above may register for the term only by exceptional action of the Committee on Honors and Academic Standing and will be liable to a fine of \$50.

ENROLLMENT IN COURSES

Enrollment in courses can be accomplished only by the submission of an approved course schedule or, in amendment of the course schedule, by the submission of an approved course change notice. Attendance at a class does not constitute enrollment. The course schedule is an important document. A student is responsible for the timely submission of the course schedule and for the accuracy of all the information that the student enters upon it. The course elections that a student indicates on a course schedule or course change notice shall appear on the student's transcript unless a student formally withdraws from a course before midterm. 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. Every student must submit a course schedule for each term at the office of the residential college dean by 5 P.M. on the deadline indicated on the student's course schedule and listed in the calendar at the beginning of this bulletin. Students whose registration has been withheld by the Office of Student Financial Services or any administrative office of the University must nonetheless submit their course schedules by these same deadlines.

It is the student's responsibility to obtain all necessary signatures, except that of the residential college dean, before the schedule is due. In the rare instance that the student's adviser is unavailable before the deadline, the student should nonetheless submit the schedule on time, and take a copy to be signed by the adviser and submitted to the dean as soon as possible. If the student does not submit a copy of the schedule signed by the adviser within one week of the deadline, the student will be subject to the fines described under paragraph 3 below.

2. The election of a new course after the deadline for submitting a course schedule will not be permitted save by exceptional action of the Committee on Honors and Academic Standing. Students who seek such an exception should consult immediately with the residential college dean. Permission to elect a new course must be requested by a petition that is accompanied by the written approval of the course instructor and the submission of a course

change notice at the office of the residential college dean. 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 during the course selection 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 will normally be grounds for denial. A fee of \$20 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 (October 27, 2006, in the fall term; March 9, 2007, in the spring term), 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, as for example in languages or in 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.

3. Students who submit their schedules after the deadlines will be fined at least \$50. Additional fines, increased \$5 daily according to lateness, will be imposed for schedules submitted more than one week after the deadlines. A schedule received more than two weeks after it is due will be accepted only by exceptional action of the Committee on Honors and Academic Standing and will be subject to an increased fine or other penalty.

4. A student who submits a course schedule after the date on which it is due may not employ the Credit/D/Fail option in any course during that term. (See "Credit/D/Fail Option" in section B, paragraph 6.)

5. A student who submits a course schedule or course change notice with clerical errors or omissions of data is liable to a fine of \$50.

6. A student may not elect courses with meeting times that overlap. If, for good cause, a student is obliged to elect two courses with a small and insignificant overlap in meeting times, the student must supply the residential college dean with the written permission of both instructors at the beginning of the term and must petition the Committee on Honors and Academic Standing, 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. Failure to file a complete and timely petition may result in the loss of credit for both courses.

7. In certain subjects, such as mathematics, foreign 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 obviously 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.

8. Courses may not be repeated for credit. On some 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

(except for courses marked “May be taken more than once” or “May be repeated for credit”), 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 for General Honors.

9. Election of a starred course requires that a student secure the permission of the instructor and, where appropriate, the director of undergraduate studies. If a student enters a starred course on the course schedule without the appropriate permission, the instructor may direct the registrar to drop the student from the class.

10. Students are expected to have met the prerequisites published in course descriptions in this bulletin. 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.

11. For the advancement of teaching in Yale College, anonymous teaching evaluations are made available through the Yale University Student Information Systems. Students are expected to participate in this evaluation process for any Yale College course in which they are enrolled. Students who withdraw from a course after midterm are invited but not required to participate.

12. 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.

F. WITHDRAWAL FROM COURSES

Students are permitted to withdraw from courses for which they have enrolled in a term until the day before the beginning of the reading period in that term. Withdrawal from a course can be accomplished *only* by the submission of a course change notice at the office of the residential college dean. A fee of \$20 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 registered will be recorded as F on their transcripts and may open them to the penalties described under “Academic Warning” and “Dismissal for Academic Reasons” in section I.

1. 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. All course withdrawals require the permission of the residential college dean.

3. If a student formally withdraws from a course by midterm (October 27, 2006, in the fall term; March 9, 2007, in the spring term), then after the registrar has recorded the withdrawal, the transcript will contain no indication of that course.

4. If a student formally withdraws from a course after midterm but before the first day of the reading period, the transcript will record the course and show the neutral designation W (Withdraw) for the course. The deadlines for such withdrawals are December 8, 2006, in the fall term, and April 30, 2007, in the spring 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 foreign languages or in mathematics, is not considered a course withdrawal and does not result in the recording of a W.

5. After these deadlines, withdrawal from a course is not permitted. An exception will be made only for a student who withdraws from Yale College for medical reasons as certified by the University Health Services after the first day 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.

6. A student who has withdrawn from Yale College for any reason, including medical, is no longer enrolled. Consequently, as of the date of the withdrawal, such a student cannot continue to attend classes or complete assignments, even if the deadline for such assignments was previously extended by the instructor or by the residential college dean.

7. 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 "General Regulations concerning Grades and Transcripts" in section B. See also "Work Incomplete at the End of Term" and "Postponement of Final Examinations" in section H.

8. It follows that if a student withdraws from Yale College by midterm, the transcript will not show that the student has been enrolled in any course during that term. If a student withdraws from Yale College after midterm, but before the first day of the reading period, the transcript will record the student's courses with the designation W (Withdraw). If a student withdraws from Yale College after the first day 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 withdraws from Yale College for medical reasons after the first day of the reading period but before the end of the term; see paragraph 5 above.

G. READING PERIOD AND FINAL EXAMINATION PERIOD

1. *Due dates for course work.* It is expected that instructors will require all course assignments, including term papers, to be submitted at the latest by the last day of reading period. (For the dates of the reading period and final examination period, consult the calendar at the beginning of this bulletin.) Instructors do not have the authority to give permission for this deadline to be extended beyond the end of the term; only the residential college dean has this authority (see "Work Incomplete at the End of Term" in section H). 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 chapter IV by the phrase “Meets RP” within the data line.

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.

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 due at the latest before the beginning of the final examination period, 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 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 and is indicated by the examination group number included in the course listing in this bulletin. Examination group numbers are assigned particular days and times within the final examination period. These may be found tabulated on the page “Final Examination Schedules” at the front of this bulletin. If the instructor of a course with the examination group number zero decides to offer a final examination, it must be administered at the time defined by the meeting time of the course. If the meeting time of a course is changed from that published for the course in this bulletin, the time of the examination is defined by the new meeting time.

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 shown on the final examination schedule. 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 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 group number, a take-home examination for that course is due on the day on which the final examination has been scheduled. If a course has not been assigned a final examination group number, 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” at the front of this bulletin.) 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. Fall-term grades are due by 5 P.M. on January 2, 2007; spring-term grades are due within one week of the end of the final examination period; grades for seniors in the spring term are due within forty-eight hours of the end of the final examination period.

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 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, a senior 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 he or she takes 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. It is generally expected that the student will submit course work in person, either to the instructor or to a person explicitly designated by the instructor, such as a teaching fellow or an administrative assistant. Students who submit course work in a manner other than in person, directly to an appropriate individual (e.g., place it under a door or in a box in a hallway), do so at their own risk. Students who must use postal services to submit a course assignment, because they will be unavoidably absent from campus at the time an assignment is due, should ascertain in advance from the instructor the correct mailing address and use receipted mail services to establish the date of mailing.

Instructors are not required to accept course work sent over a computer network to their computer, printer, or electronic-mail account unless they have explicitly authorized such electronic submission in the syllabus for the course or have made a special arrangement with the student. Instructors may establish a deadline for electronic submission of a particular assignment different from the deadline for submission of the same assignment on paper.

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; and (3) postponed final examinations. Instructors of courses may, during term time, give permission to make up late or missed work, provided that such work is submitted before the end of term. *Only the residential college dean, however, may authorize the late submission of work still incomplete at the end of term, or the postponement of a final examination.*

When students know in advance that they must miss or postpone work for a legitimate reason, as described below in “Work Missed during the Term” and in “Postponement of Final Examinations,” they should inform the instructor and the residential college dean as soon as possible.

WORK MISSED DURING THE TERM

The basic responsibility for permitting postponement of work during the term is the instructor’s. However, the residential college dean may give permission for a student to make up work missed or delayed during the term because of an incapacitating illness, 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 because of the observance of religious holy days and because of participation required in intercollegiate varsity athletic events. Only in these cases does a residential college dean have authority to give permission to make up late work during term time. This permission is conveyed by means of a special form from the college dean that the student delivers to the 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 must be secured directly from the instructor of the course, since the instructor is the only person who can decide, in the context of the nature and requirements of the course, whether such permission is appropriate. This permission may not, however, extend beyond the end of the term. Permission to submit work still incomplete at the end of term may be granted only by a student's residential college dean. 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 permission to a student to submit work in a course after the end of term. The college dean may give such permission because of an incapacitating illness, because of a serious family emergency, or because of another matter of comparable moment. 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, not 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 "General Regulations concerning Grades and Transcripts" in section B, and "Withdrawal from Courses," section F.

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

Problems that may arise from the use of computers, software, and printers normally are not considered legitimate reasons for the postponement of work. A student who uses computers is responsible for operating them properly and completing work on time. (It is expected that a student will exercise reasonable prudence to safeguard materials, including saving data on removable disks 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 technical problems as well as delays caused by heavy demand on shared computer resources in Yale College.

POSTPONEMENT OF FINAL EXAMINATIONS

Only the residential college dean may authorize postponement of a final examination. The residential college dean may give such permission because of an incapacitating illness, because of a family emergency requiring the student's absence from New Haven, or because of another matter of comparable moment. The residential college dean may also authorize such a postponement because of the observance of religious holy days, or because of participation required in an intercollegiate varsity athletic event. 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 final examinations on account of those events. Finally, the college dean may authorize postponement of a final examination if a student has three examinations scheduled during the first two 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" at the beginning of this bulletin and "Scheduling of final examinations" in section G, "Reading Period and Final Examination Period."

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 his or her departure to the instructor, or to some other person proctoring the examination, before leaving the room, and must contact the University Health Services or the residential college dean as soon as possible thereafter.

Makeup examinations for the fall term are scheduled to take place at the end of the second week of classes in the spring term. Makeup examinations for underclassmen who miss final examinations in the spring term are scheduled at the end of the second week of classes in the following fall term. Makeup final examinations are administered by the Registrar's Office only at these times. Students who will not be enrolled at these times—whether because they are on leave of absence or on a Junior Year or Term Abroad, or because they have withdrawn from Yale—must make alternative arrangements with the Registrar's Office in advance of the dates on which makeup final examinations are administered by that office. The registrar automatically records a grade of F

*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 examination group numbers; 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 group number assigned to it. See "Final Examination Schedules" at the beginning of this bulletin. Occasionally an instructor may arrange an option for an alternative final examination in addition to the regularly scheduled examination. (See paragraph 5 in section G, "Reading Period and Final Examination Period.") 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.

in a course for a student who fails to take an officially scheduled makeup examination in that course at the appointed time. If an examination is not administered by the registrar, it is the student's responsibility to make arrangements with the instructor to take the makeup examination. In such cases, if a grade is not received by the midterm following the original examination date, the registrar automatically records a grade of F in the course.

No fee will be charged for a makeup examination necessitated by illness, family emergency, the observance of a religious holy day, or participation required in an intercollegiate varsity athletic event. A charge of \$35 will be made for the administration of a makeup examination occasioned by a conflict between two final examinations scheduled at the same time, or three examinations scheduled in the first two days of the examination period, or three final examinations scheduled in consecutive examination periods. Ordinarily there will be a charge of \$35 for makeup examinations authorized for special reasons approved by the Committee on Honors and Academic Standing.

Permission to postpone a final examination does not also carry authorization for 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 foreign 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 recommendation, made by 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 receive credit for two courses from which there was no formal withdrawal;

(b) failure in two successive terms of the student's enrollment to receive credit for any course from which there was no formal withdrawal; (c) failure in one term to earn more than two course credits. 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 (see "Requirements for Academic Good Standing" in section D) 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. 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 a term or over two or three successive terms of enrollment to receive credit for three courses from which a student did not formally withdraw will 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.

2. A student who has not, at the end of a term, met the minimum requirements for academic good standing (see section D), or a student who has failed to meet the minimum standards for promotion (see section D), may be dismissed unless permitted by the Committee on Honors and Academic Standing to repair the deficiency. See "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. A student on Academic Warning who does not pass all the courses taken in the term in which the student is on warning will be dismissed for academic reasons. See "Academic Warning" above.

4. A student readmitted to Yale College who does not, in the first or second term following readmission, pass all the courses taken in that term will be dismissed for academic reasons. See "Readmission" in section J.

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.

MAKEUP 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 O, "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. LEAVES OF ABSENCE, WITHDRAWALS, AND READMISSION

LEAVE OF ABSENCE

Any student in Yale College who is in academic good standing will normally receive permission, upon petition to the Committee on Honors and Academic Standing through the residential college dean, to take one or two terms of leave of absence, 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.) In order that the University may make plans to maintain enrollment at the established level, students desiring leaves of absence are requested to make their intentions known to their residential college deans as soon as possible. Yale College assumes that students who take leaves of absence will inform their parents or guardians in good time 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, though they may do so if they believe that such notification is appropriate.

1. *For a fall-term leave of absence*, a student is requested to submit a petition by May 1. Since a student’s plans often change during the summer, however, the Committee on Honors and Academic Standing will ordinarily grant a petition for a leave that is received on or before the tenth day of the term in the fall. See paragraph 3 below.

2. *For a spring-term leave of absence*, a student’s petition must be received on or before the tenth day of the term in the spring. See paragraph 3 below.

3. Students considering a leave of absence should be aware that there is a substantial financial penalty for relinquishing on-campus housing after the relevant deadlines for relinquishing such housing. See “Rebates of Undergraduate Charges” in chapter VII, “Financial Regulations,” in the Yale College publication *Undergraduate Regulations*.

4. A student may cancel a leave of absence for either term as late as the first day of classes in the term for which the leave has been requested. However, the deadlines for payment of the term bill and the penalties for late payment apply in such cases. See “Payment of Bills” in chapter VII, “Financial Regulations,” in the *Undergraduate Regulations*.

5. A student is eligible for a total of two terms of leave of absence. These two terms need not be taken consecutively.

6. A student taking an accelerated degree by use of acceleration credits who has had two terms of leave of absence may receive a third term of leave if the third 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 section P, “Acceleration Policies.”

7. Permission to take a leave of absence normally includes the right to return, with prior notification to the residential college dean but without further application, at the beginning of the term specified in the student’s petition to the Committee on Honors and Academic Standing. In the case, however, in which a student achieved eligibility for a leave of absence because of a postponement of a deadline for course work as a result of an identified medical problem, the Yale College Dean’s Office may require medical clearance from the University Health Services before the student’s return from the leave of absence.

8. Students taking leaves of absence who have received long-term loans will be sent information about their loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale. A student taking a leave of absence who is receiving financial aid through Yale must consult with a counselor in the Student Financial Services Center before leaving Yale; see “Rebates of Undergraduate Charges” in chapter VII, “Financial Regulations,” in the *Undergraduate Regulations*.

9. A student on a leave of absence is eligible to retain coverage by the Yale Health Plan during the time of the leave, but the student must take the initiative to apply for continued membership in the Yale Health Plan by completing an application form and paying the fee for membership. See “Leaves of Absence” in chapter VI, “University Health Services,” in the *Undergraduate Regulations*. Application forms and details about medical coverage while on leave of absence may be obtained from the Member Services Department of the Yale Health Plan, 17 Hillhouse Avenue, Yale University, P.O. Box 208237, New Haven, CT 06520-8237 (432-0246).

MEDICAL WITHDRAWAL

A withdrawal for medical reasons must be authorized by the director of the University Health Services or the chief of the Division of Mental Hygiene, or by their official designees within the Health Services. If a student under the care of a non-University Health Services physician wishes to withdraw for medical reasons, that physician should submit sufficient medical history to the director of the University Health Services for a final decision on the recommendation. A student planning to return to Yale should discuss the requirements for readmission with the residential college dean or the chair of the Committee on Readmission.

Yale College reserves the right to require a student to withdraw for medical reasons when, on recommendation of the director of the University Health Services or the chief of the Division of Mental Hygiene, the dean of Yale College determines that the student is a danger to self or others because of a serious medical problem, or that the student has refused to cooperate with efforts deemed necessary by the University Health Services to determine if the student is such a danger.

WITHDRAWAL FOR PERSONAL REASONS

At any time during the year, a student may withdraw from Yale College for personal reasons. After consulting with the residential college dean, a student wishing to withdraw should write a letter of resignation to the college dean. In consulting with the college dean, a student planning to return to Yale should discuss the requirements for readmission. Also, students in academic good standing who fail to register in a term will be withdrawn for personal reasons.

REBATES OF UNDERGRADUATE CHARGES

For information on financial rebates on account of withdrawal from Yale College, consult chapter VII, “Financial Regulations,” in the *Undergraduate Regulations*.

READMISSION

During the time that a student who has withdrawn is away from Yale College, the Committee on Readmission expects him or her to have been constructively occupied and to have maintained a satisfactory standard of conduct.

Students whose withdrawal was for either academic reasons or personal 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. Students whose withdrawal had been authorized as medical by the director of the University Health Services must normally remain away at least one *full* term before a return to Yale College, not including the term in which the withdrawal occurred. The period of withdrawal for disciplinary reasons is set by the Yale College Executive Committee at the time the student's enrollment is suspended.

Further requirements depend to some extent on the circumstances of the withdrawal and its duration. Students who are not in academic good standing, i.e., students who withdrew while a term was in progress or who were dismissed for academic reasons (see section I), must ordinarily complete the equivalent of at least two term courses, either in Yale Summer Session or at another college or university, earning grades of A or B. In general, such a record of course work is also required of students who withdrew for medical reasons and of any students who have been away from full-time academic work for two years or more, whether or not they were in academic good standing at the time of their departure, in order to demonstrate that upon return they can satisfactorily complete their academic program. Courses themselves, as well as the institution at which they are taken, should be cleared in advance with the chair of the Committee on Readmission or the applicant's residential college dean. In some cases, the Committee on Readmission may require more than two courses or courses in a specific subject area. All such course work must be completed no later than the opening of the term to which the student has applied to be readmitted, but no earlier than two years before the date that term begins.

Interviews with members of the committee are required of all applicants. The committee cannot approve a student's return to Yale College until after the necessary interviews have taken place. These may include meetings for any applicant with the chair of the committee, the applicant's residential college dean, and any other member of the committee, including a member of the University Health Services staff. Interviews are normally conducted just prior to the beginning of the term to which the student is seeking readmission.

As an integral part of the application for readmission, students who withdrew for medical reasons must obtain a recommendation from the Yale University Health Services. Such a recommendation must come from either the director of the Health Services or the chief of the Division of Mental Hygiene, or from their official designees within the Health Services.

Inquiries about readmission should be directed to the chair of the Committee on Readmission, Yale College Dean's Office, 110 555, Yale University, P.O. Box 208241, New Haven, CT 06520-8241. The first inquiry about readmission to a fall term should come no later than the previous April 30, and applications must be submitted in person or by receipted mail by June 1. The first inquiry concerning readmission to a spring term should come no later

than the previous September 30, and applications must be submitted in person or by receipted mail by November 1. These deadlines are strictly enforced.

While the majority of students who apply for readmission do return to Yale College, readmission is not guaranteed to any applicant. Since the committee seeks to readmit only those students who have demonstrated the ability henceforth to remain in academic good standing and thus complete degree requirements within the specific number of terms of enrollment remaining to them, the committee may sometimes advise an applicant to defer his or her return until a time later than the one originally proposed.

Students who are readmitted to Yale College are expected to be complete and passing in all their courses at the conclusion of each of the two terms following their readmission. A student who fails to meet this condition is ordinarily required to withdraw after his or her record has been reviewed by the Committee on Honors and Academic Standing. A student is eligible to be readmitted only once; a second readmission may be considered only under unusual circumstances, ordinarily of a medical nature.

For complete information about readmission to Yale College, consult the brochure “General Information concerning Readmission to Yale College,” available from the Committee on Readmission.

K. SPECIAL ARRANGEMENTS

JUNIOR YEAR OR TERM ABROAD

In recognition of the value of international study, Yale College encourages students to spend a term or an academic year studying in an approved program abroad. In order to participate in a Junior Year or Term Abroad, students must have the approval of the Yale College Committee on the Junior Year or Term Abroad and have been accepted into an approved and accredited study-abroad program. Students in any major may apply. A term abroad may be taken during the second term of the sophomore year, or either the fall or spring term of the junior year. A year abroad may be taken during the junior year. Within the limits of the eligibility requirements given below, other combinations of terms of study abroad may be permitted with the approval of the Committee on the Junior Year or Term Abroad. Students are limited to a total of two terms abroad for full Yale credit and financial aid transfer. To be eligible, students must be in academic good standing as a junior or second-term sophomore, as appropriate, to begin an approved term or year abroad and be able to return to enrollment at Yale in academic good standing (see “Requirements for Academic Good Standing” in section D). Students must also have at least a B average at the time of their application and demonstrate sufficient competence in the language of the host country to do university-level course work. In general, by the time that they go abroad students should have completed the relevant intermediate-level foreign language course (e.g., CHNS 130, FREN 131a or b, GMAN 131a or b, ITAL 130, JAPN 140, KREN 130, RUSS 122, or SPAN 131a or b) or have demonstrated the equivalent proficiency by examination. Study in an English-speaking country or participation in any other program abroad in which instruction is in English is permitted when the student articulates clear academic objectives for such a program. Applicants may petition the committee for an exception to eligibility requirements if they believe they have compelling reasons for the exception.

Applications to the Yale College Committee on the Junior Year or Term Abroad are available on the Web site of the Office of International Education and Fellowship Programs, www.yale.edu/iefp. A complete application includes all of the following: the application form; an approval form from the student's director(s) of undergraduate studies; an evaluation form from the student's residential college dean; a foreign language evaluation form (if applicable); and a statement concerning the proposed course of study. Approval from the committee is contingent upon acceptance into a program or university abroad. Students must provide a copy of their acceptance letter to the committee before departure.

Applications for permission to study abroad in the spring term of the academic year 2006–2007 are due on October 16, 2006. Applications for study in the fall term of the academic year 2007–2008 or for the full academic year 2007–2008 are due on April 2, 2007. Early applications that meet all requirements as listed in this bulletin are reviewed on a rolling basis until the final deadline.

Applications for programs or universities abroad are available directly from the sponsoring institutions. Information about specific programs, including course descriptions, addresses and telephone numbers of the programs, and evaluations from past Yale participants, is available at the Office of International Education and Fellowship Programs. Note that application deadlines differ from program to program and usually also differ from the Yale College committee's 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 College committee's deadline.

In selecting programs abroad in which to enroll, students should be aware that such programs vary in quality, and some may not be approved for a Junior Year or Term Abroad. At a minimum, approved programs must involve full-time work at the university level and must be undertaken during the regular academic year at an institution outside the United States. Students should note that programs in the Southern Hemisphere are subject to a different academic calendar, one which extends into the months of June, July, and August. With this exception, summer terms do not qualify as part of a Junior Year or Term Abroad.

A list of programs which have had the approval of the committee in the past and in which Yale students have participated with success is available on the Web site of the Office of International Education and Fellowship Programs. Students applying to enroll in programs not previously reviewed or approved by the committee may be required to furnish informational literature about the program, course syllabi, or a letter of support from a Yale faculty member familiar with the program. The committee evaluates programs primarily on the quality and structure of their academic offerings. Study abroad advisers are available in the Office of International Education and Fellowship Programs to assist students in selecting an appropriate program.

1. Students on a Junior 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 Junior Term Abroad who complete a full program of study for the equivalent of one term of enrollment at Yale may earn up to four course credits. What the committee considers a full program of study varies from program to program. Students should consult with the Office of International Education and Fellowship Programs to ensure that

they are enrolled in a full program abroad. Enrollment in the Junior Year or Term Abroad Program is the only arrangement by which students may offer more than two outside credits toward the thirty-six course credits required for the bachelor's degree.* Students receiving credit for the Junior Year or Term Abroad may not apply any other credits from outside Yale toward the 36-course-credit requirement.

2. To be awarded credit toward degree requirements, students must submit to the committee such evidence of their achievement as transcripts or other official academic records, wherever possible. Students should also be prepared to provide on their return to Yale copies of all course work, syllabi, and letters from instructors describing the nature and quality of their work. 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. In addition to applying credits earned on a Junior 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. Petitions for credit toward the distributional requirements should be directed to the residential college dean; petitions for credit toward major requirements should be directed to the relevant director of undergraduate studies.

Usually, if the student has consulted with the director of undergraduate studies and an adviser in the Office of International Education and Fellowship Programs before going abroad, the award of credit upon return from a Junior Year or Term Abroad is routine. Students who perform poorly in their academic course work abroad, fail to complete work, or significantly alter their proposed course of study without approval from the committee can face difficulty in receiving credit upon return to Yale.

3. Because a Junior Year or Term Abroad counts as the equivalent of one or two 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.

4. Students who have received permission to study abroad but later decide not to do so must notify 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, "Leaves of Absence, Withdrawals, and Readmission"). In some cases, such students will have to

*Study during the academic year at the Paul Mellon Centre in London (Yale-in-London) is equivalent to enrollment in Yale College and is not considered a Junior 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 under "Yale-in-London" in chapter I and under British Studies in chapter IV. Likewise, study during the academic year in the Peking University–Yale University Joint Undergraduate Program in Beijing is equivalent to enrollment in Yale College and is not considered a Junior Year or Term Abroad. For details, see under Peking University–Yale University Joint Undergraduate Program in chapter IV.

withdraw from Yale College if the deadline for requesting a leave has passed, or they have already taken two terms of leave, or the deadline for enrolling in courses in Yale College has passed. Under no circumstances can a Junior Year or Term Abroad be converted retroactively to a leave of absence. Similarly, a leave of absence cannot be converted retroactively to a Junior Year or Term Abroad.

5. After returning from a Junior 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 P, "Acceleration Policies").

6. Students who have been approved by the committee to study abroad and who receive financial aid from Yale are eligible for aid while abroad. For information about financial aid support, consult a counselor in the Student Financial Services Center, 246 Church Street, 432-2700.

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 P, "Acceleration Policies.")

1. The following rules apply to students of these three kinds:

(a) By the day on which the student's course schedule is due in the final term of enrollment, the student must notify the Committee on Honors and Academic Standing through the residential college dean that the fall term will be the student's last term of enrollment.

(b) Such 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. Forms on which to notify the Committee on Honors and Academic Standing that a fall term is to be a student's last term of enrollment in Yale College are available in the offices of the college deans.

2. Failure to observe the deadline will result in the student's being charged a fine of \$100.

3. 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 master and dean. Such might be the case, for example, of a student who because of a leave of absence did not qualify for graduation with the class in Yale College with which he or she entered as a freshman. Such a student would not

receive the degree or diploma until the May of the academic year in which degree requirements were completed.

4. A student whose last term of enrollment is a fall term is eligible, upon application and payment of a fee, for continued coverage by the Yale Health Plan during the subsequent spring term, just as if the student were on leave of absence for that term. Such coverage extends to August 31. See “Leave of Absence” in section J.

TWO MAJORS

A student must petition the Committee on Honors and Academic Standing for permission to complete the requirements of two major programs. Application forms are available from the residential college deans. 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.

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 should include the approval of 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.

For the Class of 2008 and earlier classes: A student who completes two majors, each of them in a different distributional group, may fulfill the distributional requirements for the bachelor’s degree as if only one major in one group were being completed; in this way credits earned in one major may be

counted as falling outside the distributional group of the student's other major. But a student who completes two majors both of which are in the same distributional group should pay special attention to the need to complete at least twelve credits outside the group of the two majors, no more than six of them in any one of the other three distributional groups. See also "Distributional Requirements" in section A.

SPECIAL DEPARTMENTAL MAJOR

In special cases, a department or program may recommend to the Committee on Honors and Academic Standing that a student be awarded from four to six course credits for a two-term senior essay or project. The request for such an arrangement, with supporting information, must come from the director of undergraduate studies as early as possible before the beginning of the student's next-to-last term of enrollment. A student in the Special Departmental Major must, in addition to the senior project, complete at least three regular term courses during the last two terms of enrollment. Students who are interested in pursuing a Special Departmental Major should consult the appropriate director of undergraduate studies.

CERTIFICATE OF EXCLUSION FOR SUBSEQUENT ENROLLMENT IN A PREVIOUSLY OVERCROWDED COURSE

A student who has attempted in good faith to enroll in a lecture course but who has been prevented by overcrowding from doing so may claim a priority for enrollment in the course the next time the course is offered by the same instructor by securing from the instructor his or her signature on a Certificate of Exclusion from an Overcrowded Course. A copy of this certificate may be obtained from the office of the residential college dean. It must also be signed by the college dean and will be retained for the student by the college dean. When the course is next offered, the student may retrieve the certificate from the college dean and present it to the instructor of the course. A Certificate of Exclusion may be issued only because of overcrowding; it may not be issued because a particular section of a course is filled when there is room in another section of the course; it may not be used to claim admission to any particular section of the course; it may be employed only at the next time that the course is offered, and not subsequently; it is not applicable to courses in which enrollment is determined by audition or other evaluation of the student's work; and it is not transferable.

DOUBLE CREDIT FOR A SINGLE-CREDIT COURSE

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

1. Permission must be requested by midterm, i.e., October 27, 2006, in the fall term, and March 9, 2007, in the spring term.
2. 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. 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. A student may make use of this arrangement rarely, no more than once or twice.

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 curriculum. If the subject can be pursued through independent study in an existing tutorial course in a department (e.g., HIST 494a or b, PLSC 471a and 472b), 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 proposed course work and submit a syllabus.

Requests for Special Term Courses should be made to the Committee on Honors and Academic Standing, 110 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 before 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.

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. Permission to exceed this limit 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 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 must enroll under the undergraduate number, unless already accepted into the program for the simultaneous award of the bachelor's and master's degrees. A student may request to elect a graduate or professional school course by means of a form available from the residential college dean. Such requests should be made as early as possible in the term in which enrollment is sought and not later than one month after the first day of classes of the term. Forms that are submitted after this date will be accepted only by exceptional action of the Committee on

Honors and Academic Standing and will be subject to a fine of at least \$50, with increases of \$5 daily according to lateness. The form must be completed by the student and signed by the course instructor. For enrollment in a course in the Graduate School of Arts and Sciences, the form must also be signed by the director of graduate studies in the department in which the course is offered. For enrollment in a course in any of the professional schools of the University, the form must also be signed by the appropriate agent of the dean or the registrar of the school in which the course is offered.

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. More than four such credits may be taken, and they will appear for credit on the student's transcript, but they must be offered in excess of the 36-course-credit requirement. Courses taken in the Graduate School of Arts and Sciences are not included in this four-credit restriction. 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.

Courses in performance in the School of Music may be taken only after completion of MUSI 360a or b, 361a or b, and MUSI 460a or b, 461a or b, in the Department of Music. Performance courses in the School of Music may not be counted toward the 36-course-credit requirement for the bachelor's degree. Such courses will be included on the student's transcript, but must be offered in excess of the thirty-six credits required for graduation. For further information, see the section entitled "Individual Instruction in Performance" under Music in chapter IV. Nonperformance courses in the School of Music may be taken for credit without previous completion of MUSI 360a or b, 361a or b, and MUSI 460a or b, 461a or b; such courses are also included in the limit of four credits that may be earned in professional schools of the University.

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, work incomplete at the end of term, and double credit in a single-credit course. 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.

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

A limited number of students of distinguished ability 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. Students must apply to their department for admission to the program through their director of undergraduate studies no later than the first day of classes of

their third-to-last term in Yale College. 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 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. The director of the Program for the Simultaneous Award of the Bachelor's and Master's Degrees is Dean Jill Cutler, 110C SSS.

1. 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. (Particular deadlines and specific grade requirements for the programs for the two degrees in Biology, Chemistry, Economics, Mathematics, Molecular Biophysics and Biochemistry, and Physics are listed under the headings for those departments in chapter IV. Nominations from these departments also require confirmation by the joint committee.) Yale will award the master's degree and the bachelor's degree simultaneously only in a single department or program that confers both degrees. A student in the Special Divisional Major or any other major that does not have an exact counterpart in the Graduate School is not eligible for the combined degree program. A student cannot qualify for the simultaneous award of a bachelor's degree in one department or program and a master's in another.

2. 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 courses in the Graduate School. For all students in the program, 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 major during their last four terms at Yale and at least two undergraduate courses during their last 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.

3. To qualify for the master's degree, students must complete eight term course credits in the Graduate School with grades of 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.

4. Following notification that they have been accepted into the program for the simultaneous award of the bachelor's and master's degrees, students must have their course schedules approved each term both by the director of undergraduate studies and by the director of graduate studies.

COURSES IN THE YALE SUMMER SESSION

There is no limit on the number of courses in the Yale Summer Session that a student may offer toward the requirements for the bachelor's degree.

Attendance at the Yale Summer Session does not constitute a term of enrollment in Yale College. For example, a student accelerating by one term by use of acceleration credits may not offer attendance at the 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 all earned at Yale may count credits earned in the Yale Summer Session toward such acceleration. See “Acceleration by the Early Accumulation of Thirty-Six Course Credits All Earned at Yale” in section P.

Courses successfully completed in the Yale Summer Session may, with the permission of the student’s director of undergraduate studies, be counted toward the requirements of the student’s major program. They may also be counted toward any of the distributional requirements. The Credit/D/Fail option may not be used in Summer Session courses.

Unless the Registrar’s Office is instructed in writing to the contrary, courses completed in the Yale Summer Session will be entered on the Yale College record. Once a course in the Yale Summer Session has been entered on or removed from the Yale College transcript in response to a student’s request, that action cannot subsequently be reversed by the student. When a Summer Session course is entered on a student’s Yale College transcript, both the course and the grade are recorded; the course may not be recorded without the grade. If a Summer Session course is entered on the Yale College transcript, it will be included in the calculation of the student’s eligibility for General Honors and Distinction in the Major. For further information about Summer Session courses and transcripts, refer to the Summer Session catalog.

YALE-IN-LONDON SUMMER PROGRAM

Attendance at the Summer Program at the Paul Mellon Centre in London 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.) For example, a student accelerating by one term by use of acceleration credits may not offer attendance at the Summer Program at the 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 all earned at Yale may count credits earned in the Summer Program at the Paul Mellon Centre in London toward such acceleration. See “Acceleration by the Early Accumulation of Thirty-Six Course Credits All Earned at Yale” in section P.

DIRECTED INDEPENDENT LANGUAGE STUDY

With the approval of the director of the Center for Language Study, a student may study a language not taught at Yale through the program in Directed Independent Language Study. Students may not apply to study a language being offered at the same time by Yale at the requested level. Students accepted into the program work on their own time, but on a schedule and with materials approved by the director of the Center for Language Study; they must meet regularly with a conversation partner; and they are tested at the end of the term in speaking, listening, reading, and writing. The director will approve only those proposals for which adequate materials,

conversation partners, and testing can be arranged. Interested students should apply to the Center for Language Study.

Directed Independent Language Study does not earn Yale College course credit, nor does it appear on the transcript; however, work in the program may lead to sufficient competence in a language for a student to fulfill the foreign language requirement through a specially arranged examination. Information about fulfilling the foreign language requirement is given under “Distributional Requirements” in section A and in chapter I.

AUDITING

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

1. Students enrolled full time in Yale College or in one of the graduate or professional schools of the University may audit courses without charge. The permission of the instructor is required.

2. Members of the Yale faculty and emeritus faculty may audit courses without charge. The permission of the instructor is required.

3. Spouses of full-time Yale faculty members, or of emeritus faculty, or of students enrolled full time in the University may audit courses without charge. Permission is required of the instructor and of Dean William Whobrey, 55 Whitney Avenue, Suite 402.

4. Employees of the University and their spouses may audit courses without charge in accordance with applicable personnel policies. Permission is required of the instructor, of the employee’s supervisor, and of Dean William Whobrey.

No other persons are permitted to audit courses in Yale College except for those accepted through the Association of Yale Alumni Auditing program. The Alumni Auditing program is administered separately from the general auditing program, and in some cases different rules may apply. Inquiries should be directed to the Association of Yale Alumni, 232 York Street, Yale University, P.O. Box 209010, New Haven, CT 06520-9010, 432-2586.

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 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.

Persons interested in auditing a course should consult Dean William Whobrey, 55 Whitney Avenue, Suite 402, 432-2430.

L. TRANSFER STUDENTS

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

1. 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, which include the foreign language requirement. Upon their arrival at Yale, transfer students should consult carefully with their residential college dean in order to ascertain their status with regard to the distributional requirements, especially the foreign language requirement.

2. 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. Under no circumstances may a transfer student earn fewer than eighteen course credits at Yale or accelerate by the use of acceleration credits.

3. A preliminary evaluation of transferable credits is made at the time of the student's admission. Final evaluation of transfer credits is completed when all official transcripts from a student's previous institutions have been received.

4. Students who must remain at Yale beyond the terms designated in the final evaluation of transfer credits must petition the Yale College 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 under "Eight Terms of Enrollment." A student thus granted permission to remain at Yale for an additional term, if the term represents more than the equivalent of eight terms of enrollment at the college level, is not eligible for scholarship assistance from Yale for the additional term, although other forms of financial aid may be available.

5. A transfer student's Yale transcript indicates the institution from which the student transferred to Yale, and the number of course credits earned there. It does not list the titles of courses taken or grades earned at the transfer student's previous college or university. A transfer student who needs a record of studies completed before admission to Yale must secure a transcript from the previous institution.

6. Transfer students may receive course credit for work completed outside Yale only for studies completed before matriculation at Yale; transfer students may not receive course credit for any outside courses taken after they have enrolled in Yale College. An exception is made for transfer students who earn credit on a Junior Year or Term Abroad. Transfer students may attend a Junior Year or Term Abroad provided that they enroll in Yale College proper for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.

7. Transfer students are not bound by the distributional requirement for the first two years, but they must fulfill the distributional requirements for the bachelor's degree. See paragraph 1 above. On the basis of stipulated scores earned on Advanced Placement tests taken in secondary schools,

transfer students may fulfill the foreign language requirement. They are not eligible for the award of acceleration credit or for acceleration by use of acceleration credits.

8. 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 nondegree student before his or her first term of enrollment at Yale.

M. ELI WHITNEY STUDENTS PROGRAM

The Eli Whitney Students program is designed to meet the needs of students unable to attend college full time by offering nonresident students the opportunity to enroll in Yale College courses for credit. The Eli Whitney Students program is for enrollment for the degree of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) only. Like all others enrolled in Yale College, students in this program are required to comply with the academic regulations.

To qualify for the bachelor's degree through the Eli Whitney Students program, a student must successfully complete at least thirty-six course credits or the equivalent, earning at least eighteen of the thirty-six credits at Yale while enrolled in the Eli Whitney Students program. As many as eighteen course credits earned at another college or university or in the Nondegree Students program at Yale may be transferred toward the requirements for the bachelor's degree. Such credit will be awarded for academic courses that were taken at an accredited institution and that were similar in content to Yale College 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. Once a student has matriculated at Yale as a candidate for the bachelor's degree, as many as two course credits earned at another institution may be transferred to the student's Yale record, provided that the student earns no fewer than eighteen course credits at Yale. The regulations governing the transfer of such credits are given in "Rules on Credit from outside Yale" in section O. The thirty-six course credits completed at Yale or elsewhere must meet the distributional requirements as described in chapter I. Whitney students matriculating in 2009 or later fulfill the distributional requirements as defined for the Class of 2009 and subsequent classes.

Candidates for a B.A. or B.S. degree must fulfill the requirements of one of the major programs listed at the beginning of chapter IV. See "Major Programs" in chapter I.

1. *Registration and enrollment.* Eli Whitney students register for courses with Dean William Whobrey, 55 Whitney Avenue, Suite 402, 432-2430. These students must submit their course schedules for approval to their residential college dean according to the submission deadline for seniors. Whitney students may normally enroll for no more than a total of six course credits during an academic year (exclusive of enrollment in Yale Summer Session). As an exception, a student may petition the director to enroll for a total of eight course credits in an academic year; such permission, if granted, will be granted one time only. 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. At the end of each term, the records of all Eli Whitney students will be reviewed; a student who does not have at least a C average may not be permitted to enroll in a subsequent term. 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 courses to remain in academic good standing.

2. *General.* The tuition for the Eli Whitney Students program for the 2006–2007 academic year is \$2,500 per course credit; Yale employees 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 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 such as career counseling through University Career Services and fellowships through the Office of International and Educational Fellowship Programs. Eli Whitney students are entitled to purchase gymnasium membership and Yale Health Plan coverage. Students in the Eli Whitney program are not eligible for undergraduate housing and they may not serve as freshman counselors. Yale provides no financial assistance for Eli Whitney students. Eli Whitney students are governed by the academic regulations of Yale College, wherever appropriate, and by the rules contained in the *Undergraduate Regulations*. In disciplinary matters, Eli Whitney students are subject to the jurisdiction of the Yale College Executive Committee.

3. *Leave of absence and withdrawal.* See section J, “Leaves of Absence, Withdrawals, and Readmission.” All regular deadlines and policies apply.

4. *Junior Year or Term Abroad.* With the approval of the director of the Eli Whitney Students program, the department of their major, and the Committee on the Junior Year or Term Abroad, students enrolled in the Eli Whitney Students program may undertake study outside the United States for a full academic year or for either a fall or a spring term. An Eli Whitney student must comply with all deadlines and requirements of the Committee on the Junior Year or Term Abroad. See “Junior Year or Term Abroad” in section K and in chapter I. To be eligible to apply, an Eli Whitney student must have accumulated, before enrolling abroad, at least sixteen course credits but no more than twenty-two course credits toward the 36-course-credit requirement and have a B average in course work at Yale. Study abroad must involve full-time work at the university level. Yale provides no financial assistance for Eli Whitney students on an approved Junior Year or Term Abroad. Eli Whitney students must enroll for at least two terms in Yale College after their return from study abroad and may not receive degree credit for any other work done at another university after their matriculation at Yale.

5. *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 the 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 can 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 Office of Undergraduate Admissions, 38 Hillhouse Avenue, Yale University, P.O. Box 208234, New Haven, CT 06520-8234, 432-9301. Applications are due by May 1, 2007.

N. NONDEGREE STUDENTS PROGRAM

The Nondegree 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. This program offers nonresident students who are unable to attend college full time the opportunity to enroll in Yale College courses for credit. This 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 others enrolled in Yale College, students in this program are required to comply with the academic regulations.

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

1. *Registration and enrollment.* All nondegree students register for courses with Dean William Whobrey, 55 Whitney Avenue, Suite 402, 432-2430. In general, admission to limited-enrollment courses is not available to nondegree students. Nondegree students are not eligible for enrollment in individual tutorial courses; nor are they eligible, while in the Nondegree 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 or to the particular professional school in whose courses they wish to enroll. Nondegree 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 nondegree student who does not have at least a C average will be reviewed, and that student may not be permitted to enroll in a subsequent term.

2. *General.* The tuition for nondegree students during 2006–2007 is \$2,500 per course credit; Yale employees and their spouses 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. Nondegree 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 membership and Yale Health Plan coverage. Nondegree students are not eligible for undergraduate housing and they may not serve as freshman counselors. Yale provides no financial assistance for nondegree students. Nondegree students are governed by the academic regulations of Yale College and by the rules contained in the *Undergraduate Regulations*. In disciplinary matters, nondegree students are subject to the jurisdiction of the Yale College Executive Committee.

3. *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 nondegree students. This rule includes former Yale College students who are currently employees of the University. All former Yale College students who wish to return to Yale College must apply to the Yale College Dean's Office for readmission as regular students. Students on leave of absence may not be admitted to the Nondegree Students program.

4. *Yale graduates.* Graduates of Yale College who have received the bachelor's degree after eight terms of regular enrollment are eligible to apply as nondegree 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 nondegree 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 nondegree student, but may be a part-time nondegree 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 nondegree 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 nondegree student during the subsequent spring term only on a full-time basis.

5. Students who have been accepted for admission as transfer students may not attend Yale as nondegree students before their first term of enrollment at Yale.

6. Nondegree students must provide written notice to the director of the program each term as to their intent to enroll in the subsequent term. The deadline for receipt of such notice is the first day of the final examination period for the currently enrolled term. Students failing to provide such notice for two consecutive terms may not be permitted to enroll in a subsequent term. Four consecutive terms of nonenrollment will result in release from the program.

Further information and application forms are available from the Office of Undergraduate Admissions, 38 Hillhouse Avenue, Yale University, P.O. Box 208234, New Haven, CT 06520-8234, 432-9301. Nondegree enrollment may begin in either the fall or the spring term.

For students not currently enrolled in another college, applications are due on October 1, 2006, for spring term 2007, and on May 1, 2007, for fall term 2007. For students who are currently enrolled in another college, the deadline is October 1, 2006, for the spring term and July 1, 2007, for the fall term. Yale employees require permission of their supervisors to apply.

O. CREDIT FROM OTHER UNIVERSITIES

RULES ON CREDIT FROM OUTSIDE YALE

A student may not employ course credits earned at another 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 or university toward the 36-course-credit requirement for graduation from Yale College. Forms on which to request the award of credit for study that has been completed elsewhere are available at the offices of the residential college deans. 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. Courses in the 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 "Courses in the Yale Summer Session" in section K. Similarly, courses taken at the Yale Program at the Paul Mellon Centre in London are Yale courses and do not count as outside credit.

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 undergraduate studies in the subject of a course taken elsewhere 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 at a foreign university should supply an official transcript if the university 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 accredited institution that grants a bachelor's degree in the arts and sciences. 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 course in which a grade of D was earned. Credit also cannot be given for a mark of Credit on a Credit/D/Fail option, nor 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 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 university, the number of contact hours for the course must equal or exceed the number of contact hours for an equivalent course offered in Yale College during the fall or spring term, and the length of term (from the first to the last day of classes) must be at least four consecutive weeks.

2. *Work done while in secondary school.* Course credit or distributional credit cannot be given for any 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 appropriate director of undergraduate studies.

As a regular exception to this rule, students who earned credits while still enrolled in secondary school as members of the Nondegree Students program in Yale College or as students in the Yale Summer Session may apply such credits toward the requirements of the bachelor's degree.

3. *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.

4. *Distributional requirements. For the Class of 2008 and earlier classes.* With the permission of the residential college dean, course credit earned at another

university may be applied toward the distributional requirements for the bachelor's degree and the distributional requirement for the first two 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 freshman year. 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.

For the Class of 2009 and subsequent classes. With the permission of the residential college dean, 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 freshman year. 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.

5. *The foreign language requirement and courses taken elsewhere.* Students who have taken a course in a foreign language at another institution and who wish to offer that course toward fulfillment of the foreign language distributional requirement must pass a foreign language examination administered at Yale by the appropriate director of undergraduate studies or the director of the Center for Language Study.

6. *Major requirements.* At the discretion of the director of undergraduate studies in a student's major, any university work done elsewhere 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.

7. *Junior Year or Term Abroad.* Students receiving credit for foreign study on a Junior Year or Term Abroad are not eligible to apply additional credit from outside Yale toward the 36-course-credit requirement, but may apply such credit toward the distributional requirements for the bachelor's degree or toward a requirement of the student's major program (see points 4 and 6 above).

8. *Transfer students.* Students admitted by transfer from another college or university may receive course credit from outside Yale only for work done before matriculation at Yale; transfer students may not receive course credit for any outside courses taken after they have enrolled in Yale College. An exception may under certain circumstances be made in the case of course credits earned by transfer students on a Junior Year or Term Abroad. See section L, "Transfer Students." Transfer students must enroll in Yale College proper for at least four terms, and earn therein at least eighteen course credits.

9. *Correspondence courses, internships, and the like.* Course credit cannot be given for a course taken by correspondence even if it is sponsored by another university, including accredited four-year institutions granting a bachelor's degree. It also cannot be given for such programs as internships, field studies, workshops, or "distance learning" arrangements, unless such programs include as a component a full, regular, academic course of instruction, and are certified by a transcript from an accredited four-year institution granting a bachelor's degree.

10. *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, 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 (on which see section L, “Transfer Students”), 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 toward the distributional requirements only are listed without grades and with the designation “for distributional credit only.” Courses that are applied toward the requirements of a major program only are also 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, the entry may not subsequently be removed at the student’s request.

II. *Acceleration*. See section P, “Acceleration Policies.”

P. ACCELERATION POLICIES

ACCELERATION BY THE EARLY ACCUMULATION OF THIRTY-SIX COURSE CREDITS ALL EARNED AT YALE

A student may accelerate progress toward graduation by accumulating thirty-six course credits in fewer than eight terms of enrollment. Such a student must earn all thirty-six course credits at Yale and may not offer course credits earned at another institution in order to reduce the number of terms of enrollment at Yale.

1. Terms spent on a Junior Year or Term Abroad count as if they were terms of enrollment in Yale College, but course credits earned therein may not be applied to acceleration by the early accumulation of thirty-six course credits because all such credits must be earned at Yale. A spring term at the Yale College Program at the Paul Mellon Centre in London is, in fact, a term of enrollment in Yale College, and credits earned there may be applied to such acceleration. Attendance at the Yale Summer Session or the Summer Program at the Paul Mellon Centre in London does not count as a term of enrollment, but course credits earned in these summer programs may be applied toward acceleration by the early accumulation of thirty-six credits all earned at Yale. See “Courses in the Yale Summer Session” and “Yale-in-London Summer Program” in section K.

2. While students employing acceleration credits in order to acquire an accelerated degree are required to attend Yale in certain patterns of attendance (see 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. Either a six-term degree or a seven-term degree may be acquired by the accumulation of thirty-six course credits earned at Yale; graduation after fewer than six terms of enrollment in Yale College by such an early accumulation of course credits is not permitted.

4. A student intending to accelerate through the early accumulation of thirty-six course credits all earned at Yale must notify the Committee on Honors and Academic Standing through the residential college dean of that intention by the day on which the student’s course schedule is due in the final term of enrollment. Such notification must include written certification from the student’s director of undergraduate studies 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 at the conclusion of that term. Failure to do so will result in the student's being charged a fine of \$100. 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 chapter II, "Freshman Placement and Acceleration." 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 Chair of the Committee on Advanced Placement and Acceleration, Registrar's Office, 246 Church Street, 432-2331.

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:

<i>Acceleration by One Term</i>	<i>Minimum Total Credits</i>	<i>Minimum Yale Course Credits</i>	<i>Activated Acceleration Credits</i>
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
<i>Acceleration by Two Terms</i>	<i>Minimum Total Credits</i>	<i>Minimum Yale Course Credits</i>	<i>Activated Acceleration Credits</i>
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. Note that 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, as a special exception, 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 of classes in the sixth term of enrollment. The absolute and final deadline for applying for acceleration by *two terms* is the last day of classes in the fifth 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 Junior Year or Term Abroad program, a student accelerating by use of acceleration credits may not apply any credit earned at another 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. 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 points 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 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 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.

3. *A third term of leave of absence.* A student taking an accelerated degree by use of acceleration credits who has had two terms of leave of absence may

receive a third 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 "Leave of Absence" in section J; a student who has received long-term loans through Yale or who is receiving financial aid from Yale should particularly note paragraph 8 under "Leave of Absence."

4. *Withdrawal.* If a student withdraws from a term after the date on which course schedules for that term are due, 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. However, if an accelerating student withdraws from Yale College on the recommendation of the University Health Services 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.

5. *Enrollment in Yale Summer Session or the Yale-in-London Summer Program.* Attendance at the Yale Summer Session or the Summer Program at the Paul Mellon Centre in London does not constitute a term of enrollment. For example, a student accelerating by one term may not offer attendance at the 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 "Courses in the Yale Summer Session" and "Yale-in-London Summer Program" in section K.

6. *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 university 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 university toward the requirements of the student's major program or toward any of the distributional requirements other than those for the freshman year. See "Rules on Credit from outside Yale" in section O.

(Please note that attendance at the Yale 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 "Yale-in-London Summer Program" in section K.)

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

Note that after a Junior Year or Term Abroad all students must attend two subsequent terms in Yale College; see "Junior Year or Term Abroad" in section K. In many cases a student must relinquish the use of acceleration credits and decelerate in order to take a Junior Year or Term Abroad. Note also that 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, as a special exception, have to petition to accelerate before the third term of enrollment. A student who wishes to accelerate and to take a Junior Year or Term Abroad should consult with the residential college dean and the Office of International Education and Fellowship Programs at the earliest opportunity.

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

<i>Terms of Acceleration</i>	<i>Total Terms at Yale</i>	<i>Terms on JYA/JTA</i>	<i>Acceleration Credits</i>	<i>Minimum Course Credits Earned at Yale</i>	<i>Maximum Course Credits Earned on JYA/JTA</i>
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. For the Class of 2008 and earlier classes.* Acceleration credits may not be employed to meet the distributional requirements for the freshman year or the distributional requirements for the bachelor's degree, except for the foreign language requirement. Acceleration credits may be employed to meet the distributional requirement for the first two years, whether or not the student uses those credits in order to accelerate. With the permission of the residential college dean, an accelerating student may apply course credit earned at another university toward the distributional requirements for the bachelor's degree and the distributional requirement for the first two years.

For the Class of 2009 and subsequent classes. Acceleration credits may not be employed to meet the distributional requirements for the freshman, sophomore, or junior years, or the distributional requirements for the bachelor's degree, including the foreign language requirement. With the permission of the residential college dean, an accelerating student may apply course credit earned at another university toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years.

9. *Major requirements.* With the permission of the director of undergraduate studies, 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 nondegree 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 nondegree students. Because such students will have graduated, they will not be eligible for financial aid. See section N, "Nondegree Students Program."

12. *Transfer students.* Students admitted by transfer from other colleges and universities are not eligible for acceleration by the use of acceleration credits.

Q. AMENDMENTS

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

IV

Subjects of Instruction

MAJORS IN YALE COLLEGE

The roman numerals following the degree designations are distributional group numbers. A subject marked with an asterisk may be taken only as a second major.

- African American Studies (B.A.)
I, II, or III
- African Studies (B.A.) I, II, or III
- American Studies (B.A.) I, II, or III
- Anthropology (B.A.) III
- Applied Mathematics (B.A. or B.S.) IV
- Applied Physics (B.A. or B.S.) IV
- Archaeological Studies (B.A.) II or III
- Architecture (B.A.) II
- Art (B.A.) II
- Astronomy (B.A.) IV
- Astronomy and Physics (B.S.) IV
- Biology (B.A. or B.S.) IV
- Chemistry (B.A. or B.S.) IV
- Chinese (B.A.) I
- Classical Civilization (B.A.) II
- Classics (Greek) (B.A.) I
- Classics (Greek and Latin) (B.A.) I
- Classics (Latin) (B.A.) I
- Cognitive Science (B.A.) III
- Computer Science (B.A. or B.S.) IV
- Computer Science and Mathematics
(B.A. or B.S.) IV
- Computer Science and Psychology (B.A.)
III or IV
- East Asian Studies (B.A.) I, II, or III
- Economics (B.A.) III
- Economics and Mathematics (B.A.) III
or IV
- Electrical Engineering and
Computer Science (B.S.) IV
- Engineering
Biomedical Engineering (B.S.) IV
Chemical Engineering (B.S.) IV
Electrical Engineering (B.S.) IV
Engineering Sciences (Chemical)
(B.S.) IV
Engineering Sciences (Electrical,
Environmental, or Mechanical)
(B.A. or B.S.) IV
Environmental Engineering (B.S.) IV
Mechanical Engineering (B.S.) IV
- English (B.A.) I
- Environmental Studies (B.A.) II, III, or
IV
- Ethics, Politics, and Economics (B.A.)
II or III
- Ethnicity, Race, and Migration* II or III
- Film Studies (B.A.) II
- French (B.A.) I
- Geology and Geophysics (B.A. or B.S.) IV
- German (B.A.) I
- German Studies (B.A.) II
- Greek, Ancient and Modern (B.A.) I
- History (B.A.) II
- History of Art (B.A.) II
- History of Science, History of
Medicine (B.A.) II
- Humanities (B.A.) II
- International Studies* II or III
- Italian (B.A.) I
- Japanese (B.A.) I
- Judaic Studies (B.A.) I, II, or III
- Latin American Studies (B.A.) I, II, or III
- Linguistics (B.A.) III
- Literature (B.A.) I
- Mathematics (B.A. or B.S.) IV
- Mathematics and Philosophy (B.A.)
II or IV
- Mathematics and Physics (B.A. or B.S.)
IV
- Molecular Biophysics and
Biochemistry (B.A. or B.S.) IV
- Music (B.A.) II
- Near Eastern Languages and
Civilizations (B.A.) I or II
- Philosophy (B.A.) II
- Physics (B.S.) IV
- Physics and Philosophy (B.A.) II or IV
- Political Science (B.A.) III
- Portuguese (B.A.) I
- Psychology (B.A.) III
- Religious Studies (B.A.) II
- Renaissance Studies (B.A.) I or II
- Russian (B.A.) I
- Russian and East European Studies
(B.A.) I, II, or III
- Sociology (B.A.) III
- Spanish (B.A.) I
- Special Divisional Major (B.A. or B.S.)
I, II, III, or IV
- Theater Studies (B.A.) I or II
- Women's, Gender, and Sexuality
Studies (B.A.) I, II, or III

SUBJECT ABBREVIATIONS

ACCT	Accounting	HUMS	Humanities
AFAM	African American Studies	INDN	Indonesian
AFST	African Studies	INTS	International Studies
AKKD	Akkadian	ITAL	Italian
AMST	American Studies	JAPN	Japanese
AMTH	Applied Mathematics	JDST	Judaic Studies
ANTH	Anthropology	KREN	Korean
APHY	Applied Physics	LAST	Latin American Studies
ARBC	Arabic	LATN	Latin
ARCG	Archaeological Studies	LING	Linguistics
ARCH	Architecture	LITR	Literature
ART	Art	MATH	Mathematics
ASTR	Astronomy	MB&B	Molecular Biophysics and Biochemistry
BENG	Biomedical Engineering	MCDB	Molecular, Cellular, and Developmental Biology
CENG	Chemical Engineering	MENG	Mechanical Engineering
CGSC	Cognitive Science	MGRK	Modern Greek
CHEM	Chemistry	MUSI	Music
CHLD	Child Study Center	NELC	Near Eastern Languages and Civilizations
CHNS	Chinese	OPRS	Operations Research
CLCV	Classical Civilization	PERS	Persian
CLSS	Classics	PHIL	Philosophy
CPSC	Computer Science	PHYS	Physics
CPTC	Coptic	PLSC	Political Science
CZEC	Czech	PORT	Portuguese
DRST	Directed Studies	PSYC	Psychology
EALL	East Asian Languages and Literatures	RLST	Religious Studies
EAST	East Asian Studies	RNST	Renaissance Studies
ECON	Economics	RSEE	Russian and East European Studies
E&EB	Ecology and Evolutionary Biology Biology	RUSS	Russian
EENG	Electrical Engineering	SBCR	Serbian and Croatian
EGYP	Egyptian	SCIE	Science
ENAS	Engineering and Applied Science	SLAV	Slavic Languages and Literatures
ENGL	English Language and Literature	SOCY	Sociology
ENVE	Environmental Engineering	SPAN	Spanish
EP&E	Ethics, Politics, and Economics	SPEC	Special Divisional Major
ER&M	Ethnicity, Race, and Migration	STAT	Statistics
EVST	Environmental Studies	STCY	Study of the City
F&ES	Forestry & Environmental Studies	SWAH	Kiswahili
FILM	Film Studies	TAML	Tamil
FREN	French	THST	Theater Studies
G&G	Geology and Geophysics	TKSH	Turkish
GMAN	Germanic Languages and Literatures	TPRP	Teacher Preparation and Education Studies
GMST	German Studies	VIET	Vietnamese
GREK	Greek	WGSS	Women's, Gender, and Sexuality Studies
HEBR	Hebrew	YORU	Yorùbá
HIST	History	ZULU	isiZulu
HNDI	Hindi		
HSAR	History of Art		
HSHM	History of Science, History of Medicine		

ACCOUNTING

ACCT 170a or b, FINANCIAL ACCOUNTING. Larry Schiffrés.
MW 9-10.15 III; Not CR/D/F (32)

Contemporary accounting and corporate financial reporting. Preparation, interpretation, and analysis of the earnings statement; the statement of financial position and the statement of cash flows. *Open to seniors and juniors as space allows.*

AFRICAN AMERICAN STUDIES

Director of undergraduate studies: Elizabeth Alexander, 493 College St., 432-1170, elizabeth.alexander@yale.edu [F]; Emilie Townes, 493 College St., 432-1170, emilie.townes@yale.edu [Sp]

FACULTY OF THE DEPARTMENT OF AFRICAN AMERICAN STUDIES

PROFESSORS

Elizabeth Alexander, David Blight, Hazel Carby, Glenda Gilmore, Ezra Griffith, Jonathan Holloway, Matthew Jacobson, Gerald Jaynes, Serene Jones, Christopher L. Miller, Patricia Pessar (*Ajunct*), Joseph Roach, Robert Stepto, John Szwed, Robert Thompson, Emilie Townes

ASSOCIATE PROFESSORS

Kamari Clarke, Kellie Jones, David Krasner, Susan Lederer, Michael Veal

ASSISTANT PROFESSORS

Jennifer Baszile, Khalilah Brown-Dean, Terri Francis, Ange-Marie Hancock, Alondra Nelson, Naomi Pabst, Diana Paulin

LECTURERS

Kathleen Cleaver, William Casey King, Noelle Morrisette, Flemming Norcott, Deborah Thomas, Gerald Thomas, Jennifer Wood

The African American Studies major examines, from numerous disciplinary perspectives, the experiences of people of African descent in Black Atlantic societies, including the United States, the Caribbean, and Latin America. Students in the department explore the historical, cultural, political, economic, and social development of Black Atlantic societies. The major demands that students acquire both an analytic ability rooted in a traditional discipline and interdisciplinary skills of investigation and research.

African American Studies offers training of special interest to those considering admission to graduate or professional schools and careers in education, journalism, law, business management, city planning, international relations, politics, psychology, publishing, 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 for a broad liberal arts perspective that complements specialized knowledge of a field.

African American Studies can be taken either as a primary major or as one of two majors, in consultation with the director of undergraduate studies. Appropriate majors to combine with African American Studies might include, but are not limited to, American Studies, Anthropology, Economics, English, Ethnicity, Race, and Migration, History, History of Art, Music, Political Science, Psychology, Sociology, Theater Studies, and foreign languages. Regulations concerning the completion of two majors can be found in chapter III, section K, of this bulletin.

Requirements of the major. The major in African American Studies requires twelve term courses including a yearlong history sequence (AFAM 161a, 162b), one course in the humanities relevant to African American Studies

(e.g., AFAM 112a, 178b, 242a, 294a, 367b, 408a, 414b, 419b, or 424a), one course in the social sciences relevant to African American Studies (e.g., AFAM 243a, 250b, 280a, 317a, 323a, 347a, or 425b), the junior seminar (AFAM 410b), the senior colloquium (AFAM 480a), and the senior essay (AFAM 491a or b). These courses examine ideas and problems that may originate in many fields but that have a common concern—the black experience. The distribution of requirements is intended to provide students with a broad interdisciplinary experience. Students are strongly encouraged to complete the history sequence by the end of their sophomore year.

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

Junior seminar. In their junior year students must take the junior seminar (AFAM 410b, *Interdisciplinary Approaches to African American Studies*). This course provides majors with theoretical and methodological bases for the work they will do during their research-oriented senior year.

Senior requirement. As seniors, students participate in a colloquium (AFAM 480a) that gives them an opportunity to exchange ideas with each other and with more advanced scholars; students submit a prospectus, compile a working bibliography, begin or continue research, and write the first eight to ten pages of the senior essay. After completing the colloquium, each student carries out the remaining research and writing of a senior essay (AFAM 491b or, in exceptional cases, 491a) under the guidance of a faculty member in the chosen discipline or area of concentration.

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 throughout the Black Atlantic diaspora. The particular research problem and design are to be worked out in each case with a faculty adviser.

Procedures. Students considering a program of study in African American Studies should consult the director of undergraduate studies as early as possible. Areas of concentration and schedules for majors must be approved by the director of undergraduate studies.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses (including senior requirement)

Specific courses required: AFAM 161a, 162b, 410b

Distribution of courses: At least five courses in area of concentration; one relevant humanities course and one relevant social science course, both approved by DUS

Substitution permitted: Relevant course with permission of DUS

Senior requirement: Senior colloquium (AFAM 480a), senior essay (AFAM 491a or b)

[AFAM 092b/SOCY 092b, HEALTH, CULTURE, AND SOCIETY]

AFAM 110a, FREEDOM AND IDENTITY IN BLACK CULTURES.

Elizabeth Alexander.

MW 11.30-12.45, 1 HTBA I, II, or III Hu, So (34)

Introduction to major themes and topics in African American experiences; basic methods of interdisciplinary analysis and interpretation in African American studies. Topics include black economic, political, and social institutions; self-identity and social status; literature, art, film, and music; and political and social issues and their relationship to changing social structures.

AFAM 112a^G/HSAR 379a^G, NEW YORK MAMBO: MICROCOSM OF BLACK CREATIVITY. Robert Thompson.

For description see under History of Art.

AFAM 161a/HIST 186a, AFRICAN AMERICAN HISTORY: FROM THE BEGINNING TO EMANCIPATION. Jennifer Bazile.

MW 2.30-3.45 II; Not CR/D/F Hu (37)

A survey of African American history from the time of European settlement on the North American continent through the Civil War. Topics include the impact of Africa on African American life; the origins and evolution of American slavery; the rise of a distinctive African American culture; the formation of free black society after the Revolution; the black struggle against slavery; the turbulence of the Civil War era; and the meaning of emancipation.

AFAM 162b/AMST 162b/HIST 187b, AFRICAN AMERICAN HISTORY: FROM EMANCIPATION TO THE PRESENT. Jonathan Holloway.

MW 11.30-12.20, 1 HTBA II; Not CR/D/F WR, Hu (34)

An examination of the African American experience since 1861. Emphasis on African Americans in the Civil War and Reconstruction; the thought and leadership of Booker T. Washington, Ida B. Wells-Barnett, Du Bois, Garvey, King, and Malcolm X; the urban experience of African Americans; the civil rights movement and its aftermath.

AFAM 178b^G/AFST 188b^G/HSAR 378b^G, FROM WEST AFRICA TO THE BLACK AMERICAS: THE BLACK ATLANTIC VISUAL TRADITION.

Robert Thompson.

For description see under History of Art.

[AFAM 228b/HSAR 375b, AFRICAN AMERICAN ARTISTS IN THE TWENTIETH AND TWENTY-FIRST CENTURIES]

★AFAM 242a/★FILM 370a, AFRICAN AMERICAN CINEMA. Terri Francis.

For description see under Film Studies.

★AFAM 243a/★PLSC 216a, AFRICAN AMERICAN POLITICS.

Khalilah Brown-Dean.

For description see under Political Science.

AFAM 250b, BLACKS AND THE LAW. Flemming Norcott.

MW 4.30-5.45 III So (37)

An exploration of the ways in which legislative and judicial policy has affected the legal and socioeconomic status of African Americans from slavery to the present. Constitutional concepts of equality and integration examined.

AFAM 253a/MUSI 265a, JAZZ IN TRANSITION, 1960-1980. Michael Veal.

For description see under Music.

[AFAM 279a/AMST 273a/WGSS 342a, BLACK WOMEN'S LITERATURE]

★AFAM 280a/★JDST 290a/★PLSC 268a, BLACK AND JEWISH COMMUNITY POLITICS. Khalilah Brown-Dean.
For description see under Political Science.

AFAM 282b/ECON 280b, POVERTY UNDER POSTINDUSTRIAL CAPITALISM.
Gerald Jaynes.

TTh 2.30-3.45 III So (o)

Political economy of contemporary social welfare policy as it has been affected by economic restructuring, the development of the underclass, and the effects of immigration on the economy and its social structure. *After two terms of introductory economics.*

AFAM 294a/ENGL 294a, AFRICAN AMERICAN LITERATURE I: 1740–1900.
Noelle Morriseette.

MW 11.30-12.45 I; Not CR/D/F Hu (o)

The literary reaction to slavery; the evolution in form from slave narratives to autobiographies and fictions; the incorporation of folk and popular materials into formal literature. Authors include Phyllis Wheatley, Jupiter Hammon, Frederick Douglass, Harriet Jacobs, Frances Ellen Watkins Harper, Charles Chesnutt, Paul Laurence Dunbar, and James Weldon Johnson.

★AFAM 295b/★ENGL 295b, AFRICAN AMERICAN LITERATURE II:
1900–1970. Noelle Morriseette.

MW 11.30-12.45 I; Not CR/D/F Hu (o)

An examination of modern African American literature, concentrating on the short story and novel. Topics include the shape of the narrative; major literary themes, including migration and urbanization, racial oppression, representation of women, and identity; the literary “renaissances” of the twentieth century; and canon formation and genre practices. Authors include Gwendolyn Brooks, Charles Chesnutt, Langston Hughes, Zora Neale Hurston, Toni Morrison, Jean Toomer, and August Wilson.

[AFAM 296a/ENGL 296a, AFRICAN AMERICAN LITERATURE III: 1970 TO THE PRESENT]

★AFAM 301a, HISTORICAL FICTION AND AFRICAN AMERICAN LITERATURE. Deborah Thomas.

W 1.30-3.20 I; Not CR/D/F Hu (o)

An examination of historical fiction in relationship to the African American literary canon. Close readings of historical fiction and literature produced in the nineteenth and early twentieth centuries, beginning with the slave narrative. The institution of slavery, reconstruction, and migration; social and cultural issues related to identity, family, and community; the meaning of freedom and humanity. Authors include Frederick Douglass, Harriet Jacobs, William Wells Brown, W. E. B. Du Bois, William Faulkner, Ralph Ellison, and Toni Morrison.

[AFAM 304b/WGSS 309b, TONI MORRISON]

★AFAM 312b/★AMST 463b, MEANINGS OF THE BLUES. Robert Sambat.

W 1.30-3.20 II; Not CR/D/F Hu (o)

An introduction to the form of American music known as the blues, from its earliest forms to recent developments. The blues as a way of experiencing and being experienced in America; representations of the blues in literature and popular culture; the rhetorical strategies of the blues as literary form and ideology; and the influence of the blues on how people experience notions of race, religion, work, and gender. *No musical knowledge or ability is presumed.*

★AFAM 317a/★AFST 303a/★ANTH 303a, FIELD METHODS IN CULTURAL ANTHROPOLOGY. Kamari Clarke.

For description see under Anthropology.

★AFAM 323a/★ANTH 304a/★FILM 336a, JAZZ AND FILM. John Szwed.

For description see under Anthropology.

★AFAM 347a, CARIBBEAN LIVES: PSYCHOSOCIAL ASPECTS.

Ezra Griffith.

W 2.30-4.20 II So (o)

A study of the development over time of individuals living in the English-speaking Caribbean. Attention both to the portraiture of the lives and to the psychosocial context in which the individuals lived. Discussion of the unique elements in Caribbean life that facilitated or inhibited the developmental process.

[AFAM 352a/AMST 438a/ER&M 291a/LITR 295a/WGSS 343a, CARIBBEAN DIASPORIC LITERATURE]

★AFAM 367b/★AMST 431b/★ER&M 344b/★WGSS 455b, REPRESENTATION AND THE BLACK FEMALE. Hazel Carby.

T 1.30-3.20 II; Not CR/D/F Hu (o)

Examination of how some black women have responded to the racialization of societies and to the culture and politics of gendering and sexuality in the twentieth century in Europe, the Caribbean, and the Americas. Forms and media include fiction, poetry, autobiography, paintings, sculpture, performance art and film, and music.

[AFAM 368b/AMST 321b, INTERRACIALITY AND HYBRIDITY]

★AFAM 371a/★HIST 450a, THE EARLY MODERN ATLANTIC WORLD.

William Casey King.

Th 9.30-11.20 II; Not CR/D/F WR, Hu (o)

Exploration of the patterns of interaction that developed among communities bordering the Atlantic Ocean between the 1440s and the 1790s. Consideration of both the precedents and the new dynamics that emerged in the period and gave rise to the modern world.

★AFAM 407bG/★ENGL 296b, AUGUST WILSON AND HIS CONTEXTS.

Elizabeth Alexander.

T 3.30-5.20 I; Not CR/D/F Hu (o)

Examination of August Wilson's contribution to twentieth-century American theater. Close reading of his ten-play cycle. Discussion of the work in the context of influence on Wilson, including blues and blues aesthetics, Lorraine Hansberry, Amiri Baraka, Romare Bearden, and Pittsburgh's Hill District. Students conduct archival research at the Yale School of Drama, where many of the plays were first produced.

★AFAM 408aG/★AMST 460aG/★ENGL 443aG, TWENTIETH-CENTURY AFRICAN AMERICAN POETRY. Robert Stepto.

T 1.30-3.20 I Hu (o)

The African American practice of poetry between 1900 and 1960, especially of sonnets, ballads, sermonic, and blues poems. Poets studied include Paul Laurence Dunbar, Langston Hughes, Sterling Brown, Gwendolyn Brooks, Margaret Walker, and Robert Hayden. Includes sessions at the Beinecke Library for inspection and discussion of original editions, manuscripts, letters, and other archival material.

***AFAM 410b/*WGSS 410b, INTERDISCIPLINARY APPROACHES TO AFRICAN AMERICAN STUDIES.** Deborah Thomas.

Th 1.30-3.20 II or III; Not CR/D/F Hu, So (o) Junior sem
An interdisciplinary, theoretical approach to the study of race, nation, and ethnicity in the African diaspora. Topics include class, gender, color, and sexuality; the dynamics of Pan-Africanism, neocolonialism, and contemporary black nationalism.

***AFAM 411a/*AMST 426a/*ER&M 413a/*WGSS 411a, THE FICTION OF IMAGINARY OR IMMINENT FUTURES.** Hazel Carby.

T 1.30-3.20 II; Not CR/D/F Hu (o)
Consideration of the nature of utopian and dystopian ideas and the relation between early science fiction and the political project of colonization. Readings of speculative fiction and critical essays from the middle of the twentieth century to the present, including a survey of writing by African American authors.

***AFAM 414b/*WGSS 438b, WOMEN IN THE BLACK FREEDOM MOVEMENT.** Kathleen Cleaver.

T 1.30-3.20 II So (o)
Writings and scholarship of women are used to examine struggles against slavery, racial segregation, economic exploitation, and gender discrimination in the United States. Focus on women who were abolitionists, civil rights leaders, and freedom fighters.

[AFAM 418a^G/FILM 421a^G/LITR 363a, FILM AND THE HARLEM RENAISSANCE]

***AFAM 419b^G/*FILM 425b^G/*WGSS 341b, BLACK WOMEN'S FILM AND VIDEO.** Terri Francis.

For description see under Women's, Gender, & Sexuality Studies.

***AFAM 422b/*AMST 451b/*HIST 451b/*WGSS 458b, BLACK MEN IN AMERICAN CULTURE.** Jennifer Baszile.

Th 1.30-3.20 II WR, Hu (o)
Examination of the experiences and representations of black men in American history and culture from colonization to the present. Exploration of the shifting and varied nature of their experiences and their roles in the formation of American culture. Engagement with a broad range of black male subjectivity across American culture. Major themes include ideologies of black manhood as well as the nature of slavery, citizenship, and freedom. Focus on the imagined and lived experience of black men.

***AFAM 424a/*AMST 407a/*HIST 441a^G/*HSHM 433a^G, RACE AND MEDICINE IN AMERICA, 1800–2000.** Susan Lederer.

For description see under History of Science, History of Medicine.

***AFAM 425b^G, PSYCHOSOCIAL STUDY OF BLACK AUTOBIOGRAPHY.** Ezra Griffith.

W 2.30-4.20 III So (o)
Autobiographies of black men and women analyzed especially for an understanding of the authors' development over time, with attention to problems, satisfactions, disappointments, grief, and fulfillment.

[AFAM 431a^G/ANTH 481a^G, INTRODUCTION TO JAZZ STUDIES]

[AFAM 432a^G/ENGL 385a, RETHINKING THE AFRICAN AMERICAN LITERARY CANON]

★AFAM 437b^G/★AMST 420b^G/★ENGL 445b^G, RALPH ELLISON IN CONTEXT. Robert Stepto.

For description see under English Language & Literature.

★AFAM 438b/★HIST 449b, FOUNDATIONS OF AFRICAN AMERICAN CULTURE. Jennifer Baszile.

Th 9.30-11.20 II; Not CR/D/F WR, Hu (o)

An exploration of the range of African American experiences in North America through the Civil War era. Focus on the changing nature of identities, specifically racial categories, during this period. Topics include the meaning of Africa, the rise of African American culture, changing ideas of freedom, free black communities, abolition, and gender.

★AFAM 441a^G/★AFST 464a^G/★ANTH 422a^G, AFRICA AND THE DISCIPLINES. Kamari Clarke, Christopher L. Miller.

For description see under African Studies.

★AFAM 444b/★AMST 433b/★ENGL 442b/★ER&M 414b, REPRESENTATIONS OF MISCEGENATION IN U.S. LITERATURE AND CULTURE. Diana Paulin.

For description see under American Studies.

★AFAM 471a *and* 472b, INDEPENDENT STUDY: AFRICAN AMERICAN STUDIES. Staff.

HTBA I, II, or III; Not CR/D/F (o)

Independent research under the direction of a member of the department on a special topic in African American Studies not covered in other courses. Permission of the director of undergraduate studies and of the instructor directing the research is required. A proposal signed 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, typically for an hour a week, and the student writes a final paper or a series of short essays. *May be elected for one or two terms.*

★AFAM 480a, SENIOR COLLOQUIUM: AFRICAN AMERICAN STUDIES. Elizabeth Alexander.

T 1.30-3.20 I, II, or III; Not CR/D/F (o)

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.

★AFAM 491a *or* b, THE SENIOR ESSAY. Elizabeth Alexander, Emilie Townes.

HTBA I, II, or III; Not CR/D/F (o)

Independent research on the senior essay. The senior essay form must be submitted to the director of undergraduate studies by the end of the second week of classes. The senior essay should be completed according to the following schedule: (1) end of the sixth week of classes: a rough draft of the entire essay; (2) end of the last week of classes (fall term) or three weeks before the end of classes (spring term): two copies of the final version of the essay.

COURSES IN OTHER DEPARTMENTS THAT COUNT TOWARD THE MAJOR

MUSI 276a, AFRICAN AMERICAN POPULAR MUSIC OF THE 1960S: MOTOWN AND SOUL. Robert Fink.

★PLSC 245a, URBAN POLITICS AND POLICY. Cynthia Horan.

PLSC 381a/AFST 381a, GOVERNMENT AND POLITICS IN AFRICA. David Simon.
For description see under Political Science.

AFRICAN LANGUAGES

(See under *African Studies*.)

AFRICAN STUDIES

Director of undergraduate studies: Ann Biersteker, 142 LUCE, 432-9902, ann.biersteker@yale.edu; director of the Program in African Languages: Sandra Sanneh, 493 College, 432-1179, sandra.sanneh@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF AFRICAN STUDIES

PROFESSORS

Roberta Brilmayer (*Law School*), Owen Fiss (*Law School*), Sara Suleri Goodyear (*English*), Robert Harms (*History*), Andrew Hill (*Anthropology*), Christopher L. Miller (*French*), Curtis Patton (*Epidemiology & Public Health*), Lamin Sanneh (*History, Divinity School*), Ian Shapiro (*Political Science*), Robert Thompson (*History of Art*), Christopher Udry (*Economics*), David Watts (*Anthropology*), Elisabeth Wood (*Political Science*)

ASSOCIATE PROFESSORS

Ann Biersteker (*Adjunct*) (*Linguistics*), Kamari Clarke (*Anthropology*), Lawrence King (*Sociology*), Michael Veal (*Music*)

ASSISTANT PROFESSORS

Keith Darden (*Political Science*), Michael R. Mahoney (*History*)

LECTURERS

Maxwell Amoh (*African Studies*), Anne-Marie Foltz (*Epidemiology & Public Health*), Peter Marris (*Sociology*)

SENIOR LECTORS

Sandra Sanneh, Kiarie Wa’Njogu

LECTOR

Oluseye Adesola

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 a 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, economics, history, languages and literatures, political science, or sociology.

African Studies offers training of special interest to those considering admission to graduate or professional schools, or careers in education, journalism, law, business management, city planning, 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 program in African Studies consists of thirteen term courses including (1) a basic course in African history and one in anthropology; (2) two years of an African language (Arabic, Kiswahili, Yorùbá, or isiZulu), unless waived by examination; (3) four term courses in one of the following disciplines: anthropology; art history; economics; history; languages and literatures; political science; sociology; or an interdisciplinary program such as African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies; and (4) the junior seminar on research methods, AFST 401a. Students are expected to focus their studies on research in a particular discipline.

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. Students are encouraged to include upper-level courses, especially those centering on research and methodology.

Senior requirement. Students have the option of writing a senior essay, AFST 491a or b, under the guidance of a faculty member in the discipline of concentration and taking the senior seminar, AFST 464a, or taking the senior seminar and an additional senior seminar in another department in lieu of writing a senior essay.

Language requirement. African Studies majors are required to complete two years of college-level study of an African language or the equivalent, and they are encouraged to continue beyond this level. For the language requirement to be waived, students must pass a proficiency test of reading and communicative competence administered through the Center for Language Study. Students should begin their language study as early as possible.

Program in African Languages. The language program offers instruction in three major languages from sub-Saharan Africa: Kiswahili (eastern and central Africa), Yorùbá (West 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 one summer or term in Africa during their language study.

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 for information.

Procedure. Students planning to major in African Studies should consult the director of undergraduate studies as soon as possible.

M.A. program. The African Studies program does not offer the simultaneous award of the B.A. and M.A. degrees. However, 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.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Thirteen term courses (including the senior requirement)

Distribution of courses: One course in African history; one intro course in anthropology; two years of African lang; four term courses in area of concentration

Specific course required: AFST 401a

Senior requirement: Senior sem (AFST 464a); senior essay (AFST 491a or b) or addtl senior sem in another dept

AFST 161b, INTRODUCTION TO AFRICA. Ann Biersteker.

TTh 1-2.15; *screenings* W 3.30-5.20 III; Not CR/D/F Hu (26)

An introduction to the study of Africa. Focus on Africa's rich cultural diversity, outside myths and misperceptions of Africa, and contacts and connections among African cultures. Readings include literary and historical texts. (Formerly AFST 101b)

AFST 162b/LING 214b, STRUCTURE OF YORÙBÁ. Oluseye Adesola.

TTh 4-5.15 III So (0)

Examination of selected grammatical topics in Yorùbá, including word order, constituent structure, serial verb constructions, nominalization, focus constructions, and tense marking. Discussion of broader issues of typology, language acquisition, and language universals. *Prerequisite:* LING 153a.

AFST 188b^G/AFAM 178b^G/HSAR 378b^G, FROM WEST AFRICA TO THE BLACK AMERICAS: THE BLACK ATLANTIC VISUAL TRADITION.

Robert Thompson.

For description see under History of Art.

★AFST 198a^G, INTRODUCTION TO AN AFRICAN LANGUAGE I.

Sandra Sanneh and staff.

MTWThF 9.30-10.20 I; Not CR/D/F LI 1½ C Credits (32)

Beginning instruction in an African language other than those regularly offered. Courses offered depend on availability of instructors. Methodology and materials vary with the language studied. *Students may also study an African language through the noncredit Directed Independent Language Study program, described in chapter I of this bulletin.*

★AFST 199b^G, INTRODUCTION TO AN AFRICAN LANGUAGE II.

Sandra Sanneh and staff.

5 HTBA I; Not CR/D/F L2 1½ C Credits (50)

Continuation of AFST 198a. *After* AFST 198a.

AFST 241b/ANTH 241b, RELIGION AND SOCIAL POWER. Kamari Clarke.

For description see under Anthropology.

AFST 290a/ANTH 290a, GENDER AND SEXUALITY IN AFRICA. Staff.

For description see under Anthropology.

★AFST 303a/★AFAM 317a/★ANTH 303a, FIELD METHODS IN CULTURAL ANTHROPOLOGY. Kamari Clarke.

For description see under Anthropology.

AFST 343a/ENGL 343a/LITR 269a, INTRODUCTION TO POSTCOLONIAL LITERATURES. Sara Suleri Goodyear.

For description see under English Language & Literature.

AFST 381a/PLSC 381a, GOVERNMENT AND POLITICS IN AFRICA.

David Simon.

For description see under Political Science.

★AFST 401aG, RESEARCH METHODS IN AFRICAN STUDIES.

Ann Biersteker.

W 1.30-3.20 I, II, or III; Not CR/D/F (o) Junior sem

Consideration of disciplinary and interdisciplinary research methodologies in African studies, with emphasis on field methods and archival research in the social sciences and humanities. Research methodologies are compared by studying recent works in African studies.

★AFST 406aG/★PLSC 406aG, SEXUAL VIOLENCE AND WAR.

Elisabeth Wood.

For description see under Political Science.

★AFST 420b/★PLSC 430b, THE POLITICS OF DEVELOPMENT ASSISTANCE.

David Simon.

For description see under Political Science.

★AFST 421bG, COMPARATIVE PERSPECTIVES ON AFRICAN LITERATURES.

Ann Biersteker.

W 1.30-3.20 I; Not CR/D/F Hu (o)

Introduction to a wide range of topics in African literature through an examination of English translations of works composed both in African and in European languages. Readings include poetry, novels, plays, essays, nonliterary texts, and autobiographies. Consideration of the symbiotic relationship between printed text and oral performance and between composition and transmission.

★AFST 430bG, LANGUAGE PLANNING IN SUB-SAHARAN AFRICA.

Kiarie Wa’Njogu.

W 1.30-3.20 I Hu (o)

Examination of language policies in selected sub-Saharan African countries. Analysis of language use in different contexts; assessment of the impact of globalization on African languages.

AFST 431b/PLSC 431b, COMPARATIVE POLITICS OF DEVELOPMENT.

David Simon.

For description see under Political Science.

★AFST 434aG/★ANTH 434aG, ANTHROPOLOGY OF THE POSTCOLONIAL STATE. Staff.

For description see under Anthropology.

★AFST 447a/★PLSC 447a, THE RWANDAN GENOCIDE IN COMPARATIVE CONTEXT. David Simon.

For description see under Political Science.

★AFST 464aG/★AFAM 441aG/★ANTH 422aG, AFRICA AND THE DISCIPLINES.

Kamari Clarke, Christopher L. Miller.

T 1.30-3.20 I, II, or III; Not CR/D/F Hu, So (o) Senior sem

A broad survey of Africa’s relation to academic discourse, as seen in a variety of disciplines. Examination of how Africa is represented and discussed in different fields; how disciplinary formations, language, popular conceptions, and related intellectual practices of the various disciplines have affected academic approaches

to studies of Africa; and how these approaches have reinvented particular African geographies, such as sub-Saharan vs. North African, Francophone vs. Anglophone, South Africa vs. the rest of Africa, and contemporary diasporic articulations.

★AFST 471a and 472b, INDEPENDENT STUDY. Staff.

HTBA I, II, or III; Not CR/D/F (0)

Independent research under the direction of a faculty member in the program on a special topic in African Studies not covered in other courses. Permission of the director of undergraduate studies and of the instructor directing the research is required. A proposal signed 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, typically for an hour a week, and the student writes a final paper or a series of short essays. Either term or both terms may be elected.

★AFST 486a/★HIST 486a, SLAVERY AND THE SLAVE TRADE IN AFRICA.

Robert Harms.

For description see under History.

★AFST 487a/★HIST 487a, WEST AFRICAN ISLAM: RELIGION AND PUBLIC POLICY. Lamin Sanneh.

For description see under History.

★AFST 491a or b, THE SENIOR ESSAY. Staff.

HTBA I, II, or III; Not CR/D/F (0)

Independent research on the senior essay. The senior essay form must be submitted to the director of undergraduate studies by the end of the second week of classes. The senior essay should be completed according to the following schedule: (1) end of the sixth week of classes: a rough draft of the entire essay; (2) end of the last week of classes (fall term) or three weeks before the end of classes (spring term): two copies of the final version of the essay.

SWAH 110a^G, ELEMENTARY KISWAHILI I. Kiarie Wa’Njogu.

MTWThF 9.30-10.20 I; Not CR/D/F L1 1½ C Credits (32)

A beginning course with intensive training and practice in speaking, listening, reading, and writing. Initial emphasis is on the spoken language and conversation. *Credit only on completion of SWAH 120b.* (Formerly the first term of AFST 200)

SWAH 120b^G, ELEMENTARY KISWAHILI II. Kiarie Wa’Njogu.

MTWThF 9.30-10.20 I; Not CR/D/F L2 1½ C Credits (32)

Continuation of SWAH 110a. Texts provide an introduction to the basic structure of Kiswahili and to the culture of the speakers of the language. (Formerly the second term of AFST 200)

SWAH 130a^G, INTERMEDIATE KISWAHILI I. Kiarie Wa’Njogu.

MTWThF 11.30-12.20 I; Not CR/D/F L3 1½ C Credits (34)

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 120b.* (Formerly the first term of AFST 201)

SWAH 140b^G, INTERMEDIATE KISWAHILI II. Kiarie Wa’Njogu.

MTWThF 11.30-12.20 I; Not CR/D/F L4 1½ C Credits (34)

Continuation of SWAH 130a. *After SWAH 130a.* (Formerly the second term of AFST 201)

SWAH 150a^G, ADVANCED KISWAHILI I. Kiarie Wa'Njogu.

TTh 4-5.15 I; Not CR/D/F L5 (27)

Development in 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 140b. (Formerly the first term of AFST 203)

SWAH 160b^G, ADVANCED KISWAHILI II. Kiarie Wa'Njogu.

TTh 4-5.15 I; Not CR/D/F L5 (27)

Continuation of SWAH 150a. *After* SWAH 150a. (Formerly the second term of AFST 203)

YORU 110a^G, ELEMENTARY YORÙBÁ I. Oluseye Adesola.

MTWThF 10.30-11.20 I; Not CR/D/F L1 1½ C Credits (33)

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. *Credit only on completion of* YORU 120b. (Formerly the first term of AFST 210)

YORU 120b^G, ELEMENTARY YORÙBÁ II. Oluseye Adesola.

MTWThF 10.30-11.20 I; Not CR/D/F L2 1½ C Credits (33)

Continuing practice in using and recognizing tone through dialogues. More emphasis is placed on simple cultural texts and role playing. (Formerly the second term of AFST 210)

YORU 130a^G, INTERMEDIATE YORÙBÁ I. Oluseye Adesola.

MTWThF 12.30-1.20 I; Not CR/D/F L3 1½ C Credits (35)

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 120b. (Formerly the first term of AFST 211)

YORU 140b^G, INTERMEDIATE YORÙBÁ II. Oluseye Adesola.

MTWThF 11.30-12.20 I; Not CR/D/F L4 1½ C Credits (34)

Students are exposed to more idiomatic use of the language in a variety of interactions, including occupational, social, religious, and educational. Cultural documents include literary and nonliterary texts. *After* YORU 130a. (Formerly the second term of AFST 211)

YORU 150a^G, ADVANCED YORÙBÁ I. Oluseye Adesola.

3 HTBA I; Not CR/D/F L5 (50)

An advanced course intended to improve students' aural and reading comprehension as well as speaking and writing skills. Emphasis is 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 video movies and recorded poems (*ewè*); and music. *After* YORU 140b. (Formerly the first term of AFST 212)

YORU 160b^G, ADVANCED YORÙBÁ II. Oluseye Adesola.

3 HTBA I; Not CR/D/F L5 (50)

Continuing development of students' aural and reading comprehension and speaking and writing skills, with emphasis on idiomatic usage and stylistic nuance. Study materials are selected to reflect research interests of the students. *After* YORU 150a. (Formerly the second term of AFST 212)

ZULU 110a^G, ELEMENTARY ISIZULU I. Sandra Sanneh.

MTWThF 11.30-12.20 I; Not CR/D/F L1 1½ C Credits (34)

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. *Credit only on completion of ZULU 120b.* (Formerly the first term of AFST 214)

ZULU 120b^G, ELEMENTARY ISIZULU II. Sandra Sanneh.

MTWThF 11.30-12.20 I; Not CR/D/F L2 1½ C Credits (34)

Introduction to the noun class and marker system of isiZulu; development of communication skills through dialogues and role-play. Texts and songs are drawn from traditional and popular literature. Students research daily life in selected areas of South Africa. (Formerly the second term of AFST 214)

ZULU 130a^G, INTERMEDIATE ISIZULU I. Sandra Sanneh.

MTWThF 9.30-10.20 I; Not CR/D/F L3 1½ C Credits (32)

Development of basic fluency in speaking, listening, reading, and writing isiZulu, 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 120b.* (Formerly the first term of AFST 215)

ZULU 140b^G, INTERMEDIATE ISIZULU II. Sandra Sanneh.

MTWThF 9.30-10.20 I; Not CR/D/F L4 1½ C Credits (32)

Students read longer texts from popular media as well as myths and folktales. Prepares students for initial research involving interaction with speakers of isiZulu in South Africa and for the study of oral and literary genres. *After ZULU 130a.* (Formerly the second term of AFST 215)

ZULU 150a^G, ADVANCED ISIZULU I. Sandra Sanneh.

3 HTBA I; Not CR/D/F L5 (50)

Development of fluency in using idioms, speaking about abstract concepts, and voicing preferences and opinions. Excerpts are drawn from oral genres, short stories, and dramas made for television. Introduction to other South African languages and to issues of standardization, dialect, and language attitude. *After ZULU 140b.* (Formerly the first term of AFST 216)

ZULU 160b^G, ADVANCED ISIZULU II. Sandra Sanneh.

3 HTBA I; Not CR/D/F L5 (50)

Readings may include short stories, a novel, praise poetry, historical texts, or contemporary political speeches, depending on student interests. Study of issues of language policy and use in contemporary South Africa; introduction to the Soweto dialect of isiZulu. Students are prepared for extended research in South Africa involving interviews with isiZulu speakers. *After ZULU 150a.* (Formerly the second term of AFST 216)

AKKADIAN

(*See under Near Eastern Languages and Civilizations.*)

AMERICAN STUDIES

Director of undergraduate studies: Michael Denning, 233 HGS, 432-1190,
 michael.denning@yale.edu [F]; Mary Lui, 233 HGS, 432-1190,
 mary.lui@yale.edu [Sp]

FACULTY ASSOCIATED WITH THE PROGRAM OF AMERICAN STUDIES

PROFESSORS

Jean-Christophe Agnew (*History*), David Blight (*History, History of Medicine, African American Studies*), Jon Butler (*History, Religious Studies*), Hazel Carby (*African American Studies*), Edward Cooke, Jr. (*History of Art*), John Demos (*History*), Michael Denning (*English*), Wai Chee Dimock (*English*), Kathryn Dudley (*Anthropology*), John Mack Faragher (*Chair*) (*History*), Glenda Gilmore (*History*), Dolores Hayden (*Architecture*), Jonathan Holloway (*African American Studies, History*), Matthew Jacobson (*African American Studies, History*), Daniel Kevles (*History*), Joanne Meyerowitz (*History*), Charles Musser (*Film Studies*), Alexander Nemerov (*History of Art*), Patricia Pessar (*Adjunct*) (*Anthropology*), Stephen Pitti (*History*), Michael Roemer (*Adjunct*) (*Art*), Stephen Skowronek (*Political Science*), Robert Stepto (*English, African American Studies*), Harry Stout (*Religious Studies, History*), John Swedc (*Anthropology, African American Studies*), John Warner (*History of Medicine*), Laura Wexler (*Women's, Gender, & Sexuality Studies*)

ASSOCIATE PROFESSORS

Elizabeth Dillon (*English*), Amy Hungerford (*English*), Susan Lederer (*History of Medicine*), Mary Lui (*History*), Steven Stoll (*History*)

ASSISTANT PROFESSORS

Jennifer Baszile (*African American Studies, History*), Alicia Schmidt Camacho, Wes Davis (*English*), Seth Fein (*History*), Jill Lane (*Theater Studies*), Sanda Lwin (*English*), Alyssa Mt. Pleasant (*History*), Naomi Pabst (*African American Studies*), Diana Paulin (*English*), Kariann Yokota

LECTURERS

Geetanjali Singh Chanda (*Women's, Gender, & Sexuality Studies*), Jay Gitlin (*History*), Zareena Grewal (*Ethnicity, Race, & Migration*), Michael Kerbel (*Film Studies*), David F. Musto (*History*), Rebecca Tannenbaum (*History*), Deborah Thomas (*African American Studies*), Alexandra Vázquez (*Ethnicity, Race, & Migration, Theater Studies*)

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 foundation lecture courses, core seminars, other American Studies courses, and classes 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 an area of concentration, each student develops a focus for course work 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 literature of the United States. Students interested in the major are encouraged to consult with the director of undergraduate studies or the sophomore adviser 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 two foundation courses in cultural history (AMST 188b, 189a,

190a, or 191b), one foundation course in American literature (AMST 261b), and one course preparatory for work in the student's area of concentration, to be selected in consultation with the director of undergraduate studies. One of these four courses must address material produced before the Civil War. 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 upper-level seminars (AMST 400–490, excluding 471a and 472b) during their junior year. At least one of the seminars must fall within the student's area of concentration, described below. Students are expected to produce a significant paper of twenty to twenty-five pages in each of the seminars. Students may also elect to take AMST 390b, an interdisciplinary methods course, in place of one of the required upper-level seminars. Sophomores contemplating a junior term abroad are urged to take an upper-level seminar in the spring term of their sophomore year.

Area of concentration. Each American Studies major selects an area of concentration, normally in the fall of their junior year, from five possible choices: (1) national formations, (2) the international Americas, (3) material cultures and built environments, (4) politics and American communities, and (5) popular and literary cultures. A 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 Americas 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 man-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 popular and literary cultures study American consumer culture, popular culture, and media in relation to U.S. literatures. The American Studies undergraduate Web page (www.yale.edu/amstud/undergrad) lists American Studies courses appropriate to each area of concentration. Students may also petition the director of undergraduate studies 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 an upper-level seminar within the area of concentration (AMST 400–490, excluding 471a and 472b). 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.

Second, the student may complete a one-term senior project or essay (AMST 491a or b). The product should be a thirty-page essay or its equivalent in another medium. All students writing a one-term senior essay participate in a proseminar on theory and method. To apply for admission to AMST 491a or b, a student should submit a prospectus, signed by the faculty adviser, to the director of undergraduate studies.

Third, the student may enroll in the intensive major (AMST 493) and work independently for two terms. The intensive major offers an opportunity for significant original research leading to a substantial senior project. AMST 493 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 method. One term of the two-term project may count as a course in the area of concentration. To apply for admission to AMST 493, a student should submit a prospectus, signed by the faculty adviser, to the director of undergraduate studies.

As a multidisciplinary program, American Studies draws on the resources of other departments and programs in the University. The following listing of 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.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Fourteen term courses (including the senior requirement)

Distribution of courses: Two courses from AMST 188b, 189a, 190a, 191b; AMST 261b; one course preparatory for work in student's area of concentration; five addtl courses in area of concentration for a letter grade, one of which is in a closely related non-American subject (one term of two-term senior project may be counted); two upper-level junior sems; two electives

Substitution permitted: AMST 390b for one junior sem; other substitutions with permission of DUS

Senior requirement: One upper-level seminar or one term of independent research (AMST 491a or b) related to area of concentration leading to submission of essay or equivalent

Intensive major: Same as above except two-term senior project (AMST 493) replaces AMST 491a or b

★AMST 003b, AMERICAN LITERATURE AND WORLD RELIGIONS.

Wai Chee Dimock.

TTh 11.30-12.45 WR, Hu (o) Fr sem

A study of the complex trajectories of Christianity, Islam, Hinduism, Judaism, and Buddhism in American literature. Readings range from Anne Bradstreet to Bharati Mukherjee. *Enrollment limited to freshmen.*

★AMST 005a/★HIST 004a/★RLST 005a, AMERICAN RELIGION, AMERICAN LIFE. Jon Butler.

For description see under History.

FOUNDATION COURSES

AMST 188b/HIST 115b, THE COLONIAL PERIOD OF AMERICAN HISTORY.

Rebecca Tannenbaum.

For description see under History.

AMST 189a/HIST 105a, THE FORMATION OF MODERN AMERICAN CULTURE, 1750-1876. Kariann Yokota.

MW 2.30-3.20, 1 HTBA II Hu (37)

An introduction to the cultural, social, and political history of the United States from the era of the revolution through the Civil War and Reconstruction, with special attention to the emergence of a national culture and its relationship to the subcultures of different regions, races, genders, and classes.

AMST 190a/HIST 112a, THE FORMATION OF MODERN AMERICAN CULTURE, 1876–1919. Jean-Christophe Agnew.

HTBA II Hu (50)

An introduction to the cultural history of the United States from Reconstruction through the First World War, with special attention to the persistence of popular culture, the transformation of bourgeois culture, and the birth of mass culture during a period of rapid industrialization. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

AMST 191b/HIST 106b, THE FORMATION OF MODERN AMERICAN CULTURE, 1920 TO THE PRESENT. Michael Denning.

TTh 11.30–12.45, I HTBA II; Not CR/D/F Hu (24)

An introduction to the cultural history of the United States in the modern and postmodern eras, with special attention to the development of the culture industries, the popular cultures of working peoples, and the political and social meanings of cultural conflict.

AMST 261b/ENGL 291b, THE AMERICAN NOVEL SINCE 1945.

Amy Hungerford.

For description see under English Language & Literature.

THE ARTS

[AMST 207a/ARCH 340a, AMERICAN CULTURAL LANDSCAPES]

★AMST 308a/★FILM 467a, THE FILMS OF WOODY ALLEN, SPIKE LEE, AND MARTIN SCORSESE. Michael Kerbel.

F 1.30–3.20; *screenings* W 6.30 P.M. II; Not CR/D/F Hu Meets RP (○)

An examination of three major contemporary American directors. Topics include authorship in American cinema; independent filmmaking and the Hollywood establishment; representations of American society, particularly urban life, from the 1970s to the present; issues of race, ethnicity, religion, gender, and sexuality; approaches to genre, narrative structure, visual style, and sound; psychological, literary, cinematic, and other cultural influences.

★AMST 319a/★FILM 427a, AMERICAN DOCUMENTARY FILMS.

Michael Roemer.

M 7–10.15 P.M.; *screenings in class* II; Not CR/D/F Hu Meets RP (○)

A study of the documentary film from Flaherty to cinéma-vérité and beyond. Films examined for aesthetic value as well as social and political relevance. Emphasis on individual films and filmmakers. *Open only to juniors and seniors majoring in American Studies or in Film Studies.*

★AMST 341a/★FILM 420a/★HSAR 413a, THE VISUAL CULTURE OF THE AMERICAN HOME FRONT, 1941–1945. Alexander Nemerov.

For description see under History of Art.

[AMST 342a/FILM 322a/LITR 365a, THE HOLLYWOOD NOVEL, THE HOLLYWOOD MOVIE]

★AMST 367a/★ER&M 346a/★THST 367a, *LATINO THEATER AND PERFORMANCE*. Alexandra Vázquez.
For description see under Ethnicity, Race, & Migration.

★CZEC 246a/★FILM 364a/★RSEE 240a, *MILOS FORMAN AND HIS FILMS*. Karen von Kunes.
For description see under Slavic Languages & Literatures.

FILM 150a, *INTRODUCTION TO FILM STUDIES*. Terri Francis.

MUSI 265a/AFAM 253a, *JAZZ IN TRANSITION, 1960–1980*. Michael Veal.
For description see under Music.

MUSI 276a, *AFRICAN AMERICAN POPULAR MUSIC OF THE 1960S: MOTOWN AND SOUL*. Robert Fink.

LITERATURE

★AMST 246a/★ENGL 289a, *HEMINGWAY, FITZGERALD, FAULKNER*. Wai Chee Dimock.
For description see under English Language & Literature.

AMST 251a/ENGL 299a/ER&M 290a, *ASIAN AMERICAN LITERATURE AND CULTURE*. Sanda Lwin.
For description see under English Language & Literature.

★AMST 258b, *WILDERNESS IN THE NORTH AMERICAN IMAGINATION*. Rebecca McKenna.

T 3.30-5.20 I or II; Not CR/D/F Hu (o)

An exploration of the idea of wilderness in American history, art, film, public policy, and literature, from the Puritans to the present. Authors include Thoreau, Faulkner, Jack London, Mary Rowlandson, Aldo Leopold, and Rachel Carson. A weekend field trip is held early in the term.

★AMST 265a/★ENGL 283a, *TRANSATLANTIC DRAMA*. Elizabeth Dillon.
For description see under English Language & Literature.

★AMST 349a/★ER&M 288a/★WGSS 434a, *BORDER FEMINISM*. Alicia Schmidt Camacho.

T 9.30-11.20 I; Not CR/D/F Hu Meets RP (o)

An examination of the experience of women of Mexican descent in the United States in relation to cultural and political movements in the Third World.

ENGL 127, *INTRODUCTION TO THE STUDY OF AMERICAN LITERATURE*. Elizabeth Dillon and staff.

★ENGL 272a/★LITR 308a, *GENRE AND GEOGRAPHY IN NINETEENTH-CENTURY U.S. LITERATURE*. Hsuan Hsu.
For description see under English Language & Literature.

★ENGL 288a/★LITR 307a, *AMERICAN LITERATURE AND THE HISTORY OF PUNISHMENT*. Caleb Smith.
For description see under English Language & Literature.

★ENGL 292a/★HUMS 238a, *DREAMING NEW ORLEANS*. Joseph Roach.
For description see under English Language & Literature.

★ENGL 369b/★ER&M 367b/★WGSS 369b, ADOPTION NARRATIVES.
Margaret Homans.
For description see under English Language & Literature.

★LITR 449a/★SPAN 394a, DICTATOR NOVELS ACROSS THE AMERICAS.
Moira Fradinger.
For description see under Literature.

★LITR 452b, WRITING AND POWER ACROSS THE AMERICAS.
Moira Fradinger.

HISTORY

AMST 130b/HIST 125b/HSHM 230b, A HISTORY OF AMERICAN BODIES.
Susan Lederer.
For description see under History of Science, History of Medicine.

AMST 132b/HIST 132b, AMERICAN POLITICS AND SOCIETY, 1945 TO THE
PRESENT. Jennifer Klein.
For description see under History.

AMST 133a/ER&M 187a/HIST 107a, THE NATIVE AMERICAN EXPERIENCE IN
NORTH AMERICA. Alyssa Mt. Pleasant.
For description see under History.

AMST 162b/AFAM 162b/HIST 187b, AFRICAN AMERICAN HISTORY: FROM
EMANCIPATION TO THE PRESENT. Jonathan Holloway.
For description see under African American Studies.

AMST 213b/ER&M 286b/HIST 128b, HISTORY OF MEXICAN AMERICANS
SINCE 1848. Stephen Pitti.
For description see under History.

AMST 230b/ER&M 223b/HIST 137b, INTERNATIONAL HISTORY OF THE
UNITED STATES IN THE TWENTIETH CENTURY. Seth Fein.
For description see under History.

AMST 271b/HIST 171b/WGSS 201b, WOMEN IN AMERICA: THE TWENTIETH
CENTURY. Joanne Meyerowitz.
For description see under History.

[AMST 272a/ER&M 282a/HIST 183a, ASIAN AMERICAN HISTORY, 1800 TO
THE PRESENT]

★AMST 304b/★HIST 467b, AMERICAN CULTURE IN THE REVOLUTIONARY
ERA. Kariann Yokota.

T 3.30-5.20 II; Not CR/D/F Hu (o)

The creation of early American identities analyzed through the prism of transatlantic material and consumer culture. Social relations as they were articulated through the production, acquisition, and consumption of domestic and imported objects.

[AMST 323a/HIST 175a, ALCOHOL AND OTHER DRUGS IN AMERICAN
CULTURE]

★AMST 325b/★ER&M 322b/★HIST 443b, INDIAN-COLONIAL RELATIONS IN
COMPARATIVE PERSPECTIVE. Alyssa Mt. Pleasant.

M 2.30-4.20 II; Not CR/D/F Hu (o)

Intensive survey of American Indian nations and their relationships with colonial regimes. Regional studies are brought together into a continental examination of the structure and significance of colonialism for American Indian peoples up to the early nineteenth century. Emphasis on colonial regimes operating within the political boundaries of the contemporary United States.

SOCIAL AND BEHAVIORAL SCIENCES

★AMST 307a, AMERICAN CONSUMER CULTURE IN THE TWENTIETH CENTURY. Jean-Christophe Agnew.

HTBA II Hu (o)

An interdisciplinary introduction to twentieth-century American consumer culture, exploring the rise (and fall) of mass consumption and its impact on the experience of family, faith, citizenship, community, gender, race, ethnicity, and politics. Topics include the changing moral valuations of consumption; the effect of consumerism on ritual life; the Americanization of immigrants and the marketing of race and ethnicity; consumer culture's reciprocal relations with literature and the arts; the politics of consumer resistance; suburbanization; and the consumer model of citizenship. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

AMST 322a/WGSS 371a, GENDER, FAMILY, AND CULTURAL IDENTITY IN ASIA AND THE UNITED STATES: A DIALOGUE.

Geetanjali Singh Chanda.

MW 1-2.15 II or III; Not CR/D/F WR, Hu (o)

A cross-cultural dialogue focusing on family, gender, and identity. An exploration of how specific Asian countries and people approach issues of religion, dress, education, and food as identity markers; U.S. perceptions and reactions to similar issues.

★AMST 327a/★ER&M 292a, WORKERS IN THE TWENTIETH CENTURY.

Michael Denning.

For description see under Ethnicity, Race, & Migration.

★AMST 369a/★ER&M 229a, SOCIALISM AND MARXISM IN THE TWENTIETH CENTURY. Michael Denning.

TRH 2.30-3.45 II or III; Not CR/D/F Hu (o)

An exploration of the history of socialisms and Marxisms since the Bolshevik Revolution, and their relation to labor, feminist, and anticolonial social movements. Topics include the Leninisms of the Communist movement, the anti-colonial Marxisms of national liberation struggles, the cultural and intellectual trajectory of Western Marxism, the New Left, and contemporary antiglobalization movements.

★AMST 387b^G/★ANTH 387b^G, THE ANTHROPOLOGY OF SOUND.

John Szwed.

For description see under Anthropology.

THE JUNIOR SEMINAR

★AMST 390b, THE JUNIOR SEMINAR. Alicia Schmidt Camacho, Matthew Jacobson.

T 1.30-3.20 I, II, or III; Not CR/D/F Hu, So (o)

An interdisciplinary course in American history, literature, the arts, and society, organized around a common core of texts.

UPPER-LEVEL SEMINARS

[AMST 405b^G/AFAM 406b^G/ENGL 405b, AUTOBIOGRAPHY IN AMERICA]

★AMST 407a/★AFAM 424a/★HIST 441a^G/★HSHM 433a^G, RACE AND MEDICINE IN AMERICA, 1800–2000. Susan Lederer.

For description see under History of Science, History of Medicine.

★AMST 408b/★HIST 447b/★HSHM 457b^G, THE CULTURAL GROUNDING OF AMERICAN MEDICINE. John Warner.

For description see under History of Science, History of Medicine.

★AMST 409b/★ER&M 447b/★HIST 463b, NORTHEASTERN NATIVE AMERICA, 1850 TO TODAY. Alyssa Mt. Pleasant.

W 2.30-4.20 II; Not CR/D/F Hu (○)

Investigation of American Indian experiences in northeastern North America. Various disciplinary approaches are applied to the study of American Indian peoples and nations in the region.

★AMST 411a/★HIST 471a, THE IDEA OF THE WESTERN HEMISPHERE.

Seth Fein.

For description see under History.

★AMST 412b/★FILM 405b/★HIST 456b, FILM AND HISTORY. Seth Fein.

For description see under History.

★AMST 414a, U.S. URBAN TRANSFORMATIONS AND ORGANIZED RESISTANCE SINCE 1950. Mandi Jackson.

W 3.30-5.20 II; Not CR/D/F WR, Hu (○)

An interdisciplinary exploration of postwar U.S. urban history. Topics include organized resistance to urban renewal, the war on poverty, and downtown redevelopment through popular social movements, neighborhood organizing, and cultural forms of resistance.

★AMST 419a/★ER&M 450a/★HIST 460a, LAND, HOMELANDS, AND AMERICAN INDIAN HISTORIES. Alyssa Mt. Pleasant.

W 2.30-4.20 II; Not CR/D/F Hu (○)

Investigation of American Indian nations' relationships with their homelands, from creation traditions through the colonial period to late twentieth-century land claims litigation. Significant themes include American Indians' inscription of meaning onto the landscapes they know as their homelands, and contestation over these lands in the post-contact period.

★AMST 420b^G/★AFAM 437b^G/★ENGL 445b^G, RALPH ELLISON IN CONTEXT. Robert Stepto.

For description see under English Language & Literature.

★AMST 424a/★HIST 446a, AN INTRODUCTION TO THE CULTURAL HISTORY OF THINGS. Kariann Yokota.

W 3.30-5.20 II; Not CR/D/F (○)

An introduction to the use of goods and objects—from eighteenth-century tea sets to twentieth-century television sets—as primary sources in cultural history. Examination of the various ways material culture has been understood by historians, theorists, archaeologists, marketers, collectors, museums, and consumers.

★AMST 426a/★AFAM 411a/★ER&M 413a/★WGSS 411a, THE FICTION OF IMAGINARY OR IMMINENT FUTURES. Hazel Carby.

For description see under African American Studies.

★AMST 428b/★ANTH 428b/★FILM 437b, *FILM NOIR AND AMERICAN CULTURE OF THE 1940S AND 1950S*. John Szwed.
T 1.30-3.20 II; Not CR/D/F Hu (o)

A study of *film noir* as a genre of American commercial cinema in relation to the social and cultural history of the United States in the 1940s and 1950s.

★AMST 429b^G/★ANTH 404b^G, *AMERICAN COMMUNITIES*. Kathryn Dudley.
W 1.30-3.20 III; Not CR/D/F So (o)

Consideration of the concept of community and an examination of various kinds of communities—ranging from those defined by social proximity to those defined by a common experience or ideology—that are part of the American experience, in order to understand the value Americans place on community itself, and the ways in which the pull of individualism exacts a toll on that commitment.

★AMST 430a^G/★FILM 426a^G, *CONTEMPORARY DOCUMENTARY FILM AND VIDEO*. Charles Musser.

M 7-10.15 P.M.; *screenings in class* II; Not CR/D/F Hu Meets RP (o)
Examination of documentary and related nonfiction forms in the last three decades. Issues include film truth, performance, ethics, race and gender, and the filmmaker as participant-observer. Filmmakers include Frederick Wiseman, William Greaves, Chris Choy, Errol Morris, Lourdes Portillo, Trin T. Minh-Ha, Sue Friedrich, and Marlon Riggs.

★AMST 431b/★AFAM 367b/★ER&M 344b/★WGSS 455b, *REPRESENTATION AND THE BLACK FEMALE*. Hazel Carby.

For description see under African American Studies.

★AMST 433b/★AFAM 444b/★ENGL 442b/★ER&M 414b, *REPRESENTATIONS OF MISCEGENATION IN U.S. LITERATURE AND CULTURE*.

Diana Paulin.

TRH 1-2.15 I; Not CR/D/F Hu Meets RP (o)
Representations of interracial liaisons in historical and contemporary texts (literature, drama, film) and their impact on racial formation in the United States. Topics include the popularization of the term “miscegenation”; racial passing as a threat to strict racial categorization; surrogacy as a vehicle for expressing forbidden cross-racial desire; and separatist responses to interracial relations.

★AMST 434a/★ER&M 452a/★INTS 494a, *INTERNATIONAL MIGRATION AND REFUGEE MOVEMENTS I*. Patricia Pessar.

For description see under International Studies.

★AMST 436a/★ER&M 428a/★HIST 473a, *LATINOS IN THE TWENTIETH CENTURY*. Stephen Pitti.

For description see under Ethnicity, Race, & Migration.

★AMST 440a/★ENGL 386a, *LEGAL FICTIONS: RACE AND LAW IN TWENTIETH-CENTURY AMERICAN CULTURE*. Sanda Lwin.

For description see under English Language & Literature.

★AMST 442b/★FILM 451b, *DOCUMENTARY AND WAR*. Charles Musser.

For description see under Film Studies.

★AMST 446a/★HIST 445a/★WGSS 445a, *HISTORY OF SEXUALITY IN THE UNITED STATES*. Joanne Meyerowitz.

For description see under History.

★AMST 450a/★ER&M 430a, ISLAM IN THE AMERICAN IMAGINATION. Zareena Grewal.
For description see under Ethnicity, Race, & Migration.

★AMST 451b/★AFAM 422b/★HIST 451b/★WGSS 458b, BLACK MEN IN AMERICAN CULTURE. Jennifer Baszile.
For description see under African American Studies.

★AMST 456b/★HIST 425b, MAKING AMERICA MODERN, 1880–1920. Jean-Christophe Agnew.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

An exploration of the United States at the beginning of the twentieth century, with special attention to the different ways in which Americans looked to a new public sphere—corporate, consumerist, and imperial—to recast and update the social coordinates of their citizenship.

★AMST 460a^G/★AFAM 408a^G/★ENGL 443a^G, TWENTIETH-CENTURY AFRICAN AMERICAN POETRY. Robert Stepto.
For description see under African American Studies.

★AMST 463b/★AFAM 312b, MEANINGS OF THE BLUES. Robert Sambat.
For description see under African American Studies.

[AMST 479b/ER&M 420b, CHICANO POLITICS AND CULTURE]

★AMST 482a/★WGSS 340a, HISTORY OF FEMINIST THOUGHT. Laura Wexler.
For description see under Women's, Gender, & Sexuality Studies.

★AFAM 407b^G/★ENGL 296b, AUGUST WILSON AND HIS CONTEXTS. Elizabeth Alexander.
For description see under African American Studies.

INDIVIDUAL RESEARCH AND SENIOR ESSAY COURSES

★AMST 471a *and* 472b, INDIVIDUAL READING AND RESEARCH FOR JUNIORS AND SENIORS. Consult the director of undergraduate studies.
HTBA I, II, or III; Not CR/D/F (o)

Special projects 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 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 491a *or* b, SENIOR PROJECT. Consult the director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F (o)

Independent research and proseminar on a one-term senior project. For requirements see under “Senior requirement” in the text above.

★AMST 493, SENIOR PROJECT FOR THE INTENSIVE MAJOR. Staff.

HTBA I, II, or III; Not CR/D/F (o)

Independent research and proseminar on a two-term senior project. For requirements see under “Senior requirement” in the text above.

ANTHROPOLOGY

Director of undergraduate studies: David Watts, Rm. B19, 175 Whitney Ave.,
432-9597, david.watts@yale.edu

FACULTY OF THE DEPARTMENT OF ANTHROPOLOGY

PROFESSORS

E. Annamalai (*Emeritus*) (*Visiting*), Richard Burger, †Michael Dove, Kathryn Dudley, J. Joseph Errington, Andrew Hill (*Chair*), William Kelly, Enrique Mayer, †Patricia Pessar (*Adjunct*), Harold Scheffler, †James Scott, Helen Siu, John Szwed, David Watts, †Harvey Weiss

ASSOCIATE PROFESSORS

Richard Bribiescas, Kamari Clarke, †Nora Groce

ASSISTANT PROFESSORS

Bernard Bate, Marcello Canuto, Karen Nakamura, Eric Sargis

LECTURERS

Stephanie Anestis, †Robert Brubaker, †Carol Carpenter, Gareth Fisher, Dhooleka Raj, †Christophe Robert, Renzo Taddei, †Amy Young

†A joint appointment with primary affiliation in another department.

The major in Anthropology gives a firm grounding in this comparative discipline concerned with the diverse cultural, social, and biological patterns of human societies. Anthropology deals not only with that small proportion of humankind in Europe and North America but with societies of the entire world, from the remotest past to the present day. It is thus an essential part of a sound liberal education, helping us to see our world from a perspective free of ethnocentric assumptions. The major in Anthropology covers trends of biological and cultural evolution, world prehistory, forms of social organization and cultural behavior, and patterns of linguistic and nonlinguistic communication.

The subfields of anthropological inquiry (archaeology, physical anthropology, sociocultural anthropology, and linguistic anthropology) together offer a holistic perspective on humankind and its development.

Requirements of the major. Students are required to present twelve course credits toward their major, including introductory or intermediate courses in at least three subfields of anthropology, a senior essay (ANTH 491a or b), and three advanced seminars or courses (not including the Readings in Anthropology or senior essay courses). Three term courses may be selected from other departments. These cognate courses must be approved by the director of undergraduate studies. They should be chosen to expand the student's knowledge in one of the subfields of anthropology or in an area of cross-disciplinary concentration. For example, cognate courses for physical anthropology can be found in the course listings of Biology, Geology and Geophysics, Psychology, and Forestry & Environmental Studies. Appropriate areas of cross-disciplinary concentrations include such topics as area studies (e.g., Africa), folklore, anthropological approaches to law and health, sex roles, or Pleistocene studies.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve course credits (including the senior essay)

Specific course required: None

Distribution of courses: At least one introductory survey or intermediate course in each of three subfields of anthropology; three advanced seminars or advanced courses (not including ANTH 471a, 472b, 491a or b); up to three cognate courses in other depts or programs with approval of DUS

Senior requirement: Senior essay (ANTH 491a or b)

ARCHAEOLOGY: 150a, 171b, 206b, 232a, 233a, 277a, 278La, 279Lb, 301b, 341b, 345a, 363a, 473b

PHYSICAL ANTHROPOLOGY: 116a, 182b, 242b, 270a, 299a, 329b, 343a

SOCIOCULTURAL ANTHROPOLOGY: 110b, 114a, 123b, 207a, 210b, 223b, 229a, 236a, 241b, 254a, 256b, 282b, 290a, 303a, 304a, 308b, 348b, 369b, 370b, 376b, 381a, 387b, 402a, 404b, 405a, 414b, 415a, 422a, 424a, 426b, 428b, 434a, 445b, 452b

LINGUISTIC ANTHROPOLOGY: 118a, 298a, 333b, 413a, 419a

INTRODUCTORY COURSES

ANTH 110b, AN INTRODUCTION TO CULTURAL ANTHROPOLOGY. Staff.
MW 2.30-3.45 III So (37)

Uniformity and variety in human group behavior as revealed in cultures. Tendencies of cultures to accumulate, grow, and change; cultures in contact, especially effects of Western industrial society on nonindustrial peoples.

ANTH 114a, INTRODUCTION TO MEDICAL ANTHROPOLOGY. Staff.
TTh 11.30-12.45 III So (24)

Major theoretical orientations in medical anthropology. Examples of cross-cultural sickness, health, healing, and witchcraft.

ANTH 116a, OUR PLACE IN NATURE: INTRODUCTION TO PHYSICAL ANTHROPOLOGY. Richard Bribiescas.

MW 11.30-12.45 III; Not CR/D/F Sc, So (34)

Introduction to human and primate evolution, primate behavior, and human biology. Topics include a review of principles of evolutionary and population biology, the evolution of primates and people, and current thinking about the evolution of human behavior.

ANTH 118a, LANGUAGE, CULTURE, AND SOCIETY. J. Joseph Errington.
MWF 11.30-12.20 III So (34)

The study of language in its sociocultural setting, relating language structure and language evolution to human cognition and social behavior.

SURVEY COURSES

ANTH 123b, MODES OF THOUGHT. Harold Scheffler.
TTh 1-2.15 III So (26)

Consideration of whether different peoples think differently and, if so, how. Examination of how, historically, diverse constructions of the categories magic, science, and religion have been used by people in the West to understand themselves in relation to the "primitive other."

ANTH 150a/ARCG 100a/HUMS 100a/NELC 100a, THE GENESIS AND COLLAPSE OF OLD WORLD CIVILIZATIONS. Harvey Weiss.
For description see under Humanities.

ANTH 151a, INTRODUCTION TO EARLY SOUTH ASIA. Robert Brubaker.

MWF 10.30-11.20 III Hu, So (33)

Survey of the development of civilization in South Asia from the earliest times to A.D. c. 1500. Focus on identifying significant interconnections between political, economic, religious, and social developments.

ANTH 171b/ARCG 171b, GREAT DISCOVERIES IN ARCHAEOLOGY. Staff.

TTh 2.30-3.45 III So (27)

A survey of selected prehistoric and historical cultures through examination of archaeological sites and materials. Emphasis on the methodological and theoretical approaches by which archaeologists recover, analyze, and interpret the material remains of the past.

ANTH 182b, PRIMATE ECOLOGY AND SOCIAL BEHAVIOR. David Watts.

MW 2.30-3.45 III So (37)

Socioecology of primates compared with that of other mammals, emphasizing both general principles and unique primate characteristics. Topics include life-history strategies, population dynamics and interactions, and ecological determinants of social organization.

INTERMEDIATE COURSES

★ANTH 206b^G/★ARCG 206b^G, MESOPOTAMIA FROM SUMER TO SADDAM.

Harvey Weiss.

TTh 11.30-12.45 III Hu, So (24)

Archaeological, historical, and literary analysis of Mesopotamian/Iraqi social development, from agricultural villages to cities and empires. Topics include changing natural environments from prehistory to the Persian Empire, European encounters, Islamicization, nationalism, and American invasions.

ANTH 207a/ER&M 340a, PEOPLES AND CULTURES OF LATIN AMERICA.

Renzo Taddei.

TTh 11.30-12.45 III So (24)

Ethnic, class, and cultural diversity in Latin America, with an emphasis on economic, religious, and health issues. Examination of the situation of Latin American immigrants in the United States.

ANTH 210b/ER&M 230b, TWENTIETH-CENTURY ANTHROPOLOGICAL THEORY. Bernard Bate.

MW 2.30-3.45 III; Not CR/D/F So (0)

Exploration of the theoretical development of twentieth-century anthropology. Transformation of dominant understandings of culture and society from structural functionalism to more recent concerns with practice theory, discourse, and history. Topics include cosmology, time and space, kinship and social organization, exchange, and the production and representation of power and polity.

ANTH 223b, ETHNIC VIOLENCE IN GLOBAL PERSPECTIVE. Staff.

TTh 11.30-12.45 III So (0)

A study of large-scale ethnic conflicts since 1980. Examination of the relationship between collective violence and transformations of identity, memory, and sovereignty in the contemporary world.

ANTH 225b, SOUTH ASIA AND THE WIDER WORLD FROM PREHISTORY TO 1600. Robert Brubaker.

MWF 10.30-11.20 III So (33)

A study of the development of civilization in early South Asia, with a focus on the role played by interactions with other areas of the world. Examination of major developments from the early civilization of the Indus Valley to the arrival of the Portuguese at the beginning of the sixteenth century. Evaluation of historical and archaeological evidence pertaining to the range, character, extent, and significance of linkages between South Asia and the wider world.

ANTH 229a, POWER, VIOLENCE, AND COSMOLOGY. Staff.

MW 11.30-12.45 III So (0)

An introduction to the history of, and basic issues in, contemporary political anthropology. Examination of the nature and relation of power, violence, and cultural meaning in human society.

ANTH 232a/ARCG 232a^G, ANCIENT CIVILIZATIONS OF THE ANDES.

Richard Burger.

TTh 1-2.15 III So (26)

Survey of the archaeological cultures of Peru and Bolivia from the earliest settlement through the late Inca state.

ANTH 233a^G/ARCG 233a^G, ANCIENT CIVILIZATIONS OF MESOAMERICA.

Marcello Canuto.

TTh 11.30-12.45 III; Not CR/D/F So (24)

The Indian civilizations of Mexico and Central America from earliest times through the Spanish Conquest.

ANTH 236a, ANTHROPOLOGY OF POLITICS. Dhooleka Raj.

TTh 1-2.15 III So (26)

Exploration of how political relations are imagined and of the relationship between culture and power. Focus on the influence of anthropology and comparative studies on understandings of political power, the state, legality, and locally embedded political practices.

ANTH 241b/AFST 241b, RELIGION AND SOCIAL POWER. Kamari Clarke.

TTh 1-2.15 III So (0)

The role of religious institutions and religious beliefs as they relate to social issues, peace and conflict, local and national identities, and the legitimacy of governance and social power.

ANTH 242b, THE PHYSIOLOGY AND LIFE HISTORY OF HUMAN

ADAPTABILITY. Richard Bribiescas.

MW 11.30-12.45 III Sc, So (34)

An examination of the range of human physiological adaptability across environments and ecologies. Effects of energetic constraints on growth, reproduction, and behavior within the context of evolution and life history theory, with special emphasis on traditional non-Western societies.

ANTH 254a, JAPAN: CULTURE, SOCIETY, MODERNITY. Karen Nakamura.

MWF 10.30-11.20 III WR, So (33)

Introduction to Japanese society and culture. The historical development of Japanese society; family, work, and education in contemporary Japan; Japanese aesthetics; and psychological, sociological, and cultural interpretations of Japanese behavior.

ANTH 256b/WGSS 366b, MINORITIES AND SEXUALITIES IN MODERN

JAPAN. Karen Nakamura.

MWF 10.30-11.20 III So (0)

The image of Japan as a homogenous society confronted through an exploration of postcolonial, native, caste, and sexual minorities that have become vocal in the past century. Focus on the mechanisms by which minoritization occurs and the development of social protest movements.

ANTH 262b, CLIMATE AND SOCIETY. Renzo Taddei.

MW 1-2.15 III So (o)

Discussion of the relationship between human beings and natural elements in the making of society and culture. Topics include debates on the social and cultural constructions of narratives on climate, the role of climate in current political discussions on the social uses of science, disaster management strategies, and the creation of public policies related to the environment.

ANTH 270a, EVOLUTION AND HUMAN BEHAVIOR. David Watts.

MW 2.30-3.45 III So (o)

A critical overview of evolutionary accounts of the behavior of modern humans, including background material on evolutionary theory as it applies to social behavior, foraging, and mating systems, with examples from various nonhuman species. Detailed examination of evolutionary hypotheses about selected aspects of human behavior, such as mate choice and intergroup aggression, and associated controversies.

ANTH 275a/INTS 385a/PLSC 438a/WGSS 385a, MEN, WOMEN, AND FAMILY IN THE MUSLIM MIDDLE EAST. Amy Young.

MWF 10.30-11.20 III So (o)

A study of the complex interplay between the individual and the family in contemporary Muslim Middle Eastern societies. Examination of theories of masculinity and femininity, sexuality, gender roles, and family in the context of Middle Eastern societies. Discussion of whether Muslims conceptualize themselves as members of families first and as individuals second. Special attention to women's rights issues in the region and to how discourses of rights intersect with understandings of sexuality and the family.

★ANTH 277a^G/★ARCG 277a^G, ARCHAEOLOGICAL FIELD TECHNIQUES.

Marcello Canuto.

MW 4-5.15 III; Not CR/D/F So (o)

An introduction to the practice and techniques of modern archaeology, including methods of excavation, recording, mapping, dating, and ecological analysis. *Must be taken concurrently with* ANTH 278La.

★ANTH 278La^G/★ARCG 278La^G, ARCHAEOLOGY LABORATORY I.

Marcello Canuto.

Sa 8.30-5 III; Not CR/D/F So (o)

Instruction in the field at an archaeological site in Connecticut in stratigraphy, mapping, artifact recovery, and excavation strategy. *Must be taken concurrently with* ANTH 277a.

★ANTH 279Lb^G/★ARCG 279Lb^G, ARCHAEOLOGY LABORATORY II.

Marcello Canuto.

W 1-4 III; Not CR/D/F So (o)

A practical introduction to processing and analysis of excavated artifacts. Emphasis on familiarity with a range of methods and materials. Intensive study and written report on one group of artifacts.

ANTH 282b, SPORT, SOCIETY, AND CULTURE. William Kelly.

MW 10.30-11.20, 1 HTBA III; Not CR/D/F WR, So (33)

Examination of how sports are shaped by the society and culture in which they are found. Topics include race, gender, and ethnicity; sports and media; sports nationalism and globalization; and sports as a profession. Consideration of four cases in detail: Caribbean cricket, Japanese baseball, Argentine soccer, and Kenyan distance running.

ANTH 290a/AFST 290a, GENDER AND SEXUALITY IN AFRICA. Staff.

MW 2.30-3.45 III; Not CR/D/F So (37)

Exploration of the diverse and changing ways in which gender and sexuality are informed by culture, politics, religion, and social organization in colonial and postcolonial Africa.

*ANTH 298a/*ER&M 298a/*WGSS 298a, THE ANTHROPOLOGY OF ORATORY AND RHETORIC. Bernard Bate.

MW 2.30-3.45, 1 HTBA III; Not CR/D/F So (o)

Study of the relationship between language and political practice in ethnographic literature and in rhetorical analyses of classic and contemporary American oratory. Exploration of how language use, as both mode of social practice and object of ideology and political organization, can be understood as constitutive of political relations and social organization generally. *Enrollment limited to 35.*

ANTH 299a, HUMAN FUNCTIONAL ANATOMY. Eric Sargis.

MW 1-2.15 III So (36)

Regional and systemic anatomy of the human body is explored from an evolutionary perspective. Examples from embryology provide a basis for understanding the similarity of human structure to the anatomy of other vertebrates. Discussion of the anatomical bases for functional disorders. *Recommended preparation: E&EB 122b.*

ADVANCED COURSES, INCLUDING SEMINARS, READING COURSES, AND RESEARCH COURSES

*ANTH 301bG/*ARCG 301bG, FOUNDATIONS OF MODERN ARCHAEOLOGY. Richard Burger.

TTh 1-2.15 III; Not CR/D/F So (o)

Discussion of how method, theory, and social policy have influenced the development of archaeology as a set of methods, an academic discipline, and a political tool. *Background in the basics of archaeology equivalent to one introductory course is assumed.*

*ANTH 303a/*AFAM 317a/*AFST 303a, FIELD METHODS IN CULTURAL ANTHROPOLOGY. Kamari Clarke.

T 3.30-5.20 III So (o)

Exploration of the fundamentals of cultural anthropology methods. The foundations of fieldwork approaches, including methods, theories, and the problem of objectivity.

*ANTH 304a/*AFAM 323a/*FILM 336a, JAZZ AND FILM. John Szwed.

T 1.30-3.20 III; Not CR/D/F Hu (o)

A survey of the use and representation of jazz in film, including soundies, shorts, cartoons, musicals, documentaries, and features by Malle, Scorsese, Minnelli, Altman, Spike Lee, and others.

*ANTH 308bG/*WGSS 308b, QUEER ETHNOGRAPHIES. Karen Nakamura.

MW 1-2.15 III; Not CR/D/F So Meets RP (o)

Exploration of both classic and contemporary ethnographies of gender and sexuality. Emphasis on understanding anthropology's contribution to and relationship with gay and lesbian studies and queer theory.

★ANTH 323b^G/★ARCG 323b^G, ORIGINS OF ANDEAN COMPLEX SOCIETIES.
Richard Burger.

F 2.30-4.20 III; Not CR/D/F So (o)

Examination of the development of early complex society in Peru during the Early Horizon as well as its antecedent during the Preceramic and Initial periods. Focus on the problems of elucidating the sociopolitical organization of these societies and the factors responsible for their transformation. Evaluation of general theories regarding the origins of complex society in light of the Peruvian case.

★ANTH 329b^G, PRIMATE EVOLUTION. Eric Sargis.

MW 1-2.15 III; Not CR/D/F So (36)

Exploration of the evolutionary history of the order Primates from its origins through the Miocene epoch. Focus on controversies in taxonomy, systematics, and functional morphology in the fossil record. *Recommended preparation: ANTH 116a or an introductory biology course.*

★ANTH 333b^G, BILINGUALISM IN SOCIAL CONTEXT. J. Joseph Errington.

M 1.30-3.20 III; Not CR/D/F So (o)

The linguistic phenomenon of bilingualism presented through broad issues in social description inseparably linked to it: growth and change in bilingual communities; bilingual usage, social identity, and allegiance; and interactional significances of bilingual speech repertoire use.

★ANTH 341b^G/★ARCG 341b^G, ARCHAEOLOGY OF COMMUNITIES.

Marcello Canuto.

T 2.30-4.20 III So (o)

An examination of households and their integration into communities in ancient complex societies. Emphasis on theoretical perspectives from cultural anthropology. Readings from ethnography, ethnoarchaeology, ethnohistory, and archaeology.

★ANTH 343a, HORMONES AND BEHAVIOR. Stephanie Anestis.

T 1.30-3.20 III; Not CR/D/F So (o)

An introduction to behavioral endocrinology, the study of hormone-behavior interactions. Attention to the ways in which hormones have evolved to affect the physiology of organisms and how these effects translate into behavior. Topics include popularized accounts of hormone effects compared with the research on which they are based; ways in which journalists interpret scientific knowledge; and how to distinguish between good and bad science reporting.

★ANTH 345a^G/★ARCG 345a^G, LANDSCAPE ARCHAEOLOGY. Staff.

Th 2.30-3.45 III So (o)

The intellectual development of landscape perspectives in archaeology, from a primary concern with adaptive and economic aspects of human-environment interactions to more recent interest in cognitive and culturally constructed landscapes. Case studies reveal a multiplicity of archaeological approaches.

★ANTH 348b^G/★WGSS 378b, GENDER AND MEDIA IN INDIA.

Bernard Bate.

T 1.30-3.20 III; Not CR/D/F WR, So (o)

Examination of narratives of gender in India. Folkloristic and anthropological approaches to gendered performance in story, song, and theater. Recent feminist examinations of television, film, advertising, and literature. Topics include classical epic (*Ramayana*, *Shilapathigaram*), stories of gods and goddesses in film and television, and the gendering of politics.

★ANTH 354a^G, IDEAS OF DEVELOPMENT IN LATIN AMERICA.

Renzo Taddei.

M 1.30-3.20 III So (o)

Exploration of the ways in which development discourses and processes transform the cultural panoramas of Latin America. Topics include ethnographies of development encounters, debates on the epistemologies of development, the reorganization of cultural landscapes, and issues of gender, religion, governance, and the natural environment in the region.

★ANTH 363a^G/★ARCG 363a^G/★NELC 189a^G, ARCHAEOLOGIES OF EMPIRE.

Harvey Weiss.

For description see under Near Eastern Languages & Civilizations.

★ANTH 367b^G, THE ANTHROPOLOGY OF UNCERTAINTY. Renzo Taddei.

Th 1.30-3.20 III So (o)

Exploration of how different cultures and social dynamics deal with ambiguity and uncertainty. Examples include the regimenting of discourses so as to eliminate the uncertain, crises in which collective semiosis is left without resources to make sense of unbearable situations, and situations in which uncertainty is strategically produced so as to bring about social change and renovation.

★ANTH 369b^G, ECONOMIC ANTHROPOLOGY. Enrique Mayer.

Th 1.30-3.20 III; Not CR/D/F So (o)

An introduction to understanding economic systems in other cultures and societies. How work and leisure are organized, who gets what and how, and how economic concerns tie into other aspects of social life. Major debates and controversies examined, and examples from different parts of the world presented. *No prior background in economics or anthropology assumed.*

★ANTH 370b^G, LANGUAGE, POLITICS, AND SOCIETY IN COLONIAL INDIA.

E. Annamalai.

Th 2.30-4.20 III; Not CR/D/F So (o)

Study of British colonial politics and society in India and of the changes they effected within and between languages. Topics include the use and status of languages in society, the role of languages in politics, elite formation, creation of knowledge systems, rivalry between ethnic communities, and the reformulation of ethnic and political boundaries and of ethnic identities.

★ANTH 372a, POLITICAL VIOLENCE AND HUMAN RIGHTS.

Christophe Robert.

MW 2.30-3.45 III; Not CR/D/F So (o)

Examination of the grounds, meanings, and effects of violence as a political instrument. Consideration of the reasons and methods behind violent actions by states against their own citizens, and the means by which such actions are redressed. Study of violence and its political uses in an anthropological and broadly comparative framework.

★ANTH 376b^G, ANTHROPOLOGY OF THE OBJECT. Staff.

Th 2.30-3.45 III So (o)

An exploration of the culturally variable means through which value and significance are attributed to objects. Topics include gift-giving and commodity exchange; the classification, collection, and display of art and artifacts; advertising, consumption, and commodity fetishism; concepts of property; and the politics of value.

★ANTH 381a, SEXUAL MEANINGS. Harold Scheffler.

M I.30-3.20 III; Not CR/D/F So (o)

Human sexuality in historical and cross-cultural perspective: the social and cultural construction of human sexuality; its variability; its relation to constructions of gender. Topics include biological bases of sexual behavior and their evolution; relations between sex and gender; homosexuality; rape; and AIDS.

★ANTH 387b^G/★AMST 387b^G, THE ANTHROPOLOGY OF SOUND.

John Szwed.

T I.30-3.20 III; Not CR/D/F So (o)

The socially mediated nature of sound, and the cultural consequences of technologies of sound transmission, modification, and recording. Topics may include pre- and postindustrial soundscapes; audio ethnography; the art of noise; synesthesia; problems of originality and plagiarism (covers, sampling, mixing, and machine music); world music; audio imperialism and terrorism; musical utopias; and imaginary soundscapes.

★ANTH 402a^G, VISUAL ANTHROPOLOGY AND ETHNOGRAPHIC FILM.

Karen Nakamura.

MW I-2.15 III; Not CR/D/F Hu, So Meets RP (o)

A study of visual anthropology production, with readings from core texts in the analysis of visual culture and visual anthropology field methods. Analysis of the history, philosophy, ethics, production, and consumption of ethnographic film and photoethnography within both the field of anthropology and popular culture.

★ANTH 404b^G/★AMST 429b^G, AMERICAN COMMUNITIES. Kathryn Dudley.

For description see under American Studies.

★ANTH 405a^G, KINSHIP, DESCENT, AND ALLIANCE. Harold Scheffler.

F I.30-3.20 III; Not CR/D/F So (o)

The role of kinship in the organization of social life, with emphasis on tribal societies. Topics include regulation of sexual behavior and marriage, varieties of group organization, and modes of kin classification and their social significance.

★ANTH 413a^G, LANGUAGE, CULTURE, AND IDEOLOGY.

J. Joseph Errington.

M I.30-3.20 III; Not CR/D/F So Meets RP (o)

Review of influential anthropological theories of culture, with reference to theories of language that inspired or informed them. Topics include American and European structuralism; cognitivist and interpretivist approaches to cultural description; and the work of Bakhtin, Bourdieu, and various critical theorists.

★ANTH 414b^G, URBAN ANTHROPOLOGY AND GLOBAL HISTORY.

Helen Siu.

W I.30-3.20 III; Not CR/D/F So Meets RP (o)

A structural analysis of urbanization in agrarian societies undergoing modern transformation. Topics include the nature of migration, rural and urban adaptive strategies, ethnicity, political organization, and cultural conflict.

★ANTH 415a^G, CULTURE, HISTORY, POWER, AND REPRESENTATION.

Helen Siu.

T 1.30-3.20 III; Not CR/D/F So Meets RP (o)

A critical introduction to anthropological formulations of the junctures of meaning, interest, and power. Readings include classical and contemporary ethnographies that are theoretically informed and historically situated.

★ANTH 419a^G, LANGUAGE AND THE PUBLIC SPHERE.

Bernard Bate.

T 1.30-3.20 III; Not CR/D/F WR, So (o)

Exploration of the relationship between language and the public sphere. Consideration of the theoretical perspectives of Jürgen Habermas and Benedict Anderson. Ethnographic and historical examination of eighteenth- and nineteenth-century America and Europe, nineteenth- and twentieth-century Arabia, and India from the third to the twentieth centuries.

★ANTH 422a^G/★AFAM 441a^G/★AFST 464a^G, AFRICA AND THE DISCIPLINES.

Kamari Clarke, Christopher L. Miller.

For description see under African Studies.

★ANTH 424a^G, CLASSICS IN ETHNOGRAPHY. Staff.

M 1.30-3.20 III; Not CR/D/F So (o)

Analysis of some eight or ten of the most important ethnographic monographs in social and cultural anthropology of the past fifty years, in order to understand some of the main problems in the historical development of the discipline and the methods used to resolve them.

★ANTH 426b^G, ANTHROPOLOGICAL PERSPECTIVES ON GENDER AND HEALTH. Staff.

W 1.30-3.20 III So Meets RP (o)

Examination of how issues of gender articulate with health as examined by anthropologists. Topics include women's health (reproductive issues, sexually transmitted diseases, sexual violence, genital surgery), men's health (alcohol and drug use, sexually transmitted diseases, violence, occupational issues), and issues of sexual identity. Emphasis on political, economic, and cultural aspects of gender and health. Views of moral and political issues such as abortion and new reproductive technologies from an anthropological perspective.

★ANTH 428b/★AMST 428b/★FILM 437b, *FILM NOIR* AND AMERICAN CULTURE OF THE 1940S AND 1950S. John Szwed.

For description see under American Studies.

★ANTH 434a^G/★AFST 434a^G, ANTHROPOLOGY OF THE POSTCOLONIAL STATE. Staff.

Th 1.30-3.20 III; Not CR/D/F So (o)

Ethnographic and interpretive approaches to the postcolonial state and the forms of public culture to which it gives rise. Topics include the formation of state structures and citizen subjects; nationalism in relation to discourses of gender, race, marginality, and modernity; corruption and moral discourse in the public sphere; ritual and aesthetic dimensions of rule and resistance; tensions between popular, civic, and global culture.

★ANTH 435b^G, VIETNAM: WAR, MEMORY, FORGETTING.

Christophe Robert.

Th 9.30-11.20 III; Not CR/D/F So Meets RP (o)

Study of the Vietnamese conflict (1960–75) from both historical and comparative anthropological viewpoints. Examination of the conflict as one among a series of anticolonial wars of Indochina. Cultural formations within which war emerged as a privileged mode of opposition in Southeast Asia against imperialism, colonialism, communism, and the United States in particular. Discussion of broader issues regarding the character of war and its aftereffects, including dimensions of nationalism and revolution; trauma and forgetting in nationalist historiography; the relationship between violence, war, and the idea of law; and the work of fiction in both culture and its analysis.

★ANTH 445b/★EAST 401b, RELIGION AND GLOBALIZATION IN EAST ASIA.
Gareth Fisher.

For description see under East Asian Studies.

★ANTH 452b, ETHNOGRAPHIC FIELDWORK: ANALYSIS AND PRACTICE.
Staff.

W 1.30-3.20 III; Not CR/D/F So (o)

Introduction to qualitative research in anthropology, focusing on participant observation, interview, and documentary techniques. Workshop format.

★ANTH 471a *and* 472b, READINGS IN ANTHROPOLOGY. Consult the director of undergraduate studies.

HTBA III; Not CR/D/F (o)

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 473b^G/★ARCG 473b^G/★NELC 188b^G, CIVILIZATIONS AND COLLAPSE.
Harvey Weiss.

Th 2.30-4.20 II or III; Not CR/D/F Hu, So (o)

Collapse documented in the archaeological and early historical records of the Old and New Worlds, including Mesopotamia, Mesoamerica, the Andes, and Europe. Analysis of politicoeconomic vulnerabilities, resiliencies, and adaptations in face of abrupt climate change; anthropogenic environmental degradation; resource depletion; "barbarian" incursions; and class conflict.

★ANTH 491a *or* b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA III; Not CR/D/F (o)

For all students majoring in Anthropology. Supervised investigation of some 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.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate seminars in anthropology are open to qualified undergraduates. Descriptions are available in the departmental office, Room 2, 51 Hillhouse Avenue. Permission of the instructor and of the director of graduate studies is required.

APPLIED MATHEMATICS

Director of undergraduate studies: Daniel Spielman, AKW, 436-1264, daniel.spielman@yale.edu; senior coordinator: Andrew Barron, 24 Hillhouse Ave., 432-0634, andrew.barron@yale.edu

Mathematical models are widely used throughout science and engineering in fields as diverse as physics, bioinformatics, robotics, image processing, and economics. Despite the broad range of applications, there are a few essential techniques used in addressing most problems. The Applied Mathematics major provides a foundation in these mathematical techniques and trains the student to use these skills 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 Engineering and Applied Science. Courses applying mathematics may be drawn from participating programs in Astronomy, the biological sciences (Biology, Molecular Biophysics and Biochemistry), Chemistry, Computer Science, Economics, the various programs in engineering (Biomedical, Chemical, Electrical, Environmental, and Mechanical Engineering, as well as Applied Physics), Geology and Geophysics, Mathematics, Operations Research, Physics, and Statistics. The Applied Mathematics degree program requires a three-course concentration in a field in which mathematics is used.

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 in satisfying the requirements of the two majors.

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 120a or b and MATH 222a or b or 225b, or equivalents. Computer programming skills are also required and may be acquired by taking ENAS 130b or CPSC 112a or b.

Details of individual programs must be worked out in consultation with the director of undergraduate studies, whose signed permission is required.

Requirements of the major for the B.A. degree program. The program requires eleven term courses beyond the prerequisites, including the senior seminar, comprising a coherent program:

1. A course in differential equations (ENAS 194a or b or MATH 246a or b)
2. A course in probability (STAT 241a or 238a)
3. A course in data analysis (STAT 361a or 230b)
4. A course in discrete mathematics (AMTH 244a or CPSC 202a)
5. A selection of at least three of the following: (a) a course in optimization (AMTH 237a) or linear programming (AMTH 235a); (b) stochastic processes (STAT 251b); (c) statistics (STAT 242b); (d) a course in algorithms (CPSC 365b) or numerical computation (ENAS 440a or CPSC 440b); (e) graphs and networks (AMTH 462a); (f) game theory (ECON 156b); (g) a course in signals, dynamics, applications of differential or difference equations, or time series (AMTH 342a, ENAS 391a, 397b, EENG 310a, 436b, 450a, or

ECON 163b) or in applied functional analysis (AMTH 260b); (b) a course in image or vision analysis (EENG 445a or CPSC 475b) or information theory (AMTH 364b)

6. At least three courses in a field of concentration involving the application of mathematics to that field, at least two of which are advanced courses. Programs in science, engineering, computer science, statistics, economics, and operations research 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 listed in point 5 above or for the B.S. degree below. Details of a student's program to satisfy the concentration requirement must be worked out in consultation with, and with the approval of, the director of undergraduate studies

7. The senior seminar (AMTH 490b)

The B.S. degree program. In addition to the courses indicated for the B.A. major, the B.S. degree, which totals fourteen term courses beyond the prerequisites, must also include:

1. Topics in analysis (MATH 300b)
2. An additional course selected from the list in item 5 above
3. Another course numbered 300 or higher from the list above, or a mathematics, applied mathematics, statistics, or quantitative computer science or engineering course numbered 300 or higher, subject to the approval of the director of undergraduate studies

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.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 120a or b and MATH 222a or b or 225b, or equivalents; ENAS 130b or CPSC 112a or b

Number of courses: *B.A. degree program*—eleven term courses beyond prerequisites (including the senior sem); *B.S. degree program*—fourteen term courses beyond prerequisites (including the senior sem)

Specific courses required: *B.A. degree*—ENAS 194a or b or MATH 246a or b; STAT 238a or 241a; STAT 361a or 230b; AMTH 244a or CPSC 202a; *B.S. degree*—same, as well as MATH 300b

Distribution of courses: *B.A. degree*—at least three courses in a field of concentration concerning the application of mathematics to that field, at least two of which are advanced; three addtl courses as specified; *B.S. degree*—same, as well as two addtl courses as specified

Senior requirement: Senior sem (AMTH 490b)

Unless otherwise indicated, courses in Applied Mathematics do not count toward the natural science requirement for the Class of 2008 and previous classes.

INTRODUCTORY COURSES

AMTH 110a, INTRODUCTION TO QUANTITATIVE THINKING: THE PLEASURES OF COUNTING. Fred Warner.

TH 9-10.15 IV QR (22)

Methods of quantitative inference and modeling are introduced via applications from a variety of different fields. Possible topics include data encryption, codes,

scaling phenomena, traffic flow, warfare, and population growth. Some use of computing software such as Mathematica or MATLAB. *No prior acquaintance with calculus or computing assumed.*

AMTH 125b/MATH 125b/OPRS 125b, INTRODUCTION TO MANAGEMENT SCIENCE: PROBABILISTIC MODELS. Eric Denardo.
For description see under Operations Research.

AMTH 222a *or* b/MATH 222a *or* b, LINEAR ALGEBRA WITH APPLICATIONS. Hisham Sati [F], Peter Schultheiss [Sp].
For description see under Mathematics.

INTERMEDIATE AND ADVANCED COURSES

AMTH 235a/OPRS 235a, OPTIMIZATION I. Eric Denardo.
For description see under Operations Research.

AMTH 237a^G, OPTIMIZATION AND CONVEXITY. Mokshay Madiman.
MW 1-2.15 IV; Not CR/D/F QR (36)
Fundamental theory and algorithms of optimization, emphasizing convex optimization, with applications to a wide range of fields. The geometry of convex sets, basic convex analysis, optimality conditions, duality. Numerical algorithms: steepest descent, Newton's method, interior point methods. Applications from statistics, communications, control, signal processing, physics, and economics. *Prerequisites: linear algebra and differential calculus.*

AMTH 244a/MATH 244a, DISCRETE MATHEMATICS. Kevin Wortman.
For description see under Mathematics.

AMTH 260b/MATH 260b, BASIC ANALYSIS IN FUNCTION SPACES. Ronald Coifman.
For description see under Mathematics.

*AMTH 342a/*EENG 442a^G, LINEAR SYSTEMS. A. Stephen Morse.
For description see under Electrical Engineering.

AMTH 361a^G/STAT 361a^G, DATA ANALYSIS. Lisha Chen, John Emerson.
For description see under Statistics.

AMTH 364b^G/EENG 454b/STAT 364b^G, INFORMATION THEORY. Sekhar Tatikonda.
For description see under Statistics.

AMTH 462a^G/CPS 462a^G, GRAPHS AND NETWORKS. Daniel Spielman.
TTh 2.30-3.45 IV QR (○)
A mathematical examination of graphs and their applications in the sciences. Families of graphs include social networks, small-world graphs, Internet graphs, planar graphs, well-shaped meshes, power-law graphs, and classic random graphs. Phenomena include connectivity, clustering, communication, ranking, and iterative processes. *Prerequisite: AMTH 244a or CPS 202a; a course in probability is recommended.*

*AMTH 490b, SENIOR SEMINAR AND PROJECT. Andrew Barron.
W 3.30-5.20 IV; Not CR/D/F (○)
Under the supervision of a member of the faculty, each student works on an independent project. Students participate in seminar meetings at which they speak on the progress of their projects. Some meetings may be devoted to talks by visiting faculty members or applied mathematicians.

APPLIED PHYSICS

Director of undergraduate studies: Robert Grober, 415 BECTON, 432-9653,
robert.grober@yale.edu

FACULTY OF THE DEPARTMENT OF APPLIED PHYSICS

PROFESSORS

† Sean Barrett, William Bennett, Jr. (*Emeritus*), Richard Chang, Michel Devoret, Joseph Dillon, Jr. (*Adjunct*), Paul Fleury, † Steven Girvin, Robert Grober, Victor Henrich, Arvid Herzenberg (*Emeritus*), † Marshall Long, † Tso-Ping Ma, Simon Mochrie, Daniel Prober, Nicholas Read, † Mark Reed, Robert Schoelkopf, † Ramamurti Shankar, † Mitchell Smooke, A. Douglas Stone, † John Tully, Robert Wheeler (*Emeritus*), Werner Wolf (*Emeritus*)

ASSOCIATE PROFESSORS

Charles Ahn, † Janet Pan

ASSISTANT PROFESSOR

Sohrab Ismail-Beigi

† A joint appointment with primary affiliation in another department.

Physics is the study of the fundamental laws of nature. Applied physics uses these laws to understand phenomena that may have practical applications. Engineering in turn makes use of these phenomena for human purposes, forming 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 B.S. degree program in Applied Physics are prepared for graduate study in applied physics, in physics, 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 like technical writing or patent law that draw on interdisciplinary subjects. Students who seek a less intense technical program, one that will allow greater flexibility to pursue other interests, may choose the B.A. degree in Applied Physics. For this degree the number of courses is reduced and only one term of research is required. The smaller number of required courses may allow students to fulfill the requirements of a second major, for example in Economics, or it may be used as the basis of a program combining a number of diverse interests.

The B.S. degree program in Applied Physics is divided into two tracks: solid-state and quantum electronics; and physics of materials. The major provides for a variety of flexible programs corresponding to a range of student interests. *Students may develop their own tracks with the approval of the director of undergraduate studies.* Substitution of equivalent courses may also be permitted. Solid-state and quantum electronics is concerned with the basic science underlying electronic and optical devices and its practical realization. Current research activities at Yale in this area include microelectronics, superconductors, magnetic materials, surface physics, and laser diagnostics. Physics of materials focuses on the understanding of material properties in physical terms. Current research topics in this area include various problems in the theory of solids and optical properties of materials, including biomaterials. Both tracks require the same set of introductory courses, the same core of required courses, and two terms of independent research projects.

Introductory courses. During the freshman year, students interested in Applied Physics should start by taking courses in mathematics, and physics if possible, appropriate to their level of preparation. The choice between

different starting points is generally made on the basis of performance on the Advanced Placement tests (see the *Freshman Handbook*).

The recommended sequence in mathematics for students interested in Applied Physics or Electrical or Mechanical Engineering is MATH 115a or b, 120a or b, 222a or b, and ENAS 194a or b. MATH 230 is an acceptable alternative to MATH 120a or b, and MATH 225b is an acceptable alternative to MATH 222a or b. Similarly, PHYS 301a may be substituted for ENAS 194a or b and MATH 222a or b.

The recommended starting courses in physics are PHYS 200a and 201b. These courses should be taken in the freshman year by students who have a strong preparation in mathematics and physics. Students with a strong background in physics and mathematics who may be interested in majoring in Physics may take PHYS 260a and 261b instead. Students who are less well prepared in physics and mathematics may choose to take PHYS 180a and 181b during their freshman year, or PHYS 200a and 201b during their sophomore year after they have taken more mathematics courses. Two laboratory courses, PHYS 205La or Lb and PHYS 206La or Lb, should be taken at some time during the freshman or sophomore year.

Students interested in Applied Physics should also take a course on the use of computers early in their studies. ENAS 130b, Introduction to Computing for Engineers and Scientists, is recommended; a comparable course in computer science may be substituted with the approval of the director of undergraduate studies.

The multiplicity of choices facing students interested in this general area *indicates the importance of informed advice for freshmen*. Students should consult freely with directors of undergraduate studies and individual faculty members in their departments of interest to optimize choices and to ensure maximum flexibility at the time a major is selected.

B.S. degree program. The B.S. degree program in Applied Physics requires ten courses beyond the introductory sequence. Two of these must be APHY 471a, 472b (see below). With the approval of the director of undergraduate studies, the remaining eight courses required for each track can be chosen from a set of Physics, Applied Physics, and Engineering courses in accordance with individual student interest. Three advanced courses are required in both tracks: APHY 322b, 439a, and PHYS 420a; equivalent courses may be substituted for some of these with the approval of the director of undergraduate studies.

Senior requirement. Seniors in the B.S. program must complete an independent project, taken as APHY 471a and 472b.

The *solid-state and quantum electronics track* requires three courses from APHY 321b, 448a, 449b, EENG 320a, and 325a, as well as two courses in the physical or mathematical sciences or in engineering approved by the director of undergraduate studies.

The *physics of materials track* requires three courses from APHY 448a, 449b, CHEM 227a, 450b, and MENG 485a, as well as two courses in the physical or mathematical sciences or in engineering as approved by the director of undergraduate studies. The inclusion of organic chemistry, requiring CHEM 114 as an additional prerequisite, is strongly encouraged. The physics of materials track is compatible with premedical requirements with the addition of a year of biology and required premedical laboratories.

Typical course sequences for both of these tracks are shown below. A variety of substitutions is possible with the permission of the director of undergraduate studies.

A program in solid-state and quantum electronics for a well-prepared student might be:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
PHYS 200a MATH 120a	ENAS 194a	APHY 439a EENG 320a PHYS 420a	APHY 448a APHY 471a EENG 325a
PHYS 201b PHYS 205Lb MATH 222b	APHY 322b PHYS 206Lb ENAS 130b	APHY 321b APHY 472b	APHY 449b

A student starting physics in the sophomore year might elect:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 115a	PHYS 200a PHYS 205La ENAS 194a	APHY 439a EENG 226a PHYS 420a	APHY 448a APHY 471a EENG 320a EENG 325a
MATH 120b ENAS 130b	PHYS 201b PHYS 206Lb MATH 222b	APHY 322b APHY 472b	APHY 321b APHY 449b

A typical program in physics of materials for a well-prepared student wishing to pursue premedical studies might be:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
PHYS 200a PHYS 205La MATH 120a	CHEM 118a	APHY 439a CHEM 227a MENG 485a	APHY 448a APHY 471a PHYS 420a
PHYS 201b PHYS 206Lb ENAS 194b	APHY 322b MATH 222b CHEM 225b	APHY 472b CHEM 450b ENAS 130b	APHY 449b

A typical program in physics of materials for a student starting physics in the sophomore year might be:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
CHEM 118a MATH 115a	PHYS 180a PHYS 205La CHEM 227a	APHY 439a MENG 485a	APHY 448a APHY 471a PHYS 420a
CHEM 225b	MATH 120b PHYS 181b PHYS 206Lb ENAS 194b	MATH 222b CHEM 450b ENAS 130b	APHY 322b APHY 449b APHY 472b

B.A. degree program. Students who seek a less intense technical program, or one that will allow greater flexibility to pursue other interests, may choose the B.A. degree in Applied Physics. For the B.A. degree, beyond the prerequisites, only six courses are required. These must include three advanced courses, APHY 322b, 439a, and PHYS 420a, or their equivalents, and one term of APHY 471a or 472b, Special Projects. Beyond the required courses, a student may select any two courses in physical or mathematical sciences or engineering, with the approval of the director of undergraduate studies. These electives should make a coherent contribution to the mastery of the subject undertaken by the student.

Senior requirement. Seniors in the B.A. program must complete an independent project, taken as APHY 471a or 472b.

A typical program for a student in the B.A. program might be:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 115a	PHYS 180a PHYS 205La ENAS 194a	APHY 439a Elective in E&AS or physical sciences	PHYS 420a
MATH 120b ENAS 130b	PHYS 181b PHYS 206Lb MATH 222b	APHY 322b Elective in E&AS or physical sciences	APHY 472b

Independent research. One requirement common to all programs in Applied Physics is the completion of an independent research project. For the B.S. degree, APHY 471a and 472b (taken either sequentially or at different times in a student's career) are required; for the B.A. degree, APHY 471a or 472b is required. The independent research project is under the supervision of a faculty member in Applied Physics or in the departments of Physics, Computer Science, Electrical Engineering, or Mechanical Engineering. The project may be started in the junior year and continued into the senior year. Students planning to do a special project should contact the project coordinator as soon as possible to discuss available options and general requirements.

Approval of the programs. The Applied Physics major provides for 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 director of undergraduate studies as soon as possible, and in any case by the end of the sophomore year.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Applied Physics may be eligible to apply for a special program that includes industry research. See under Engineering.

REQUIREMENTS OF THE MAJOR

B.S. DEGREE

Prerequisites: MATH 115a or b, 120a or b; MATH 222a or b and ENAS 194a or b, or PHYS 301a; PHYS 180a, 181b, or 200a, 201b; PHYS 205La or Lb, 206La or Lb; ENAS 130b

Number of courses: Ten term courses beyond prerequisites (including the senior requirement)

Distribution of courses: *Solid-state and quantum electronics track*—six courses in ApplPhys, Phys, ElecEng; two courses in physical or mathematical sciences or engineering, with approval of DUS; *Physics of materials track*—six courses in ApplPhys, Chem, Phys, E&AS, MechEng; two courses in physical or mathematical sciences or engineering, with approval of DUS

Specific courses required: *Both tracks*—APHY 322b, 439a, PHYS 420a, or equivalents; *Solid-state and quantum electronics track*—three from APHY 321b, 448a, 449b, EENG 320a, 325b; *Physics of materials track*—three from APHY 448a, 449b, CHEM 227a, 450a, MENG 485a

Substitution permitted: Any relevant course approved by DUS

Senior requirement: APHY 471a and 472b

B.A. DEGREE

Prerequisites: MATH 115a or b, 120a or b; MATH 222a or b and ENAS 194a or b, or PHYS 301a; PHYS 180a, 181b, or 200a, 201b; PHYS 205La or Lb, 206La or Lb; ENAS 130b

Number of courses: Six term courses beyond prerequisites (including the senior requirement)

Distribution of courses: Beyond the required courses, any two courses in physical or mathematical sciences or engineering, with approval of DUS

Specific courses required: APHY 322b, 439a; PHYS 420a

Substitution permitted: Any relevant course approved by DUS

Senior requirement: APHY 471a or 472b

Unless otherwise indicated, courses in Applied Physics count toward the natural science requirement for the Class of 2008 and previous classes.

★APHY 050b, SCIENCE OF MODERN TECHNOLOGY. Daniel Prober.

TTh 2.30-3.45 Sc Meets RP (○) Fr sem

Examination of the science behind selected advances in modern technology. 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, 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 freshmen.*

APHY 110b/ENAS 110b, THE TECHNOLOGICAL WORLD. Victor Henrich.

For description see under Engineering & Applied Science.

APHY 321b^G/EENG 401b^G, SEMICONDUCTOR SILICON DEVICES AND TECHNOLOGY. Tso-Ping Ma.

For description see under Electrical Engineering.

APHY 322b, ELECTROMAGNETIC WAVES AND DEVICES.

Robert Schoelkopf.

TTh 1-2.15 IV; Not CR/D/F QR, Sc (26)

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 180a, 181b, or 200a, 201b.

APHY 417a^G, OPTICAL PROPERTIES OF SEMICONDUCTORS.

Richard Chang.

TTh 2.30-3.45 IV; Not CR/D/F QR, Sc (○)

Introduction to the linear and nonlinear optical properties of bulk semiconductors and quantum wells, with emphasis on compound semiconductor crystals and heterostructures. *Prerequisite:* EENG 320a or permission of instructor.

APHY 418a^G/EENG 418a^G, HETEROJUNCTION DEVICES. Mark Reed.

For description see under Electrical Engineering.

APHY 439a^G/PHYS 439a, BASIC QUANTUM MECHANICS.

Robert Grober.

TTh 1-2.15 IV; Not CR/D/F QR, Sc (26)

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 181b or 201b, PHYS 301a, or equivalents, or permission of instructor.

APHY 448a^G/PHYS 448a, SOLID-STATE PHYSICS I. Victor Henrich.

TTh 1-2.15 IV; Not CR/D/F QR, Sc (26)

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 322b, 439a.

APHY 449b^G/PHYS 449b, SOLID-STATE PHYSICS II. Charles Ahn.
 TTH 1-2.15 IV; Not CR/D/F QR, Sc (26)
 The second term of the sequence described under APHY 448a.

APHY 460b/ENAS 460b, MEASUREMENT AND NOISE. Robert Grober.
 For description see under Engineering & Applied Science.

★APHY 471a and 472b, SPECIAL PROJECTS. Consult the director of
 undergraduate studies.
 HTBA IV; Not CR/D/F (○)

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. These courses may be taken at any appropriate time in the student's career; they may be taken more than once. *Permission of the faculty adviser and of the director of undergraduate studies is required.*

COURSES IN ANOTHER DEPARTMENT THAT COUNT TOWARD THE MAJOR

PHYS 410a, CLASSICAL MECHANICS. Helen Caines.

PHYS 430b, ELECTROMAGNETIC FIELDS AND OPTICS. Richard Easter.

ARABIC

(*See under Near Eastern Languages and Civilizations.*)

ARCHAEOLOGICAL STUDIES

Director of undergraduate studies: to be announced

COUNCIL ON ARCHAEOLOGICAL STUDIES

ANTHROPOLOGY

Richard Burger (*Chair*), Marcello Canuto, Andrew Hill

CLASSICS, HISTORY OF ART

Milette Gaifman, Diana Kleiner

GEOLOGY & GEOPHYSICS

Robert Gordon, Ronald Smith, Karl Turekian

HISTORY OF ART

Edward Cooke, Jr., Mary Miller, Lillian Lanying Tseng

NEAR EASTERN LANGUAGES & CIVILIZATIONS

John Darnell, Karen Foster, Eckart Frahm, Harvey Weiss

This special interdepartmental 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, Department of Anthropology, 51 Hillhouse Avenue, or to the director of undergraduate studies.

The major in Archaeological Studies provides a program of interdepartmental offerings covering prehistoric, early historic, and medieval 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 physical science), while

emphasizing substantive studies. These include: (1) study of such prehistoric–early historic transformations as the origins of agriculture, cities and states, and early empires, and (2) study of the material culture, art, and architecture of the prehistoric, early historic, and medieval cultures of the Old and New Worlds, including the iconography of ancient cultures, the relationship between art and society in ancient cultures, ancient writing systems, and American historical archaeology.

Requirements of the major. The major consists of thirteen term courses including the senior project. The following seven courses are normally required: an introductory survey such as ARCG 100a or 171b; the field techniques course ARCG 277a; the laboratory courses ARCG 278La and 279Lb; an advanced laboratory course such as ARCG 465a; a theory course such as ARCG 301b; and the senior research project ARCG 491a or b. Undergraduate majors should also acquire summer experience in the field or laboratory. The remaining six courses required for the major must be distributed among the six subject areas represented by the departments and programs offering courses double-titled with Archaeological Studies, with three of those six courses falling in different departments and programs. The departments and programs are: Anthropology, Classics, Environmental Studies, Geology and Geophysics, History of Art, and Near Eastern Languages and Civilizations. For three of the six archaeology electives students may, with permission of the director of undergraduate studies, substitute three courses from other departments in areas related to their research.

Students majoring in Archaeological Studies normally devote at least one summer to archaeological research in the field or the laboratory, or complete a summer field course in archaeology. Members of the Council faculty currently direct archaeological field projects in Syria, Egypt, Peru, Greece, and Honduras. 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 491a or b) in some field of archaeology, preferably one involving more than one area or discipline.

Students majoring in Archaeological Studies should consult with the director of undergraduate studies at the beginning of each term.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Thirteen term courses (including the senior project)

Specific courses required: ARCG 100a or 171b or equivalent; 277a; 278La; 279Lb; 301b or equivalent; 465a or approved lab

Distribution of courses: At least one course in each of three areas; three addl courses in archaeol from related programs

Substitution permitted: For three archaeol electives, three courses related to research, with DUS permission

Senior requirement: Research project (ARCG 491a or b)

ARCG 100a/ANTH 150a/HUMS 100a/NELC 100a, THE GENESIS AND COLLAPSE OF OLD WORLD CIVILIZATIONS. Harvey Weiss.
For description see under Humanities.

ANTHROPOLOGY

ARCG 171b/ANTH 171b, GREAT DISCOVERIES IN ARCHAEOLOGY. Staff.
For description see under Anthropology.

★ARCG 206b^G/★ANTH 206b^G, MESOPOTAMIA FROM SUMER TO SADDAM.
Harvey Weiss.
For description see under Anthropology.

ARCG 232a^G/ANTH 232a, ANCIENT CIVILIZATIONS OF THE ANDES.
Richard Burger.
For description see under Anthropology.

ARCG 233a^G/ANTH 233a^G, ANCIENT CIVILIZATIONS OF MESOAMERICA.
Marcello Canuto.
For description see under Anthropology.

★ARCG 277a^G/★ANTH 277a^G, ARCHAEOLOGICAL FIELD TECHNIQUES.
Marcello Canuto.
For description see under Anthropology.

★ARCG 278La^G/★ANTH 278La^G, ARCHAEOLOGY LABORATORY I.
Marcello Canuto.
For description see under Anthropology.

★ARCG 279Lb^G/★ANTH 279Lb^G, ARCHAEOLOGY LABORATORY II.
Marcello Canuto.
For description see under Anthropology.

★ARCG 301b^G/★ANTH 301b^G, FOUNDATIONS OF MODERN ARCHAEOLOGY.
Richard Burger.
For description see under Anthropology.

★ARCG 323b^G/★ANTH 323b^G, ORIGINS OF ANDEAN COMPLEX SOCIETIES.
Richard Burger.
For description see under Anthropology.

★ARCG 341b^G/★ANTH 341b^G, ARCHAEOLOGY OF COMMUNITIES.
Marcello Canuto.
For description see under Anthropology.

★ARCG 345a^G/★ANTH 345a^G, LANDSCAPE ARCHAEOLOGY. Staff.
For description see under Anthropology.

★ARCG 363a^G/★ANTH 363a^G/★NELC 189a^G, ARCHAEOLOGIES OF EMPIRE.
Harvey Weiss.
For description see under Near Eastern Languages & Civilizations. (Formerly
ARCG 163a)

★ARCG 473b^G/★ANTH 473b^G/★NELC 188b^G, CIVILIZATIONS AND COLLAPSE.
Harvey Weiss.
For description see under Anthropology.

CLASSICS

ARCG 252a/CLCV 175a/HSAR 252a, ROMAN ARCHITECTURE. Diana Kleiner.
For description see under History of Art.

GEOLOGY AND GEOPHYSICS

★ARCG 362b/★G&G 362b^G, OBSERVING THE EARTH FROM SPACE.
Ronald Smith and staff.
For description see under Geology & Geophysics.

ARCG 465a^G/ENAS 381a/G&G 465a^G, ARCHAEOLOGICAL METALLURGY.
Robert Gordon.
For description see under Geology & Geophysics.

HISTORY OF ART

ARCG 202a^G/HSAR 202a, PRE-COLUMBIAN ARCHITECTURE.
Mary Miller.
For description see under History of Art.

ARCG 212a/HSAR 351a, ART AND ARCHAEOLOGY IN CHINA.
Lillian Lanying Tseng.
For description see under History of Art.

ARCG 238b/HSAR 238b/NELC 107b, BURIED CITIES: THERA, POMPEII, AND
HERCULANEUM. Karen Foster.
For description see under History of Art.

NEAR EASTERN LANGUAGES AND CIVILIZATIONS

★ARCG 001a/★NELC 001a, EGYPT AND NORTHEAST AFRICA:
A MULTIDISCIPLINARY APPROACH. John Darnell.
For description see under Near Eastern Languages & Civilizations.

ARCG 163b/CPSC 209b/HUMS 338b/NELC 163b^G, FROM PICTOGRAPH TO
PIXEL: CHANGING WAYS OF HUMAN COMMUNICATION.
John Darnell, Michael Fischer, Beatrice Gruendler.
For description see under Near Eastern Languages & Civilizations.

ARCG 239a/HSAR 239a^G/HUMS 104a/NELC 104a, ART OF THE ANCIENT
NEAR EAST AND AEGEAN. Karen Foster.
For description see under History of Art.

ARCG 244b^G/NELC 109b^G, THE AGE OF AKHENATON. John Darnell,
Karen Foster.
For description see under Near Eastern Languages & Civilizations.

ADVANCED RESEARCH COURSES

★ARCG 471a *and* 472b, DIRECTED READING AND RESEARCH IN
ARCHAEOLOGY. Consult the director of undergraduate studies.
HTBA II or III; Not CR/D/F (○)

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 491a *or* b, SENIOR RESEARCH PROJECT IN ARCHAEOLOGY.
Members of the Council on Archaeological Studies.
HTBA II or III; Not CR/D/F (○)

Required of all students majoring in Archaeological Studies. Supervised inves-
tigation 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.

OTHER COURSES RELEVANT TO ARCHAEOLOGICAL STUDIES

ASTR 135b, ARCHAEOASTRONOMY. Michael Faison.

HSAR 243b/CLCV 160b, GREEK ART AND ARCHITECTURE.

Milette Gaifman.

For description see under History of Art.

ARCHITECTURE

Director of undergraduate studies: Sophia Gruzdzys, 322 A&A, 432-8325,
sophia.gruzdzys@yale.edu

MEMBERS OF THE SCHOOL OF ARCHITECTURE TEACHING IN YALE COLLEGE

PROFESSORS

James Axley, Kent Bloomer (*Adjunct*), Turner Brooks (*Adjunct*), Alexander Garvin (*Adjunct*), Steven Harris (*Adjunct*), Dolores Hayden, Alan Plattus, Alexander Purves, Vincent Scully (*Emeritus*)

ASSOCIATE PROFESSORS

Keller Easterling, Hilary Sample

ASSISTANT PROFESSORS

Eeva-Liisa Pelkonen, Emmanuel Petit (*Adjunct*)

LECTURERS

Karla Britton, Susan Farricielli, Elihu Rubin

CRITICS

Victor Agran, Deborah Gans, Sophia Gruzdzys, Adam Hopfner, Amy Lelyveld, Bimal Mendis, Edward Parker, Dean Sakamoto

YALE COLLEGE FACULTY

PROFESSOR

Karsten Harries (*Philosophy*)

Application to the Architecture major. Yale College students must apply to enter the major during the spring term of their sophomore year, after taking ARCH 150a, 152b, and 154b. An application to the major must be submitted to the office of the director of undergraduate studies no later than 4 P.M. on April 2, 2007, in Room 322 A&A (third floor). Applications must include the following information: name, address, telephone number, courses related to architecture already taken, and a statement of purpose. Portfolios representative of course work for ARCH 150a, 152b, and 154b must also be submitted for review as part of the application process by May 1, 2007. Applicants must stipulate their first, second, and third choices for the three concentrations (tracks) in the major. The tracks, described below, are architecture and design; architecture: history, theory, and criticism; and architecture and urban studies. Although qualified students and students who have fulfilled the prerequisites may be admitted into the Architecture major, they will not necessarily be admitted to their first choice for one of the three tracks. Applicants will be notified in writing regarding acceptance to the major by Tuesday, May 15, 2007. *The major is limited to a maximum of fifty students inclusive of both junior and senior years.*

Introduction to architecture. Introductory courses are ARCH 150a, 152b, and 154b. They are open to all Yale College students except freshmen, and *are required for those interested in the Architecture major prior to application.*

The standard major. The purpose of the undergraduate major is to include the study of architecture within the broader context of a liberal arts education. The curriculum includes work in design, in history, theory, and criticism of architecture, and in urban studies, and leads to a bachelor of arts degree. Students are prepared for advanced study in architecture, art, history of art, city planning and development, environmental studies, the social sciences, or public affairs.

The *design track* introduces the complex process involved in solving spatial and programmatic problems and learning to communicate through plans, sections, and elevations. Slide lectures and individual presentations culminate in a senior project design studio or in an independent senior project. The *history, theory, and criticism track* is intended to establish a broader historical and intellectual framework for the study of architecture. An interdisciplinary approach is encouraged through additional courses taken in various fields of humanities and possibly social sciences. Normally these interdisciplinary courses address subjects closely linked to architectural history, theory, and criticism. Such courses may include archaeology, history of religion, aesthetics, philosophy, or visual culture. Permission of the director of undergraduate studies is required if the courses fall outside of the specified course of studies. During their senior year students complete a written senior essay on a topic approved by the faculty. History, theory, and criticism majors are urged to study a foreign language, and a term abroad is encouraged. The *urban studies track* encourages a broad, interdisciplinary investigation of the complex forces that shape the urban physical environment. The sequence of courses culminates in a senior essay that synthesizes course work, and either develops analysis and planning proposals for a specific site or furthers an individual research agenda.

Requirements of the major. Students majoring in Architecture are required to take sixteen course credits. Majors are expected to take a core of eight course credits and to base their studies in one of three areas of concentration: (1) architecture and design, (2) architecture: history, theory, and criticism, or (3) architecture and urban studies.

The core of courses required for all concentrations includes three prerequisites: ARCH 150a, 152b, and 154b. The remaining five course credits are taken after the student is accepted into the major. The core courses for the design track and for the history, theory, and criticism track are ARCH 249a, 250a, 251b, and one from HSAR 112a, 115b, 209b, <221b>, or PHIL 334a. The core courses for the urban studies track are ARCH 249a, 250a, 251b, and one from ARCH <385b> or 902b. *All majors are required to take ARCH 249a and 250a in the fall of their junior year.*

For the *architecture and design* concentration, the following additional courses are required:

1. ARCH 450a
2. One term course of basic science from PHYS 150a, 180a, 200a, or ARCH 161b, or a calculus course
3. Two terms of art history from History of Art including one survey course and one architecture history course, approved by the director of undergraduate studies (before senior year)
4. Two electives chosen from the following: ARCH 162b, 340a, <342b>; CLCV 205a; STCY 176b; or any introductory studio art course approved by the director of undergraduate studies
5. ARCH 494b (the senior requirement)

For the *history, theory, and criticism* concentration, the following additional courses are required:

1. One course from ARCH 340a, 902b, STCY 176b
2. One basic science course from PHYS 150a, 180a, 200a, or ARCH 161b, or a calculus course
3. Two courses in art history, chosen from one survey course, one architecture history course, and one optional elective with the approval of the director of undergraduate studies
4. Two theory courses, ARCH 162b and 751a, or chosen from courses in Anthropology or Classical Languages and Literatures (classical civilization, classical art and archaeology, or history of Greece and Rome), with the approval of the director of undergraduate studies
5. ARCH 490a and 491b (the senior requirement)

For the *architecture and urban studies* concentration, the following additional courses are required:

1. One course from ARCH 340a or STCY 176b
2. One course in political science, economics, statistics, or PHYS 150a, 180a, 200a, ARCH 161b, or a calculus course
3. Four electives from ARCH 162b, or from American Studies, Anthropology, Classical Languages and Literatures (classical civilization or history of Greece and Rome), Environmental Studies, Ethics, Politics, and Economics, History, History of Art, or Sociology
4. ARCH 495a and 491b (the senior requirement)

Digital media orientation. All Architecture majors are required to complete an orientation session in digital media workshop and materials laboratory. Students accepted into the major are required to complete this session at the beginning of their junior year. Access to the Digital Media Center for the Arts will not be allowed until the orientation has been completed. Questions should be addressed to the director of digital media, John Eberhart (432-9655, john.eberhart@yale.edu).

Library orientation. The Architecture department requires all majors to complete a ninety-minute introductory library research session. Students must take this session during the first term of their junior year. Failure to complete the required orientation will preclude completion of the major. Students may offer no substitutions for this orientation. Students should register on the Web at www.library.yale.edu/art/instruction/classesindex06.html. Questions should be addressed to the director of undergraduate studies.

Shop orientation. The Architecture department requires all majors to complete a three-hour woodshop and materials lab orientation session. Students accepted into the major are required to complete this session within the first three weeks of their junior year. Access to the woodshop and materials lab will not be allowed until the orientation has been completed. Questions should be addressed to the director of undergraduate studies or to Skip Stander (432-7234, skip.stander@yale.edu), the shop coordinator.

Senior requirement. Seniors in the design track take the senior project design studio (ARCH 494b). Majors in the design track may petition the director of undergraduate studies for permission to take ARCH 491b instead of 494b. Seniors in the history, theory, and criticism track take ARCH 490a, the senior research colloquium, and 491b, the senior project. Seniors in the urban studies track take ARCH 495a, the senior research colloquium in urban studies, and 491b, the senior project. Proposals for senior projects and essays are submitted in the fall term for review and approval by the senior project

coordinator, and then distributed to faculty members for review before the faculty members agree to become senior advisers. Failure to meet deadlines will cause a student to be assigned to an advanced-level seminar or studio course to be arranged in conjunction with the director of undergraduate studies. In the spring term, all seniors must submit a portfolio of their work to the office of the director of undergraduate studies by Tuesday, May 8, 2007. For all majors, this portfolio must be representative of the student's design work including prerequisites and the senior project. History, theory, and criticism majors and urban studies majors must also include a copy of the senior essay and other appropriate texts.

Studio courses in architecture. Reviews may require more class time than that announced in course descriptions.

REQUIREMENTS OF THE MAJOR

Prerequisites: ARCH 150a, 152b, 154b

Number of courses: Sixteen course credits including the prerequisites and the senior requirement

Specific courses required: *All tracks*—ARCH 249a, 250a (in the fall of the junior year), 251b; *architecture and design*—ARCH 450a; one course from HSAR 112a, 115b, 209b, <221b>, or PHIL 334a; one course from PHYS 150a, 180a, 200a, ARCH 161b, or a calculus course; *history, theory, and criticism*—one course from HSAR 112a, 115b, 209b, <221b>, or PHIL 334a; one course from ARCH 340a, 902b, STCY 176b; one course from PHYS 150a, 180a, 200a, ARCH 161b, or a calculus course; *architecture and urban studies*—one course from ARCH <385b>, 902b; one course from ARCH 340a, STCY 176b

Distribution of courses: *Architecture and design*—two courses in art history as specified; two electives approved by DUS; *history, theory, and criticism*—two or three courses in art history as specified; two theory courses as specified; *architecture and urban studies*—one course in political science, economics, statistics, architecture, physics, or calculus as specified; four electives approved by DUS

Senior requirement: *Architecture and design*—ARCH 494b; *history, theory, and criticism*—ARCH 490a and 491b; *architecture and urban studies*—ARCH 495a and 491b

★ARCH 150a, INTRODUCTION TO ARCHITECTURE. Alexander Purves.
MWF 9.30-10.20 II Hu (○)

Lectures and readings in the language of architecture. Architectural vocabulary, elements, functions, and ideals. Notebooks and projects required. *Not open to freshmen.*

★ARCH 152b, INTRODUCTION TO SPATIAL LANGUAGE IN DESIGN.
Kent Bloomer.

T 1.30-3.20 II Meets RP (○)

Introduction to properties of design, especially architectural design, that can communicate such cultural ideas as memories, imaginations, social and mythic hierarchies, and particularities of location. *Not open to freshmen.*

★ARCH 154b, DRAWING ARCHITECTURE. Sophia Gruzdzys.
W 2.30-4.20 II (○)

Representation of architecture introduced through freehand drawing. The principal concepts of volume, depth, and surface joined to examination of an architectural subject. Rigorous drawing to develop the habit of representing ideas and creating perception. *Not open to freshmen.*

★ARCH 161b, INTRODUCTION TO STRUCTURES. Staff.
TTh 11.30-12.45, 1 HTBA II or IV; Not CR/D/F QR, Sc (24)

Basic principles governing the behavior of building structures. Developments in structural form combined with the study of force systems, laws of statics, and mechanics of materials and members and their application to a variety of structural systems. *Prerequisites: trigonometry and some knowledge of calculus. Enrollment limited to 30. For the Class of 2008 and previous classes, counts toward the natural science requirement.*

★ARCH 162b, MATERIALS IN ARCHITECTURE. Susan Farricielli.

F 10.30-11.20; lab F 12-3 II; Not CR/D/F (o)

Science and technology of basic building materials studied together with historic and current design applications. Skills and processes required to create, shape, and connect materials experienced through hands-on projects. Technical notebooks, drawings, design and build exercises, and projects required. *Enrollment limited to 20.*

ARCH 249a, THE ANALYTIC MODEL. Emmanuel Petit.

TTh 11.30-12.45 II; Not CR/D/F (o)

Introduction to the history and practice of architectural analysis. Students produce drawings, models, and diagrams of significant architectural works in order to facilitate a comprehensive understanding of specific architects, buildings, and contexts. Description of a variety of approaches and the reciprocal relationship between analysis and design. *To be taken in the fall term of junior year. Required for all juniors entering the major. Enrollment limited to Architecture majors.*

★ARCH 250a, METHODS AND FORM IN ARCHITECTURE I. Victor Agran, Amy Lelyveld.

MW 1-2.15, 1 HTBA II; Not CR/D/F 1½ C Credits (o)

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. Enrollment limited to Architecture majors.*

★ARCH 251b, METHODS AND FORM IN ARCHITECTURE II.

Sophia Gruzdy, Dean Sakamoto.

MW 12.30-2.20 II; Not CR/D/F 1½ C Credits (o)

Continuation of ARCH 250a.

★ARCH 343b, CONSTRUCTED ENVIRONMENTS. Hilary Sample.

T 9.30-11.20 II; Not CR/D/F Hu (o)

Examination of the roles of environment and technology in architecture, and their capacity to shape built form. Exploration of visionary projects and built works of architecture in different countries and regions around the world. Case studies focus on the production of new environments in architecture.

★ARCH 344a, URBAN LIFE AND LANDSCAPE. Elihu Rubin.

T 1.30-3.20 II; Not CR/D/F Hu (o)

The built environment examined as a text tool for constructing narratives of human activity, aspiration, and struggle. Methods of looking at the ordinary landscape of the twentieth-century American city: pulling apart its historical layers, examining social meanings, and observing its function today. Modes of inquiry include video, public presentations, field trips, photography, and writing.

★ARCH 450a, SENIOR STUDIO. Turner Brooks, Adam Hopfner.

MW 1-2.15, 1 HTBA II; Not CR/D/F 1½ C Credits (o)

Advanced problems with emphasis on architectural implications of contemporary cultural issues. Exploration of the complex relationship among space, materials,

and program. Emphasis on the development of representations—drawings and models—that effectively communicate architectural ideas. Exercises required. *To be taken before ARCH 491b or 494b. Enrollment limited to Architecture majors.*

★ARCH 471a or b, INDIVIDUAL TUTORIAL. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

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.

★ARCH 490a, SENIOR RESEARCH COLLOQUIUM. Karla Britton.

3 HTBA II; Not CR/D/F (o)

Examination of the skills, topics, and preparation required for the research that students in the history, theory, and criticism track undertake for their senior project. Under the guidance of the instructor and members of the Architecture faculty and visitors, students present and define their proposals, complete basic readings, and seek criticism of individual research agendas.

★ARCH 491b, SENIOR PROJECT. Staff.

MW 1-2.15 II; Not CR/D/F (o)

An essay or project in the student's area of concentration. Students in the history, theory, and criticism track or in the urban studies track pursue independent research with an adviser. This project must terminate in a senior essay. Students in the design track may also petition to pursue an independent design project with an adviser for a total of 1.5 credits.

★ARCH 494b, SENIOR PROJECT DESIGN STUDIO. Steven Harris, Bimal Mendis.

MW 12.30-2.20 II; Not CR/D/F 1½ C Credits (o)

Individual design investigations, focusing on independence and precision in the deployment of design ideas. Reliance on visual and nonverbal presentations. Development of a three-dimensional component, such as large-scale mock details, or other visual means of presentation, which might include photography, film, video, or interactive media. Examination of the skills, topics, and preparation to support design research.

★ARCH 495a, SENIOR RESEARCH COLLOQUIUM FOR URBAN STUDIES.

Karla Britton.

Th 11.30-12.45, 2 HTBA II; Not CR/D/F (o)

Development of frameworks and urban strategies for senior projects and/or papers through identification and elaboration of a research topic that synthesizes the interdisciplinary course work of the urban studies curriculum with individual interests. Requirements include proposal drafts, case study research, analyses, and graphic illustrations.

COURSES RELEVANT TO THE MAJOR IN OTHER DEPARTMENTS

Architecture and Urban Studies Track

CLCV 205a/HIST 205a, INTRODUCTION TO ANCIENT GREEK HISTORY.

Donald Kagan.

For description see under Classical Languages & Literatures.

CLCV 206a/HIST 217a, INTRODUCTION TO ROMAN HISTORY: THE REPUBLIC. William Metcalf.
For description see under Classical Languages & Literatures.

Architecture and Design Track and History, Theory, and Criticism Track
STCY 176b, INTRODUCTION TO THE STUDY OF THE CITY.
Alexander Garvin.

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 open to the Credit/D/Fail option. Students are chosen on the basis of their previous course work and previous performance. Suitable courses include:

- ★ARCH 751a, ORNAMENT THEORY AND DESIGN. Kent Bloomer.
- ★ARCH 902b, INTRODUCTION TO URBAN DESIGN. Alan Plattus.

ART

*(DRAWING, FILMMAKING, GRAPHIC DESIGN, PAINTING,
PHOTOGRAPHY, PRINTMAKING, AND SCULPTURE)*

Director of undergraduate studies: Henk van Assen, 122 GREEN, 432-2608,
art.dus@yale.edu

MEMBERS OF THE SCHOOL OF ART TEACHING IN YALE COLLEGE

PROFESSORS

Rochelle Feinstein, Richard Lytle (*Emeritus*), Samuel Messer (*Adjunct*), Tod Papageorge, Robert Reed, Jr., Michael Roemer (*Adjunct*), Jessica Stockholder

ASSISTANT PROFESSORS

Clint Jukkala, Sarah Oppenheimer, Joe Scanlan

SENIOR CRITICS

Gregory Crewdson, John Gambell

CRITICS

Pamela Hovland, Sandra Luckow, Henk van Assen

LECTURERS

Jonathan Andrews, Alice Chung, Jon Conner, Daphne Fitzpatrick, Sarah Johnson, Lisa Kereszi, John Lehr, Dan Michaelson, Christopher Miner, Mamiko Otsubo, Norman Paris, John Pilson, Phillip Pisciotta, Mark Steinmetz, Scott Stowell, Jeffrey Stuker, Robert Taplin

The program in Art offers courses in a variety of media that provide a background in visual arts as part of a liberal education and as a preparation for graduate study and professional work.

All courses in Art require the instructor's permission. In cases where student demand for entry into a course is greater than can be accommodated, priority will be given to School of Art students and declared Art majors first, intended Art majors second, other full-time students third, and then any others. The director of undergraduate studies and members of the Art

faculty will be present for counseling on Tuesday, September 5, adjacent to the School of Art Gallery at Holcombe T. Green, Jr., Hall, 1156 Chapel Street, between 10.30 A.M. and 2 P.M. Students seeking advice about course selection or the program in Art should come at that time. Others wishing to elect Art courses should go to the first meeting of the class, when each instructor will determine the class enrollment. Classes begin on Wednesday, September 6. For courses beginning in the spring term, counseling will be held on Tuesday, January 16, 2007, adjacent to the School of Art Gallery, during the same hours; Art classes begin on Wednesday, January 17, 2007. All Art majors are required to register with the director of undergraduate studies at the beginning of each term at the time and place listed above in order to be enrolled or to continue in the major.

The prerequisites for acceptance into the major are a sophomore review, which is an evaluation of work from studio courses taken at the Yale School of Art, and five terms of introductory (100-level) courses. Three introductory courses must have been taken by the time of the sophomore review. Basic Drawing (ART 114a or b) and Visual Thinking (ART 111a or b) are mandatory. At the time of the review, the student should be enrolled in the fourth and, ideally, the fifth 100-level courses. In exceptional cases, arrangements for a special review during the junior year may be made with the director of undergraduate studies.

Requirements of the major. The Art major requires fourteen course credits, including the following: (1) five prerequisite courses at the 100 level (at least one term must be Basic Drawing, and one must be Visual Thinking); (2) five courses at the 200 level or above; (3) the Junior Seminar (ART 395b); (4) the Senior Project (ART 495a or b); and (5) two term courses in History of Art. Suggested program guidelines and specific requirements for the various areas of concentration are available from the director of undergraduate studies.

Undergraduate majors concentrating in painting are eligible for the Ellen Battell Stoeckel Fellowship for study at the Yale University Summer School of Music and Art at 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 four course credits for work successfully completed. These credits cannot be used toward the requirements of the Art major; however, they may be counted toward the 36-course-credit graduation requirement.

Course credits in studio art earned at other institutions may be applied toward the requirements of the major, at the discretion of the director of undergraduate studies and subject to a faculty review process.

All Art majors are charged a facilities access and user fee of \$200 per term. Additional materials fees are levied in certain courses. The amount of the materials fee appears at the end of the course description.

REQUIREMENTS OF THE MAJOR

Prerequisites: Favorable faculty review of work done in studio courses prior to the end of sophomore year; ART 111a or b and 114a or b; three other 100-level term courses

Number of courses: Nine term courses beyond prerequisites (including the senior project)

Specific course required: ART 395b

Distribution of courses: Five upper-level courses; two courses in History of Art

Senior requirement: Senior project (ART 495a or b)

Unless otherwise indicated, spring-term classes in Art begin on Wednesday, January 17, 2007.

INTRODUCTORY COURSES

***ART 111a or b, VISUAL THINKING.** Sarah Oppenheimer and staff.

II; Not CR/D/F Hu Meets RP (o)
111a: TTh 3.30-5.20 111b: MW 10.30-12.20

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 and popular culture, as well as art. Projects address all four major concentrations (graphic design, printing/printmaking, photography, and sculpture). Materials fee: \$25. *No prior drawing experience necessary. Required for all Art majors.*

***ART 114a or b, BASIC DRAWING.** Clint Jukkala, Robert Reed, Jr., and staff.

II; Not CR/D/F Hu Meets RP (o)
114a-1: MW 8.30-10.20 114b-1: MW 8.30-10.20
114a-2: MW 3.30-5.20 114b-2: TTh 10.30-12.20
114a-3: TTh 3.30-5.20 114b-3: TTh 1.30-3.20

An introduction to drawing, emphasizing pictorial syntax and the articulation of space. Class work is based on observational study. Assigned projects address fundamental technical and conceptual problems suggested by historical and recent artistic practice. Materials fee: \$25. *Required for all Art majors.*

***ART 116a, COLOR.** Richard Lytle.

TTh 1.30-3.20 II; Not CR/D/F Hu Meets RP (o)

Study of the interaction of color, ranging from fundamental problem solving to individually initiated expression. The collage process is used for most class assignments.

***ART 120a or b, INTRODUCTORY SCULPTURE.** Robert Taplin [F],

Mamiko Otsubo [Sp].

MW 1.30-3.20 II; Not CR/D/F Hu Meets RP (o)

Exploration of the range of sculpture. Topics include current genres and issues in contemporary sculpture. Attention to understanding and articulating formal structure, both physical and conceptual. Group discussion complements the studio work. The shops and studio are available during days and evenings throughout the week. Materials fee: \$75. *Enrollment limited to 12.*

***ART 122a, MOLD MAKING AND CASTING.** Jon Conner.

T 3.30-5.20, 2 HTBA II; Not CR/D/F Hu Meets RP (o)

Instruction in the practical aspects of mold making and casting in a variety of materials and techniques. Inquiry into the ways in which casting has been used in sculpture. Methods include waste molds, plaster piece molds, body casts, and rubber molds. Casting materials such as wax, concrete, and plastics are used. Materials fee: \$75.

***ART 130a or b, PAINTING BASICS.** Clint Jukkala, Sarah Oppenheimer.

II; Not CR/D/F Hu Meets RP (o)
130a: TTh 1.30-3.20 130b: TTh 3.30-5.20

A one-term introduction to basic painting issues, including the conventions of pictorial space and the language of color. Class assignments and individual projects explore technical, conceptual, and historical issues central to the language of painting. Materials fee: \$75. *Intended for non-Art majors and Art majors outside the painting concentration. Students who intend to pursue the painting concentration or take multiple courses in painting should take ART 230a, 231b instead of this course.*

★ART 132a or b, INTRODUCTORY GRAPHIC DESIGN. Dan Michaelson, Henk van Assen, and staff.

II; Not CR/D/F Hu Meets RP (o)
 132a-1: TTh 10.30-12.20 132b: TTh 1.30-3.20
 132a-2: MW 3.30-5.20

A studio introduction to visual communication with an emphasis on principles of the visual organization of design elements. Topics include shape, color, and communication; visual hierarchy; word/image relationships and integration; typography; symbol design; and persuasion. Development of a verbal and visual vocabulary to describe, generate, and evaluate basic graphic design objects from a conceptual, visual, and technological point of view. Materials fee: \$150.

★ART 136a or b, SMALL-CAMERA FILM PHOTOGRAPHY. Lisa Kereszi.

II; Not CR/D/F Hu Meets RP (o)
 136a-1: MW 10.30-12.20 136b-1: WF 10.30-12.20
 136a-2: TTh 8.30-10.20 136b-2: MW 8.30-10.20
 136a-3: TTh 10.30-12.20 136b-3: TTh 8.30-10.20

A course in black-and-white photography concentrating on the use of 35mm cameras. Introductory topics include the lensless techniques of photograms and pin-hole 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.

★ART 137a or b, MEDIUM-FORMAT FILM PHOTOGRAPHY. Lisa Kereszi.

II; Not CR/D/F Hu Meets RP (o)
 137a: WF 3.30-5.20 137b: MW 10.30-12.20

A class in black-and-white photography extending the concerns of ART 136a or b. Introduction to the use of medium-format cameras. Specialized topics include night photography, the use of flash, developing roll film, basic digital scanning, and grayscale printing techniques. Survey of the rich tradition of handheld photography and the production of artists such as Lartigue, Brassai, Diane Arbus, Lee Friedlander, and Robert Adams. *Prerequisite*: ART 136a or b or equivalent.

★ART 138a, DIGITAL PHOTOGRAPHY. John Lehr.

TTh 1.30-3.20 II; Not CR/D/F Hu Meets RP (o)

Exploration of the transition of photographic processes and techniques into digital formats. Students produce original work using a digital camera. Introduction to a range of tools including color correction, layers, making selections, and inkjet printing. Assignments include weekly critiques and a final project. Materials fee: \$150.

★ART 141a or b, THE LANGUAGE OF FILM WORKSHOP.

Michael Roemer [F], Sandra Luckow [Sp].

M 1.30-5 II; Not CR/D/F Meets RP (o)

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. Materials fee: \$150. *Priority to majors in Art and Film Studies. Prerequisite for Film Studies majors*: FILM 150a.

★ART 145b, INTRODUCTION TO DIGITAL VIDEO. Christopher Miner.

MW 10.30-12.20 II; Not CR/D/F Meets RP (o)

Introduction to the basic tools of digital video production. Topics include DV camera operation, sound, and Mac-based editing with Final Cut Pro software. Individual and collaborative assignments explore the visual language and production challenges of DV. Emphasis on the spatial and visual aspects of the medium rather than the narrative. Screenings of experimental film, video art, and DV feature films. Materials fee: \$150. *Enrollment limited to 12.*

★ART 210a and 211b, SCULPTURE AS OBJECT. Daphne Fitzpatrick.

TTh 10.30-12.20 II; Not CR/D/F Meets RP (o)

Introduction to concepts of design and form in sculpture. Exploration of the use of wood, including both modern and traditional methods of carving, lamination, assemblage, and finishing. Fundamentals of metal processes such as welding, cutting, grinding, and finishing may be explored on a limited basis. Group discussion complements the studio work. The shops and studio are available during days and evenings throughout the week. Materials fee: \$75. *Enrollment limited to 12.*

INTERMEDIATE COURSES

★ART 223a and 224b, FIGURE DRAWING. Samuel Messer and staff.

II; Not CR/D/F Meets RP (o)

223a: TTh 10.30-12.20

223b: MW 3.30-5.20

A study of the human figure, using a range of approaches. Emphasis on observation, anatomy, and spatial structure. Historical examples from cave painting to contemporary art.

★ART 230a and 231b, INTRODUCTORY PAINTING. Robert Reed, Jr.

MWF 10.30-12.20 II; Not CR/D/F Meets RP (o)

An introduction to concepts and techniques in painting, through observational study with emphasis on the language of color and the articulation of space. Study of pictorial syntax in historical painting; mastery of materials and techniques. Materials fee: \$75 per term. *Enrollment limited to 15. Intended for Art majors in the painting concentration. Prerequisite or corequisite: ART 114a or b.*

★ART 264a, TYPOGRAPHY IN GRAPHIC DESIGN I. Alice Chung and staff.

MW 10.30-12.20 II; Not CR/D/F Meets RP (o)

An intermediate course concentrating on the fundamentals of typography, with emphasis on the way 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. Materials fee: \$150. *Prerequisite: ART 132a or b.*

★ART 265b, TYPOGRAPHY IN GRAPHIC DESIGN II. Henk van Assen.

TTh 10.30-12.20 II; Not CR/D/F Meets RP (o)

Continued studies in typography, incorporating more advanced and complex problems. Emphasis on organization, hierarchy, and problem solving in both print and motion graphics. Relevant issues of design history and theory discussed in conjunction with studio assignments. Materials fee: \$150. *Prerequisite: ART 264a.*

★ART 330a and 331b, INTERMEDIATE PAINTING. Clint Jukkala and staff.

MWF 1.30-3.20 II; Not CR/D/F Meets RP (o)

Further exploration of concepts and techniques in painting, emphasizing the individuation of students' pictorial language. Class investigations encompass various approaches to representational and abstract painting. Studio work is complemented by in-depth discussion of issues in historical and contemporary painting. Materials fee: \$150 per term. *Enrollment limited to 15. Prerequisites: ART 230a and 231b or, with permission of instructor, ART 130a or b and 114a or b.*

★ART 341a or b, INTERMEDIATE FILM WORKSHOP. Michael Roemer [F], Sandra Luckow [Sp].

T 11.30-1.20 II; Not CR/D/F Meets RP (○)

In the first half of the term, students write, stage, and edit three dramatic scenes, each four to five minutes long. During the second half they create somewhat longer projects. Focus on writing short dramatic scenes with a concrete understanding of the way they will be acted, directed, and photographed. Materials fee: \$150. *Enrollment limited to 8. Priority to majors in Art and in Film Studies. Prerequisites: ART 141a or b and FILM 150a.*

★ART 345a, INTERMEDIATE SCULPTURE. Daphne Fitzpatrick.

MW 1.30-3.20 II; Not CR/D/F Meets RP (○)

Further investigation into the history of sculpture and questions pertinent to contemporary art. Exploration of new techniques and materials along with refinement of familiar skills. Focus on helping students become self-directed in their work. Individual and group discussion and visits to museums and galleries. Materials fee: \$75 per term. *Enrollment limited to 12. Prerequisite: ART 120a or b, or 210a and 211b, or equivalent, or permission of instructor.*

★ART 346b, SCULPTURE AS IMAGE. Joe Scanlan.

MW 1.30-3.20 II; Not CR/D/F Meets RP (○)

Investigation of how the elements of basic drawing—observation, hand-eye coordination, markmaking, shading, and touch—can be expanded into three-dimensional space. Emphasis on broad technical skill, material experimentation, and spatial perception. Materials fee: \$75 per term. *Enrollment limited to 12. Prerequisites: ART 114a or b and one additional introductory art course.*

★ART 355b, SILKSCREEN PRINTING. Norman Paris.

TThF 10.30-12.20 II; Not CR/D/F Hu Meets RP (○)

Presentation of a range of techniques in silkscreen and photo-silkscreen, from hand-cut stencils through four-color photo prints. Students create individual projects in a workshop environment. Materials fee: \$150. *Prerequisite: ART 114a or b or equivalent.*

★ART 356a, PRINTMAKING. Norman Paris.

TThF 3.30-5.20 II; Not CR/D/F Meets RP (○)

Instruction in a diverse range of printmaking media. Students develop their work through linocut, woodcut, collograph, drypoint, and etching. Methods in both color and black and white. Materials fee: \$150. *Prerequisite: ART 114a or b or equivalent.*

★ART 359b, LITHOGRAPHY. Norman Paris.

TThF 3.30-5.20 II; Not CR/D/F Meets RP (○)

Basic techniques of stone and plate lithography. Students create prints utilizing drawing and/or photo-based imagery. Materials fee: \$150. *Prerequisite: ART 114a or b or equivalent. Recommended preparation: basic knowledge of Adobe Photoshop.*

★ART 367a, INTERMEDIATE GRAPHIC DESIGN. Alice Chung.

MW 1.30-3.20 II; Not CR/D/F Meets RP (○)

The increase and refinement of design skills as tools for effective visual communication. Concentration on issues of identity, branding, and design systems to help establish conceptual and formal consistency for multiple items, both two- and three-dimensional, within a design program. Materials fee: \$150. *Prerequisite: ART 132a or b.*

★ART 377a, COLOR PHOTOGRAPHY. Phillip Pisciotta.

MW 1.30-3.20 II; Not CR/D/F Meets RP (○)

Examination of the unique aesthetic and technical challenges posed by color photography. Introduction to C-printing, employing the principles of color balance, and to the basic procedures of digital color printing. Student work is discussed in regular critiques. Survey of color photography since the 1960s, from Helen Levitt's street photographs to the work of contemporary artists such as William Eggleston, Stephen Shore, Philip-Lorca DiCorcia, and Gregory Crewdson. *Prerequisites:* ART 137a or b and, for those intending to photograph with a view camera, ART 379b.

***ART 379b, VIEW CAMERA PHOTOGRAPHY.** John Lehr.

TTh 1.30-3.20 II; Not CR/D/F Meets RP (○)

A concentrated study of the operations required to employ stand cameras, or view cameras, effectively. Student work is discussed in regular critiques. Review of a photographic tradition practiced since the invention of the medium and employed in highly regarded photography being produced today. Introduction to various methods of contact printing, including platinum printing and other alternative processes. Students are encouraged to employ whatever digital training they have previously had. *Prerequisite:* ART 137a or b, or ART 136a or b and permission of instructor, or, for those intending to photograph in color, ART 377a.

***ART 395b, JUNIOR SEMINAR.** Jeffrey Stuker.

Th 3.30-5.20 II; Not CR/D/F Meets RP (○)

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. *Required for all Art majors.*

ADVANCED COURSES

***ART 401a and 402b, ADVANCED PHOTOGRAPHY.** Lisa Kereszi.

II; Not CR/D/F Meets RP (○)

401a: WF 1.30-3.20

402b: TTh 10.30-12.20

An exploration of the practice of photography, either analog or digital. Student work is discussed in regular critiques, and lectures are framed around the aesthetic concerns that the work provokes. *Prerequisites:* ART 377a or 379b, and, for those working digitally, ART 138a. *Required for Art majors concentrating in photography.*

***ART 430a and 431b, ADVANCED PAINTING.** Samuel Messer [F],

Rochelle Feinstein [Sp].

MWF 1.30-3.20 II; Not CR/D/F Meets RP (○)

Development of individual themes through independent studio practice and projects. Studio work and discussion of pertinent topics in historical and contemporary painting. Senior Art majors in the painting concentration are encouraged to take ART 431b in conjunction with ART 495b. May be taken more than once. Materials fee: \$75. *Prerequisite:* ART 330a and 331b.

***ART 442/*FILM 483, FICTION FILM WORKSHOP.** Jonathan Andrews.

M 9.30-12.20 II; Not CR/D/F (○)

A yearlong workshop designed primarily for Art and Film Studies majors 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. Materials fee: \$150. *Enrollment limited to 8. Priority to majors in Art and in Film Studies. Prerequisite:* ART 341a or b.

***ART 446b^G, ADVANCED SCULPTURE.** Joe Scanlan.

MW 1.30-3.20 II; Not CR/D/F Meets RP (○)

Self-directed work in sculpture. Group discussion of student projects, with readings, slides, and videos that address current art practices. Regular individual and group critiques. Materials fee: \$75. *Enrollment limited to 12. Prerequisites: ART 345a and 346b, or equivalents, or permission of instructor.*

★ART 448a, SCULPTURE AND QUESTIONS OF DEFINITION.

Jessica Stockholder.

MW 1.30-3.20 II; Not CR/D/F Meets RP (o)

A studio seminar that considers the nature of sculpture. The conventional definition of sculpture (being concerned with volume and mass in space) scrutinized in view of artwork that falls out of other categories into “sculpture.” Through the work of students in the class, exploration of ways that the conventional categories of sculpture, painting, graphic design, and photography generate meaning. Additional topics include art’s responsiveness to its context and questions of authorship, process, and vulnerability.

★ART 468a and 469b, ADVANCED GRAPHIC DESIGN. Scott Stowell [F], Dan Michaelson [Sp].

F 1.30-5.20 II; Not CR/D/F Meets RP (o)

Continued study of design in communication, combining theoretical studies with applied problems in multimedia design. Materials fee: \$150 per term. *Prerequisite: ART 265b.*

★ART 471a and 472b, INDEPENDENT PROJECTS. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F Meets RP (o)

A course for 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. Henk van Assen.

II; Not CR/D/F Meets RP (o)

495a: 2 HTBA

495b: Th 3.30-5.20

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.

For courses in art history see under History of Art.

ASTRONOMY

Director of undergraduate studies: Charles Bailyn, 270 JWG, 432-3022, charles.bailyn@yale.edu

FACULTY OF THE DEPARTMENT OF ASTRONOMY

PROFESSORS

Charles Bailyn, Sarbani Basu, Paolo Coppi, Pierre Demarque (*Emeritus*), Jeffrey Kenney (*Chair*), Richard Larson, Sabatino Sofia, William van Altena (*Emeritus*), Robert Zinn

ASSOCIATE PROFESSORS

Priya Natarajan, Pieter van Dokkum

LECTURERS

Gordon Drukier, Michael Faison

The Department of Astronomy offers courses both for the nonscientist interested in learning about modern astronomy and for the student wishing to prepare for graduate work in astronomy or a related science. The department offers two degree programs: the B.A. degree program in Astronomy and the B.S. degree program in Astronomy and Physics.

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, including ASTR 110a, 120b, and 130a, are intended for students who do not intend to major in the sciences but who desire a broad, nontechnical introduction to astronomy. These courses have no prerequisites, and a student may elect any or all of them and take them in any order. Courses with numbers between 150 and 199, including ASTR 155a, 160b, and 170a, are also intended for students who do not intend to major in the sciences, but they provide a more in-depth treatment and assume a somewhat stronger high school science background. ASTR 155a provides a hands-on introduction to astronomical observing, while ASTR 160b and 170a provide an introduction to topics in modern astrophysics and cosmology. For students with good preparation in high school mathematics and physics, ASTR 210b and 220a provide a more intensive introduction to astronomy with emphasis on topics of current interest, and ASTR 255a provides a more quantitative introduction to astronomical research techniques. These courses may be taken independently of each other.

Courses numbered 300 and above are open to students at the sophomore and higher levels who already have an elementary acquaintance with astronomy, and mathematics and physics as described in the course prerequisites. For advice about astronomy courses, students should consult the director of undergraduate studies.

In addition to the normal undergraduate courses, graduate courses in astronomy are open to qualified undergraduates who already have 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.

B.A. degree program in Astronomy. The B.A. degree program is designed for students who may not intend to do graduate work in astronomy but who are interested in the subject as a basis for a liberal education or as a background for a career in 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. The prerequisites for the B.A. program are: either PHYS 150a and 151b, or 180a and 181b, or 200a and 201b; and MATH 112a or b and 115a or b. Ten term courses are required beyond these prerequisites, including the senior requirement. Five courses in astronomy must be completed, four of which must be numbered 200 or above, including ASTR 255a or 355b; ASTR 310a, or both ASTR 210b and 220a (ASTR 170a may substitute for 220a in the latter case); and a senior project or essay (ASTR 490a or 491b). Also required are MATH 120a or b and four additional courses in the natural or applied or mathematical sciences, at least two of which must have college-level prerequisites; these may include

additional astronomy courses. The senior requirement consists of a senior essay or independent research project carried out for one term under the supervision of a faculty member (ASTR 490a or 491b).

Before entering the junior year, the student should consult the director of undergraduate studies.

B.S. degree program in Astronomy and Physics. This program is designed to provide a strong background in astronomy and in the relevant physics for students interested in graduate study or a career in astronomy, physics, or a related science.

Prerequisite to the B.S. degree program is work in fundamental physics and mathematics. A student planning to major in Astronomy and Physics should complete this work by the end of the sophomore year. The prerequisites for the B.S. program are: one of the introductory physics sequences (PHYS 180a, 181b, or 200a, 201b, or 260a, 261b); one of the physics laboratory sequences (PHYS 165La, 166Lb or 205La or Lb, 206La or Lb); and the mathematics sequence MATH 112a or b, 115a or b, and 120a or b. ASTR 155a may be substituted for one term of the physics laboratory sequence.

Beyond the prerequisites, twelve term courses are required in astronomy, physics, and mathematics. In astronomy, the student should complete at least six courses including ASTR 255a or 355b; ASTR 310a; ASTR 320b or 343b, or a more advanced astrophysics course with the permission of the director of undergraduate studies; a two-term senior project (ASTR 490a and 491b); and one additional astronomy course numbered 200 or above. In physics, the student should complete at least four courses numbered 400 or above, normally PHYS 401a or 410a, 420a, 430b, and either 439a or 440b; the sequence PHYS 401a, 402b, 440b, and 441a may also fulfill this requirement. With the permission of the director of undergraduate studies, ASTR 440b may be substituted for PHYS 430b. In mathematics, the student should complete one course in mathematics numbered 200 or above, or PHYS 301a or ENAS 194a or b; and either an additional course in mathematics numbered 200 or above or a course in statistics or computing. The senior requirement consists of an independent research project in astronomy carried out for two terms under the supervision of a faculty member (ASTR 490a and 491b).

Before entering the junior year, the student should arrange a specific program of study in consultation with the director of undergraduate studies in Astronomy, whose approval of the program is needed, and should then also consult the director of undergraduate studies in Physics.

REQUIREMENTS OF THE MAJOR

ASTRONOMY, B.A.

Prerequisites: PHYS 150a, 151b, or 180a, 181b, or 200a, 201b; MATH 112a or b, 115a or b

Number of courses: Ten term courses beyond prerequisites, including the senior requirement

Distribution of courses: Five term courses in astron, four of which must be numbered 200 or above; five addtl courses in science or math (which can include addtl astron courses)

Specific courses required: ASTR 255a or 355b; ASTR 310a, or both 210b and 220a; MATH 120a or b; four addtl courses in the natural or applied or mathematical sciences, of which at least two must have college-level prerequisites

Substitution permitted: ASTR 170a for 220a

Senior requirement: Senior essay or senior research project (ASTR 490a or 491b)

ASTRONOMY AND PHYSICS, B.S.

Prerequisites: PHYS 180a, 181b, or 200a, 201b, or 260a, 261b; PHYS 165La, 166Lb or 205La or Lb, 206La or Lb; MATH 112a or b, 115a or b, 120a or b

Number of courses: Twelve term courses beyond prerequisites, including the senior requirement

Distribution of courses: Six term courses in astron numbered 200 or above; four courses in physics numbered 400 or above, as specified; two courses in math or mathematical methods in science as specified

Specific courses required: ASTR 255a or 355b; ASTR 310a; ASTR 320b or 343b; one course in math numbered 200 or above, or PHYS 301a or ENAS 194a or b; one addtl course in math numbered 200 or above, or a course in statistics or computing

Substitution permitted: ASTR 155a for one term of prerequisite physics lab; ASTR 440b for PHYS 430b, with permission of DUS; a more advanced astrophysics course for ASTR 320b or 343b, with permission of DUS

Senior requirement: Senior independent research project (ASTR 490a and 491b)

Unless otherwise indicated, courses in Astronomy count toward the natural science requirement for the Class of 2008 and previous classes.

ASTR 110a, PLANETS AND STARS. Michael Faison.

MW 2.30-3.45 IV QR, Sc (37)

For non-science majors. An 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.*

ASTR 120b, GALAXIES AND THE UNIVERSE. Jeffrey Kenney.

MW 2.30-3.45 IV QR, Sc (37)

For non-science majors. 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.*

ASTR 130a, LIFE IN THE UNIVERSE. Sabatino Sofia.

MW 1-2.15 IV Sc (36)

For non-science majors. An introduction to the astronomical and physical conditions that were conducive to life on Earth and the searches for similar conditions and for intelligent life elsewhere in the universe. Detailed survey of the objects making up the solar system as determined from astronomical observations and in situ planetary probes. *No prerequisite other than a working knowledge of elementary algebra.*

ASTR 135b, ARCHAEOASTRONOMY. Michael Faison.

TTh 11.30-12.45 IV Sc (0)

For non-science majors. An introduction to how celestial patterns and events were observed and interpreted up to the Copernican revolution. Ancient observatories, calendar systems, records of astronomical events, and the role of astronomical knowledge in culture. Includes exercises in naked-eye observation of the sky.

ASTR 155a, INTRODUCTION TO ASTRONOMICAL OBSERVING.

Michael Faison.

M 2.30-3.45; lab HTBA IV Sc $\frac{1}{2}$ C Credit (0)

A hands-on introduction to the techniques of astronomical observing. 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.* (Formerly ASTR 205a)

ASTR 160b, FRONTIERS AND CONTROVERSIES IN ASTROPHYSICS.

Charles Bailyn.

TTh 9.30-10.20, 1 HTBA IV; Not CR/D/F QR, Sc (22)

For non-science majors. A detailed study of three fundamental areas in astrophysics that are currently subjects of intense research and debate: (1) planetary systems around stars other than the sun; (2) pulsars, black holes, and the relativistic effects associated with them; (3) the age and ultimate fate of the universe. *No prerequisite other than a working knowledge of elementary algebra.* (Formerly ASTR 140b)

ASTR 170a, INTRODUCTION TO COSMOLOGY. Priya Natarajan.

MW 9-10.15 IV QR, Sc (32)

An introduction to modern cosmological theories and observations. 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.*

ASTR 210b, STARS AND THEIR EVOLUTION. Gordon Drukier.

MW 1-2.15 IV QR, Sc (36)

An intensive introduction to planetary physics and stellar evolution. Star formation, nuclear processes, and the origin of the elements; supernovae, pulsars, and black holes. *Prerequisite: a strong background in high school mathematics and physics.*

ASTR 220a, GALAXIES AND COSMOLOGY. Pieter van Dokkum.

MW 1-2.15 IV QR, Sc (36)

An intensive introduction to extragalactic astronomy. The structure and contents of galaxies, evolution of galaxies, observational cosmology, and the history of the universe. *Prerequisite: a strong background in high school mathematics and physics.*

ASTR 255a/PHYS 295a, RESEARCH METHODS IN ASTROPHYSICS.

Charles Bailyn.

MW 4-5.15 IV; Not CR/D/F QR, Sc Meets RP (0)

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.

ASTR 310a, GALACTIC AND EXTRAGALACTIC ASTRONOMY.

Richard Larson.

TTh 4-5.15 IV QR, Sc (27)

Basic properties of stars and their distribution in space; stellar populations and the structure of our galaxy; external galaxies and their structure and distribution in the universe; evolution of galaxies; galaxy interactions and active galactic nuclei; introduction to cosmology. *Prerequisites: MATH 115a or b and PHYS 201b or equivalents.*

ASTR 320b, PHYSICAL PROCESSES IN ASTRONOMY. Paolo Coppi.

TTh 4-5.15 IV QR, Sc (27)

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. *Previous experience with computer programming recommended. Prerequisites: MATH 120a or b and PHYS 201b or equivalents, or permission of instructor. Taught in alternate years.*

[ASTR 343b/PHYS 343b, GRAVITY, ASTROPHYSICS, AND COSMOLOGY]

ASTR 355b^G, OBSERVATIONAL ASTRONOMY. Robert Zinn.

MW 1-2.15 IV QR, Sc Meets RP (○)

Optics for astronomers. Design and use of optical telescopes, photometers, spectrographs, and detectors for astronomical observations. Introduction to error analysis, concepts of signal-to-noise, and the reduction and analysis of photometric and spectroscopic observations. *Previous experience with computer programming recommended. Prerequisite: one astronomy course numbered above 200, or permission of instructor.*

ASTR 360b^G, INTERSTELLAR MATTER AND STAR FORMATION.

Richard Larson.

MW 10.30-11.20, 1 HTBA IV QR, Sc Meets RP (33)

Observations of interstellar matter at optical, infrared, radio, and X-ray wavelengths; dynamics and evolution of the interstellar medium including interactions between stars and interstellar matter; molecular clouds and processes of star formation. *Prerequisites: MATH 120a or b and PHYS 201b or equivalents. Taught in alternate years.*

ASTR 380a^G, STELLAR POPULATIONS. Robert Zinn.

3 HTBA IV; Not CR/D/F QR, Sc Meets RP (50)

The stellar populations of our galaxy and galaxies of the Local Group. Topics include the properties of stars and star clusters, stellar evolution, and the structure and evolution of our galaxy. *Prerequisites: PHYS 201b and MATH 120a or b, and one astronomy course numbered above 200. Taught in alternate years.* (Formerly ASTR 410b)

ASTR 385b^G, INTRODUCTION TO RADIO ASTRONOMY. Michael Faison.

MW 10.30-11.20, 1 HTBA IV QR, Sc (33)

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 120a or b and PHYS 201b or equivalents.*

[ASTR 418a^G, STELLAR DYNAMICS]

ASTR 420a^G, COMPUTATIONAL METHODS FOR ASTROPHYSICS.

Gordon Drukier.

3 HTBA IV QR Meets RP (○)

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 320b, MATH 120a or b, 222a or b or 225b, and 246a or b. For the Class of 2008 and previous classes, does not fulfill the natural science requirement.*

ASTR 430a^G, GALAXIES. Jeffrey Kenney.

TTh 10.30-11.20, 1 HTBA IV; Not CR/D/F QR, Sc Meets RP (○)

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 201b and MATH 120a or b, and one astronomy course numbered above 200. Taught in alternate years.*

[ASTR 440b^G, RADIATIVE PROCESSES]

ASTR 450a^G, STELLAR ASTROPHYSICS. Sarbani Basu.

MW 10.30-11.20, 1 HTBA IV QR, Sc (33)

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 201B and MATH 120A or B. *Taught in alternate years.* (Formerly ASTR 350b)

[ASTR 465a^G, THE EVOLVING UNIVERSE]

[ASTR 470b^G, COSMOLOGY]

★ASTR 490a and 491b, INDEPENDENT PROJECT IN ASTRONOMY. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (o)

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.

BIOCHEMISTRY

(See under *Molecular Biophysics and Biochemistry* and under *Biology*.)

BIOLOGY

Directors of undergraduate studies: Leo Buss (Ecology and Evolutionary Biology), 101 OML, 432-3837, maureen.cunningham@yale.edu, www.eeb.yale.edu; Douglas Kankel (Molecular, Cellular, and Developmental Biology), 754 KBT, 432-3839, catherine.blackmon@yale.edu, www.biology.yale.edu

FACULTY OF THE DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

PROFESSORS

Leo Buss, Michael Donoghue, †Jacques Gauthier, †Vivian Irish, †Kenneth Kidd, Jeffrey Powell, Richard Prum, †Oswald Schmitz, †David Skelly, Stephen Stearns, †J. Rimas Vaišnys, Günter Wagner

ASSISTANT PROFESSORS

Suzanne Alonzo, Antonia Monteiro, Thomas Near, David Post, Melinda Smith, Paul Turner

LECTURERS

Gisella Caccone, L. Kealoha Freidenburg, Dianella Howarth, Nancy Rosenbaum, Marta Martínez Wells

FACULTY OF THE DEPARTMENT OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY

PROFESSORS

Sidney Altman, †Kim Bottomly, Ronald Breaker, John Carlson, †Lynn Cooley, Stephen Dellaporta, Xing-Wang Deng, Paul Forscher, †Mark Hochstrasser, Vivian Irish, Douglas Kankel, †Michael Kashgarian, Haig Keshishian, †Perry Miller, Mark Mooseker, †Jon Morrow, Timothy Nelson, L. Nicholas Ornston, Thomas Pollard, Shirleen Roeder, Joel Rosenbaum, †Alanna Schepartz, †Steven Segal, Michael Snyder, Robert Wyman

ASSOCIATE PROFESSORS

Craig Crews, Savithramma Dinesh-Kumar, Frank Slack, †Hugh Taylor, Weimin Zhong

ASSISTANT PROFESSORS

Martín García-Castro, Scott Holley, Christine Jacobs-Wagner, Elke Stein, David Wells

LECTURERS

Carol Bascom-Slack, Iain Dawson, Mary Klein, Kenneth Nelson, † Aruna Pawashe, Barry Piekos, Nancy Rosenbaum, William Segraves, Joseph Wolenski

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

The major in Biology is offered jointly by the Departments of Ecology and Evolutionary Biology (EEB) and Molecular, Cellular, and Developmental Biology (MCDB), providing students with opportunities to take courses in both departments. There are two principal areas of concentration in the major and two directors of undergraduate studies.

The science of biology is extremely broad, ranging across the domains of molecules, cells, 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 Biology receive a thorough yet varied liberal education as well as preparation for professional careers in a diverse array of fields. Practical applications of biology include the development of pharmaceuticals, the practice of medicine, and the scientific bases for understanding the history and complexity of the environment and the need for its protection.

The major in Biology offers two areas of concentration. Area of concentration I, *ecology and evolutionary biology*, is intended for students wishing to concentrate in the basic sciences underlying ecological, evolutionary, organismal, computational, conservation, and environmental biology. Area of concentration II, *molecular, cellular, and developmental biology*, offers programs for students wishing to concentrate on molecular biology and genetics and their applications to problems in cell biology, development, and neurobiology. Interdisciplinary opportunities are available within Area II in the *biotechnology* and *neurobiology* tracks.

Students who are primarily interested in plant science are invited to consult with an appropriate faculty member.

The Biology major offers opportunities for independent research in both laboratory and field work. With approval, research can be conducted under the supervision of faculty members in any Yale department. Some programs for study abroad are available to Biology majors and are especially appropriate for those in Area I; approved programs can fulfill some of the requirements for the major. Interested students should consult the director of undergraduate studies and the Office of International Education and Fellowship Programs (www.yale.edu/ieffp).

Students majoring in Biology must take all courses in the major for a letter grade. College seminars do not count toward the requirements of the major. The Biology major should not be taken as one of two majors with Molecular Biophysics and Biochemistry.

Prerequisites. The basic science courses required of all Biology majors are MCDB 120a, E&EB 122b, and either MCDB 121La or E&EB 123Lb; CHEM 113, 114, or 118a taken with their appropriate laboratories as well as two terms of organic chemistry with laboratories (CHEM 125, 126L satisfies both chemistry requirements); two terms of PHYS 150a, 151b or higher; and one term of MATH 115a or b or above, but not MATH 190a. Note that the prerequisites fulfill most of the usual premedical science requirements. Students in Area I may, with permission of the director of undergraduate studies, substitute three course credits in geochemistry and geophysics, engineering, or mathematics for organic chemistry.

Placement. Students who have scored 710 or higher on the SAT subject matter Biology M test (formerly SAT II), or who have scored 5 on the Advanced

Placement test in biology, may be exempt from taking MCDB 120a and its associated laboratory. Students scoring 5 on the Advanced Placement biology test may also be exempt from E&EB 122b and its associated laboratory, but beginning with the Class of 2010, students will no longer be permitted to place out of E&EB 122b and 123Lb using the SAT subject matter test M or E. Students with equivalent scores on one of the corresponding chemistry tests may also be exempt from taking MCDB 120a, but should first discuss their preparation in biology with the director of undergraduate studies in MCDB.

Acceleration credit awarded in chemistry, mathematics, and physics, or completion of advanced courses in those departments, is accepted instead of the relevant prerequisites for the Biology major. Students who already have mathematics preparation equivalent to MATH 115a or b or higher are encouraged to take additional mathematics, such as MATH 120a or b, 222a or b, or 225b.

Placement in chemistry courses is arranged by the Chemistry department. Because the required chemistry courses are prerequisite to a number of biology courses, students are strongly urged to take general and organic chemistry in the freshman and sophomore years. Students who place out of general chemistry should take organic chemistry during their freshman year. Finishing the prerequisites early allows a more adventurous program in later years.

Requirements of the major. Beyond the prerequisites, the B.A. degree requires seven lecture courses or seminars, two laboratories, and the senior requirement (E&EB 470a or b, MCDB 470a or b, E&EB 475a or b, MCDB 475a or b, or the senior essay); the B.S. degree requires seven lecture courses or seminars, two laboratories, and the senior requirement (two terms of E&EB 475a or b or MCDB 475a or b or 485). The intensive B.S. degree requires, in addition to the prerequisites, seven lecture courses or seminars, two laboratories, and the senior requirement (E&EB 495 or MCDB 495). No more than six course credits of research (E&EB 475a or b, 495, MCDB 475a or b, 485, or 495) may be applied toward the major requirements.

Core requirements for Area I, ecology and evolutionary biology, Class of 2010 and subsequent classes. Area I majors in the Class of 2010 and subsequent classes are required to take MCDB 202a, E&EB 210a or the equivalent, E&EB 220a, and 225b.

Electives for Area I, ecology and evolutionary biology, Class of 2010 and subsequent classes. In addition to the four core courses, students in the Class of 2010 and subsequent classes must take three electives, one of which must be a course in organismal diversity chosen from E&EB 246b, 250a, 255b, 257b, 264a, 272b, MCDB 250a, or 290b. Students who wish to take electives from other departments should obtain the approval of the director of undergraduate studies in EEB.

Core requirements for Area I, ecology and evolutionary biology, Class of 2009 and previous classes. Students in the Class of 2009 and previous classes may fulfill the same core requirements as the Class of 2010, or they may take the core courses E&EB 160b, MCDB 202a, and E&EB 210a.

Electives for Area I, ecology and evolutionary biology, Class of 2009 and previous classes. Members of the Class of 2009 and previous classes must take four electives, including at least one course from each of the following three subject areas:

- Group A, ecology:* E&EB 220a, 230a, 326b, 360b, 365a, 370a
- Group B, evolution:* E&EB 225b, 316La, G&G 250a
- Group C, organisms:* E&EB 246b, 250a, 255b, 257b, 264a, 272b,
MCDB 250a, 290b

In Groups A and B, the course listed first is the recommended first course in that subject. One additional EEB or MCDB course numbered 140 or higher is also required. Students who wish to draw on electives in other departments should consult with and obtain the approval of the director of undergraduate studies in EEB.

Two laboratories beyond the prerequisites are required for the major. In addition to laboratories associated with the three groups of electives, E&EB 226La, 230a, 316La, and MCDB 203La can be used to fulfill this requirement.

Core requirements for Area II, molecular, cellular, and developmental biology. Biology majors in Area II are required to take MCDB 202a, 300a or its equivalent, and either 205b or 210a. (MCDB 210a is not a core course for the biotechnology track.) Equivalents for MCDB 300a are defined as either (a) both MB&B 300a and 301b or (b) MB&B 300a only, if the student has also taken MCDB 120a or 200b or has the permission of the director of undergraduate studies in MCDB.

Electives for Area II, molecular, cellular, and developmental biology. In addition to the prerequisites and core requirements, the *standard degree program* requires four electives, including three from MCDB (numbered 150 or above), EEB (numbered 140 or above), or MB&B (numbered 200 or above), and one upper-level MCDB elective numbered 350 or higher.

Two laboratories at the 200 level or higher are also required for the standard program, one of which can be selected from courses in EEB or MB&B.

The *neurobiology track* requires MCDB 360a and three courses chosen from BENG 410a, CPSC 475b, MCDB 240b, 310a, 315b, 410a, 415b, 425a, 430a, 440b, PSYC 176a, 270b, 320b, and either MCDB 215a or PSYC 200a. (Students should note that PSYC 110a or b is a prerequisite for many psychology courses but does not substitute as an elective in the neurobiology track.) Two laboratories are also required as electives chosen from MCDB courses. Students interested in the neurobiology track should consult an adviser for the track.

Neurobiology track advisers: P. Forscher, 222 KBT (432-6344)
H. Keshishian, 640A KBT (432-3478)
E. Stein, 232 KBT (432-8402)
D. Wells, 226 KBT (432-3481)
R. Wyman, 610A KBT (432-3475)
W. Zhong, 616 KBT (432-9233)

The *biotechnology track* requires MCDB 370b and three courses chosen from any MCDB course numbered 150 or above, MB&B 405a, 420a, 421b, 443b, BENG 351a, 352b, 410a, 457b, 464a, CENG 210a, 411a, 412b, CPSC 437a, 445b, 470a, or 475b. Two laboratories are required: either two from MCDB (including at least one from MCDB 351La or Lb to MCDB 355Lb) or BENG 355L or CENG 412b. Students interested in the biotechnology track should consult an adviser for the track.

Biotechnology track advisers: R. Breaker, 506 KBT (432-9389)
X. W. Deng, 352B OML (432-8908)
K. Nelson, 725 KBT (432-5013)
M. Snyder, 926 KBT (432-6139)
J. Wolenski, 330 KBT (432-6912)

Many of the courses in other departments have prerequisites that can be substituted for an upper-level elective with permission of the MCDB director of undergraduate studies.

For all tracks in Area II, if both MCDB 205b and 210a are taken, one counts as a core course and the other as an elective. If both MB&B 300a and 301b are taken, one counts as a core course (in place of MCDB 300a) and one as an elective. Two laboratory courses from MCDB 352La, 353La, 354Lb, and 355Lb can be used together as one elective credit. If used as an elective, these laboratories cannot also fulfill the laboratory requirement. With permission of the director of undergraduate studies, one course relevant to biology in another department (but not a college seminar) may be substituted for an elective. Students should be aware that many of the courses listed above from other departments have 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 requirements of each track and degree is available in the office of the director of undergraduate studies (101 OML for Area I, 754 KBT for Area II). All students must fill out a checklist of requirements and go over it with the undergraduate registrar, Maureen Cunningham (Area I) or Catherine Blackmon (Area II), by the spring term of their junior year. For the B.A. degree the requirement can be met in any one of three ways: by submitting a senior essay of fifteen to twenty pages evaluating current research in a field of biology; by successful completion of one term of tutorial work (E&EB 470a or b or MCDB 470a or b); or by successful completion of one term of individual research (E&EB 475a or b or MCDB 475a or b).

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 appropriate director of undergraduate studies 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 director of undergraduate studies by the last day of classes. Students electing this option should obtain an approval form from the office of the director of undergraduate studies.

B.S. degree. The requirements for the B.S. degree are the same as for the B.A. degree except for the senior requirement, which differs in its greater emphasis on individual research. The senior requirement is two consecutive terms of E&EB 475a or b or MCDB 475a or b, at least one of which must be taken during the senior year, or MCDB 485. Students are expected to spend ten hours per week conducting individual research. Ordinarily, both terms of E&EB 475a or b or MCDB 475a or b are taken during the senior year, but it is possible for a student to begin work toward the senior requirement in the spring of the junior year, continue it over the summer, and complete it during the final year, an arrangement that may be particularly useful for students doing fieldwork. Yale College does not grant academic credit for summer research unless the student is enrolled in an independent research course in Yale Summer Session.

Intensive B.S. degree. Requirements for the intensive B.S. degree are the same as for the B.A. degree except that students fulfill the senior requirement by taking E&EB 495 or MCDB 495, Intensive Research, which earns four course credits. Seniors in the intensive major are expected to spend twenty hours per week conducting individual research.

It should be noted that the research courses E&EB 475a or b and 495 and MCDB 475a or b, 485, and 495 exist primarily to fulfill the senior requirement.

Some students may wish to take E&EB 475a or b or MCDB 475a or b earlier in their course of study. This contributes to the thirty-six course credits required for graduation, but does not substitute for any of the other requirements of the major including the senior requirement. Students may take up to three credits in E&EB 475a or b and MCDB 475a or b during their undergraduate career.

Laboratory preparation for research. Students concentrating in Area II or with an interest in molecular evolution and who are planning to undertake research are advised to take one or more of the following laboratories first: MCDB 351La or Lb, either MCDB 352La or E&EB 316La, MCDB 353La, 354Lb, or 355Lb.

Combined 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. Completion in fewer than eight terms is not allowed. The requirements are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree. In addition to the three core requirements specified for the standard major, the four electives must be graduate-level courses designated “G.” One of these is a graduate seminar selected with the approval of the director of undergraduate studies. Students must earn a grade of A or A– in two graduate-level courses and a grade of B– or higher in the rest.

2. Six credits outside the major must be taken in the last two years, and at least two undergraduate courses in the last two terms.

3. In addition to the courses specified above, students must complete two graduate research courses for six course credits: (a) MCDB 585b or E&EB 585b, a two-credit course typically taken in the second term of the junior year. At the start of the course, each student forms a committee comprised of the adviser and two faculty members that meets to discuss the research project. Two of the members of this committee must be members of either the MCDB or EEB faculty, as appropriate to the thesis topic. 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 whether the student may continue in the combined program; (b) MCDB 595/E&EB 595, a four-credit, yearlong course that is similar to MCDB 495 and E&EB 495 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. Students must apply in writing to the appropriate director of undergraduate studies and obtain departmental approval no later than the beginning of the second term of their junior year. Applications must be submitted by November 1 in the preceding term. Students must have the approval of both the director of undergraduate studies and the director of graduate studies to receive graduate credit for the graduate courses they select.

2. Students must have two-thirds A or A– grades in all of their courses and two-thirds A or A– grades in Biology courses, including prerequisites, in order to be admitted to the program.

Advising. Freshmen considering a major in Biology are invited to consult with one of the two directors of undergraduate study and/or a faculty member in EEB or MCDB who is a fellow of their residential college. Once an area of concentration is chosen, students should find a faculty adviser in the appropriate department. Students in the neurobiology or biotechnology track should consult an adviser for their track (listed above). Students in EEB should consult one of the advisers assigned to their class. The course schedules of all Biology majors (including sophomores intending to major in Biology) must be signed by a faculty member in one of the two participating departments; *the signature of the director of undergraduate studies is not required.* Students whose regular adviser is on leave can consult the director of undergraduate studies to arrange for an alternate.

Area I, ecology and evolutionary biology.

<i>Class of 2007:</i>	J. Powell [Sp], 170 ESC (432-3887) M. Smith, 426A OML (432-9422) P. Turner, 301A OML (432-5918)
<i>Class of 2008:</i>	S. Alonzo, 427 OML (432-0690) M. M. Wells, 401 OML (432-6294)
<i>Class of 2009:</i>	D. Post, 426B OML (432-3005) R. Prum, 164 ESC (432-9423)
<i>Class of 2010:</i>	L. Buss, 326B OML (432-3837)

Area II, molecular, cellular, and developmental biology. Any member of the MCDB department can serve as a faculty adviser to majors. College faculty advisers available to freshmen:

BK, J. Wolenski	MC, X. W. Deng, H. Keshishian,
BR, S. Dinesh-Kumar [Sp]	K. Nelson, T. Pollard, F. Slack
CC, M. Mooseker, R. Wyman	PC, J. Carlson, C. Crews [Sp]
DC, P. Forscher, V. Irish,	SY, C. Jacobs-Wagner, S. Roeder
L. N. Ornston [F],	SM, S. Dellaporta, D. Kankel,
W. Zhong [Sp]	J. Rosenbaum, M. Snyder
TD, N. Rosenbaum	ES, E. Stein, D. Wells
JE, T. Nelson [F], R. Breaker	TC, S. Altman

REQUIREMENTS OF THE MAJOR

Prerequisites: MCDB 120a, E&EB 122b; either MCDB 121La or E&EB 123Lb; CHEM 113, 114, or 118a, with labs, and two terms of organic chemistry with labs (CHEM 125, 126L satisfies both requirements); PHYS 150a, 151b, or above; MATH 115a or b or higher (except MATH 190a); all courses taken for a letter grade

Number of courses: *B.A. degree*—seven courses and two labs beyond prerequisites taken for a letter grade, totaling eight or nine course credits, including senior reqt; *B.S. degree*—seven courses and two labs taken for a letter grade, totaling ten course credits, including senior reqt; *Intensive B.S. degree*—seven courses and two labs taken for a letter grade, totaling twelve course credits, including senior reqt

Specific courses required: *Area I: Ecology and evolutionary biology, Class of 2010 and later*—E&EB 220a, 225b, MCDB 202a, E&EB 210a or equivalent; *Area I: Ecology and evolutionary biology, Class of 2009 and earlier*—E&EB 160b, MCDB 202a, E&EB 210a or equivalent; *Area II: Molecular, cellular, and developmental biology—standard track*—MCDB 202a, 300a, and either 205b or 210a; *neurobiology track*—MCDB 202a, 300a, 360a, and either 205b or 210a; *biotechnology track*—MCDB 202a, 205b, 300a, and 370b

Distribution of courses: *Area I: Ecology and evolutionary biology, Class of 2010 and later*—three electives, one in organismal diversity; *Area I: Ecology and evolutionary biology, Class of 2009 and earlier*—four electives, including one from each of three elective groups; *Area II: Molecular, cellular, and developmental biology—standard track*—three electives from EEB (numbered 140 or above), MCDB (numbered 150 or above), or MB&B (numbered 200 or above), and one addtl MCDB course (numbered 350 or above); *neurobiology and biotechnology tracks*—three electives as specified

Substitution permitted: *Area I*—three course credits in geochemistry and geophysics, engineering, or mathematics for organic chem, with permission of DUS, except for college sems; *Area II*—one course relevant to biology in another dept, with permission of DUS, except for college sems; higher-level courses for lower-level courses, with approval of adviser or DUS

Senior requirement: *B.A. degree*—MCDB 470a or b, or E&EB 470a or b, or MCDB 475a or b, or E&EB 475a or b, taken in senior year, or senior essay; *B.S. degree*—two terms of MCDB 475a or b or E&EB 475a or b, at least one in senior year, or MCDB 485; *Intensive B.S. degree*—MCDB 495 or E&EB 495

Because the length of laboratory sessions depends upon the particular experiment, only the starting times of some laboratory courses are given. Students should allow several hours for each laboratory. For the Class of 2008 and previous classes, courses in EEB and MCDB count toward the natural science requirement unless otherwise indicated.

INTRODUCTORY COURSES WITHOUT PREREQUISITES

*MCDB 060, TOPICS IN REPRODUCTIVE BIOLOGY. William Segraves.

M 2.30-4.20 Sc 1 C Credit (○) Cr/Year only Fr sem

An introduction to reproductive biology, focused on selected topics in reproductive system development; physiology and endocrinology; sexuality and gender differences; and assisted reproductive technologies. Exploration of primary literature in model system and human reproductive biology. *Enrollment limited to freshmen with a score of 5 on the Advanced Placement test in Biology. May be applied as an elective toward the Biology major.*

*E&EB 081a, KEY ISSUES IN EVOLUTION. Stephen Stearns.

TTh 1-2.15 WR (○) Fr sem

Exploration of the biological and cultural evolution of social interactions. Readings from the original literature are supported by recent textbooks and monographs. Assessment of the materialistic explanation of human nature; comparison of different approaches taken in the biological and social sciences. *Enrollment limited to freshmen.*

MCDB 105a, AN ISSUES APPROACH TO BIOLOGY. Timothy Nelson, Ronald Breaker, David Wells.

MWF 11.30-12.20 IV; Not CR/D/F Sc (34)

Biological concepts taught in context of current societal issues, such as stem cell research and genetically modified organisms. Emphasis on biological literacy to enable students to evaluate scientific arguments.

E&EB 115a^G/F&ES 315a, CONSERVATION BIOLOGY. L. Kealoha Freidenburg.

MW 9.30-10.20, I HTBA IV Sc (32)

An introduction to the basic ecological and evolutionary principles underpinning efforts to conserve the Earth's biodiversity. These principles examined in the context of efforts to halt the rapid increase in disappearance of both plants and animals. Case studies examined in detail. Discussion of sociological and economic issues.

E&EB 118a, HUMAN GENETIC VARIATION AND EVOLUTION.

Kenneth Kidd.

TTh 1-2.15, 1 HTBA IV; Not CR/D/F Sc (26)

A course designed for non-science majors on the patterns of DNA sequence variation among modern humans and the causes of those patterns.

MCDB 120a, PRINCIPLES OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY.

John Carlson, Carol Bascom-Slack, Frank Slack.

MWF 11.30-12.20 IV; Not CR/D/F Sc (34)

Introduction to biochemistry, genetics, cell biology, and development. Emphasis on the cell as the basic unit of life; its composition, functions, replication, and differentiation. Suitable as the first step in any biological sciences major, and also for any student wishing to understand the fundamentals of biology at the molecular and cellular level. *This course is a prerequisite to MCDB courses numbered 200 or higher.*

MCDB 121La, LABORATORY FOR PRINCIPLES OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY.

John Carlson, Nancy Rosenbaum.

TWTh or F 1.30- IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Experimental techniques and procedures in molecular, cellular, and developmental biology. *Concurrently with or after MCDB 120a.*

E&EB 122b, PRINCIPLES OF EVOLUTION, ECOLOGY, AND BEHAVIOR.

Stephen Stearns.

MWF 11.30-12.20 IV WR, Sc (34)

The major principles of evolution, ecology, and behavior explained and illustrated by recent advances that have changed the field. Emphasis on major events in the history and key transitions in the organization of life. Ecological processes from organisms through populations and communities to the biosphere. Foraging, mating, and selfish and cooperative behavior placed in evolutionary and ecological context. *Recommended preparation: MCDB 120a or equivalent.*

E&EB 123Lb, LABORATORY FOR PRINCIPLES OF EVOLUTION, ECOLOGY, AND BEHAVIOR.

Nancy Rosenbaum.

TW or Th 1.30- IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Experimental approaches to organismal and population biology, including study of the diversity of life. *Concurrently with or after E&EB 122b.*

E&EB 125b/G&G 125b, HISTORY OF LIFE.

Derek Briggs, Jacques Gauthier, Leo Hickey.

For description see under Geology & Geophysics.

MCDB 150bG, GLOBAL PROBLEMS OF POPULATION GROWTH.

Robert Wyman.

TTh 2.30-3.45; *disc.* HTBA IV; Not CR/D/F Sc (27)

The worldwide population explosion in its human, environmental, and economic dimensions. Sociobiological bases of reproductive behavior. Population history and the cause of demographic change. Interactions of population growth with economic development and environmental alteration. Political, religious, and ethical issues surrounding fertility; human rights and the status of women.

E&EB 160b, DIVERSITY OF LIFE.

Marta Martínez Wells.

TTh 1-2.15 IV Sc (26)

A survey of the diversity of organisms on Earth with a focus on their evolutionary history, biology, and adaptations to their environment.

★E&EB 171a, THE COLLECTIONS OF THE PEABODY MUSEUM. Leo Buss.

TTh 11.30-12.45 WR, Sc Meets RP (0)

Exploration of selected scientific problems through the use of the biological and geological collections of the Peabody Museum. *Enrollment limited to freshmen and sophomores.*

INTERMEDIATE EEB COURSES

E&EB 210a^G/MCDB 215a/STAT 101a^G, INTRODUCTION TO STATISTICS: LIFE SCIENCES. Jonathan Reuning-Scherer, Günter Wagner.

For description see under Statistics. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

E&EB 220a^G, GENERAL ECOLOGY. David Post.

MWF 10.30-11.20 IV Sc (33)

A broad consideration of 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 112a or b or equivalent.*

E&EB 225b^G, EVOLUTIONARY BIOLOGY. Jeffrey Powell, Richard Prum.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

An introduction to the study of evolution from both a macro- and a microevolutionary perspective. Principles of population genetics, systematics, paleontology, and molecular evolution; application of evolutionary thinking to issues in animal behavior, ecology, and molecular biology. *After E&EB 122b.*

E&EB 226Lb^G, LABORATORY FOR EVOLUTIONARY BIOLOGY.

Marta Martínez Wells.

W 1.30– IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

The companion laboratory to E&EB 225b. Study of patterns and processes of evolution, including collection and interpretation of molecular and morphological data in a phylogenetic context. Focus on methods of analysis of species-level and population-level variation in natural populations. *Concurrently with or after E&EB 225b or with permission of instructor.*

E&EB 228b^G, ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASES.

Paul Turner.

TTh 11.30-12.45 IV; Not CR/D/F Sc (0)

Overview of the ecology and evolution of pathogens (bacteria, viruses, protozoa) and their impact on host populations. Topics include theoretical concepts, ecological and evolutionary dynamics, molecular biology, and epidemiology of ancient and emerging diseases. *Prerequisite: E&EB 122b or permission of instructor.*

★E&EB 230a^G/★EVST 221a/★F&ES 221a, FIELD ECOLOGY. David Post.

TTh 1-5 IV; Not CR/D/F Sc (26)

A field-based introduction to ecological research. Experimental and descriptive approaches, comparative analysis, and modeling are explored through field and small-group projects. *Concurrently with or after E&EB 220a or with permission of instructor. Limited enrollment.*

E&EB 240a^G, ANIMAL BEHAVIOR. Suzanne Alonzo.

MW 9-10.15, 1 HTBA IV; Not CR/D/F WR, Sc (32)

An introduction to the study of animal behavior from an evolutionary and ecological perspective. History and methods of studying animal behavior. Topics include foraging, predation, communication, reproduction, cooperation, and the role of behavior in conservation. *After* E&EB 122b.

E&EB 246b, PLANT DIVERSITY AND EVOLUTION. Dianella Howarth.

MW 1-2.15 IV Sc (0)

Introduction to the evolutionary relationships of plant lineages. Exploration of the complexity, diversity, and characteristics of the major plant groups, including the green algae, mosses, ferns, conifers, and flowering plants, within a phylogenetic context. *To be taken concurrently with* E&EB 247Lb. *Prerequisite: a general understanding of introductory biology and evolution.*

E&EB 247Lb, LABORATORY FOR PLANT DIVERSITY AND EVOLUTION.

Dianella Howarth.

T 1- IV Sc $\frac{1}{2}$ C Credit (26)

Local flora field research; hands-on experience with the plant groups examined in the accompanying lectures. *To be taken concurrently with* E&EB 246b. *Prerequisite: a general understanding of introductory biology and evolution.*

E&EB 250aG, BIOLOGY OF TERRESTRIAL ARTHROPODS.

Marta Martínez Wells.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

Evolutionary history and diversity of terrestrial arthropods (body plan, phylogenetic relationships, fossil record); physiology and functional morphology (water relations, thermoregulation, energetics of flying and singing); reproduction (biology of reproduction, life cycles, metamorphosis, parental care); behavior (migration, communication, mating systems, evolution of sociality); ecology (parasitism, mutualism, predator-prey interactions, competition, plant-insect interactions). *After* E&EB 122b.

E&EB 251LaG, LABORATORY FOR BIOLOGY OF TERRESTRIAL ARTHROPODS. Marta Martínez Wells.

W 1.30- IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Comparative anatomy, dissections, identification, and classification of terrestrial arthropods; specimen collection; field trips. *Concurrently with or after* E&EB 250a.

[E&EB 255bG, INVERTEBRATES I]

[E&EB 256LbG, LABORATORY FOR THE INVERTEBRATES I]

E&EB 257bG, INVERTEBRATES II. Leo Buss.

TTh 1-2.15 IV; Not CR/D/F Sc (26)

A comprehensive survey of the phyla comprising the *Lophotrochozoa* and the *Ecdysozoa* emphasizing anatomy, functional organization, systematics, and evolutionary history. E&EB 255b *is not a prerequisite.*

E&EB 258LbG, LABORATORY FOR INVERTEBRATES II. Leo Buss.

M 2-5 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Study of the anatomy of representative living invertebrates comprising the *Lophotrochozoa* and the *Ecdysozoa*, accompanied by examination of museum specimens of both extant and fossil invertebrates.

E&EB 264aG, ICHTHYOLOGY. Thomas Near.

MWF 8.30-9.20 IV; Not CR/D/F Sc (31)

A survey of fish diversity, including jawless vertebrates, chimaeras and sharks, lungfishes, and ray-finned fishes. Topics include the evolutionary origin of vertebrates, the fossil record of fishes, evolutionary diversification of major extant fish lineages, biogeography, ecology, and reproductive strategies of fishes.

E&EB 265La^G, LABORATORY FOR ICHTHYOLOGY. Thomas Near.

W 1.30-4 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (36)

Laboratory and field studies of fish diversity, form, function, behavior, and classification. The course primarily involves study of museum specimens and of living and fossil fishes. *Concurrently with* E&EB 264a.

***E&EB 269a^G, SEMINAR IN ORNITHOLOGY.** Richard Prum.

T 2.30-4.30 IV; Not CR/D/F Sc (0)

Discussion of recent scientific literature in the field of bird biology. Topics vary from year to year; the topic for fall 2006 is bird behavior.

[E&EB 272b^G, ORNITHOLOGY]

[E&EB 273Lb^G, LABORATORY FOR ORNITHOLOGY]

ADVANCED EEB COURSES

E&EB 316La^G, LABORATORY IN MOLECULAR SYSTEMATICS.

Gisella Caccone.

MW 1.30-3.20 IV; Not CR/D/F Sc (0)

A practical introduction to molecular techniques used in systematics (DNA extraction, PCR, sequencing) and their application to field studies in natural history, population genetics, and mating systems, paternity, and the historical analysis of lineages. Research projects apply the methodologies. *After* E&EB 225b; *after or concurrently with* MCDB 202a.

***E&EB 320b^G, CONSERVATION GENETICS.** Gisella Caccone.

T 2.30-4.20 IV; Not CR/D/F Sc (0)

An introduction to conservation genetics for advanced undergraduates and graduate students. The importance of genetic diversity and the means for preserving it. *After* MCDB 200a or b *and* E&EB 225b, *or with permission of instructor.*

[E&EB 326b^G, MOLECULAR ECOLOGY]

E&EB 360b/EVST 360b/F&ES 360b^G, WILDLIFE CONSERVATION ECOLOGY.

Oswald Schmitz.

For description see under Environmental Studies.

E&EB 365a/EVST 365a/F&ES 365a^G, LANDSCAPE ECOLOGY. David Skelly.

For description see under Environmental Studies.

***E&EB 370a^G/*EVST 370a/*F&ES 370a^G, AQUATIC ECOLOGY.**

David Skelly.

For description see under Environmental Studies.

***E&EB 390b^G, EVOLUTION OF DEVELOPMENT.** Antonia Monteiro.

TTh 9-10.15 IV; Not CR/D/F Sc (0)

An introduction to the ways that developmental mechanisms change through time to give rise to organismal diversity. Topics include how mutations influence the processes of gene regulation, tissue growth, and cell and organ differentiation.

EEB RESEARCH AND TUTORIALS

★E&EB 470a or b, TUTORIAL. Marta Martínez Wells.

HTBA IV; Not CR/D/F (○)

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. The proposal must be submitted by Wednesday, September 13, for the fall term and Tuesday, January 23, for the spring term. The final paper is due in the hands of the director of undergraduate studies by the beginning of reading period. 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 will count as an elective for the major. Normally, faculty sponsors must be members of the EEB department. *One term of this course fulfills the senior requirement for the B.A. degree if taken in the senior year.*

★E&EB 475a or b, RESEARCH. Marta Martínez Wells.

HTBA IV; Not CR/D/F (○)

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 will oversee the research and be responsible for the rigor of the project. Students are expected to spend ten hours per week on their research projects. 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. A research paper is due at the end of the term. Proposals are due Wednesday, September 13, for the fall term and Tuesday, January 23, for the spring term. The final paper is due in the hands of the director of undergraduate studies by the beginning of reading period. *Fulfills the senior requirement for the B.A. degree if taken in the senior year.*

★E&EB 495, INTENSIVE SENIOR RESEARCH. Marta Martínez Wells.

HTBA IV; Not CR/D/F 4 C Credits (○) *Cr/Year only*

Two terms of intensive original research during the senior year done under the sponsorship of a faculty member. Similar to other research courses except that a more substantial portion of the student's time should be spent on the research project (an average of twenty hours per week). A research proposal approved by the sponsoring faculty member must be submitted to the director of undergraduate studies before reading period of the term preceding the course, usually the spring term of the junior year. Interim oral reports and a final written research paper are required. *Fulfills the senior requirement and leads to the intensive B.S. degree.*

MCDB COURSES

MCDB 120a is a prerequisite for the courses below.

MCDB 200b, MOLECULAR BIOLOGY. Sidney Altman, Stephen Dellaporta, Thomas Pollard.

MWF 10.30-11.20 IV; Not CR/D/F Sc (33)

A study of the central dogma and fundamental principles of molecular and cellular biology, including a detailed discussion of model organisms and experimental methodologies in biological research. Topics include chemistry of biological molecules, cell cycle, DNA structure and replication, chromosome structure, transcription and gene regulation, protein synthesis, epigenetic regulation, genome structure, genome evolution, genomics, and bioinformatics. Designed to provide an accelerated venue for MCDB majors entering the department's core curriculum. *Prerequisite: score of 5 on the Advanced Placement test in Biology.*

MCDB 202a, GENETICS. Stephen Dellaporta, Jeffrey Powell, Shirleen Roeder.

TTh 11.30–12.45 IV; Not CR/D/F Sc (0)

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. (Formerly MCDB 200a)

MCDB 203La, LABORATORY FOR GENETICS. Iain Dawson, Gregory Fitzgerald.

MT or W 1.45– IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Introduction to laboratory techniques used in genetic analysis. Different genetic model organisms—bacteria, yeast, *Drosophila*, and *Arabidopsis*—are used to provide practical experience with various classical and molecular genetic techniques including cytogenetics, mutagenesis and mutant analysis, recombination and gene mapping, isolation and manipulation of DNA, and DNA sequence analysis. *Concurrently with or after MCDB 202a.* (Formerly MCDB 201La)

MCDB 205b, CELL BIOLOGY. Thomas Pollard, Craig Crews, and staff.

TTh 9–10.15; *disc.* HTBA IV; Not CR/D/F Sc (22)

A comprehensive introductory course in cell biology. Emphasis on the general principles that explain the molecular mechanisms of cellular function.

MCDB 210a, DEVELOPMENTAL BIOLOGY. Vivian Irish, Martín García-Castro, Douglas Kankel.

TTh 9–10.15 IV; Not CR/D/F Sc (0)

Cellular differentiation and its genetic and molecular control; fertilization, cleavage, and morphogenesis of plants and animals; polarity and positional information; development of specialized tissues; evolution and development.

MCDB 215a/E&EB 210a^G/STAT 101a^G, INTRODUCTION TO STATISTICS: LIFE SCIENCES. Jonathan Reuning-Scherer, Günter Wagner.

For description see under Statistics. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

MCDB 240b, BIOLOGY OF REPRODUCTION. Mary Klein, Hugh Taylor.

MWF 10.30–11.20 IV; Not CR/D/F Sc (33)

Introduction to reproductive biology, with emphasis on human reproduction: development and hormonal regulation of reproductive systems; sexuality, fertilization, and pregnancy; modern diagnosis and treatment of reproductive and developmental disorders. A segment on social and ethical issues is included. *Enrollment limited to 200; preference to upperclassmen and to students who have completed MCDB 120a or 200b or higher. Prerequisite: MCDB 120a, score of 5 on the Advanced Placement test in Biology, or score of 710 or above on the SAT II Biology test.*

MCDB 241Lb, LABORATORY FOR BIOLOGY OF REPRODUCTION AND DEVELOPMENT. Mary Klein.

T or Th 1.30-5 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Laboratory investigation of reproductive and developmental processes. Emphasis on mammalian reproduction and embryonic development in classic vertebrate and invertebrate systems. Topics include gametogenesis, ovulation, hormonal control of reproduction, and investigation of embryogenesis in the frog and the fruit fly, *Drosophila*. *Concurrently with or after* MCDB 240b or 210a. *Not open to freshmen.*

[MCDB 250a, THE BIOLOGY OF PLANTS]

MCDB 290b, MICROBIOLOGY. Savithamma Dinesh-Kumar, Christine Jacobs-Wagner.

TTh 1-2.15 IV; Not CR/D/F Sc (26)

Microbial evolution and diversity, cell structure of microorganisms, bacterial genetics, microbial development, chemotaxis, bioremediation, microbial genomics, host defense systems, infectious diseases, viruses, and the future of microbiology. *After* MCDB 300a and CHEM 220a, 221b.

MCDB 291Lb, LABORATORY FOR MICROBIOLOGY. Iain Dawson.

Th 2.30- IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Laboratory experiments to supplement lectures of MCDB 290b. Emphasis on practical approaches used when working with microbes, primarily bacteria. Topics include microscopy, culture techniques, biochemical/metabolic assays, and basic environmental and medical microbiology. *To be taken concurrently with* MCDB 290b.

MCDB 300a^G/MB&B 200a, BIOCHEMISTRY. L. Nicholas Ornston, Donald Engelman.

MWF 9.30-10.20; *disc. 1* HTBA IV; Not CR/D/F Sc (32)

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. *After one term of organic chemistry.*

MCDB 301La/MB&B 251La, LABORATORY FOR BIOCHEMISTRY.

William Konigsberg, Aruna Pawashe.

For description see under Molecular Biophysics & Biochemistry.

MCDB 310a^G/BENG 350a^G, PHYSIOLOGICAL SYSTEMS. Mark Saltzman and staff.

For description see under Biomedical Engineering.

MCDB 315b, BIOLOGICAL MECHANISMS OF REACTION TO INJURY.

Michael Kashgarian, Joseph Madri, Vincent Marchesi, Jon Morrow, Jeffrey Sklar.

TTh 11.30-12.45 IV Sc Meets RP (o)

An introduction to human biology and disease as a manifestation of reaction to injury. Topics include organ structure and function, cell injury, circulatory and inflammatory responses, disordered physiology, and neoplasia. *After* MCDB 120a and *with or after* MCDB 205b or 300a or 310a.

★MCDB 316b, EXPERIMENTAL STRATEGIES IN MOLECULAR CELL BIOLOGY. Mark Mooseker.

MW 9-10.15 IV Sc (32)

A combination of lectures and discussion sections that emphasize experimental rationales as they have been applied to major problems in cell biology over the past four decades. Topics include experimental methods, evaluation of primary data, and experimental design. *Prerequisite: one course at Yale in the biological sciences (Biology or MB&B) or permission of instructor.*

***MCDB 351La or Lb, LABORATORY IN ELECTRON MICROSCOPY.**

Barry Piekos.

IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit Meets RP (o)

351La: T 1.30–

351Lb: T 1.30– or W 1–

Techniques in light and electron microscopy. *Enrollment limited; in fall term only, preference given to senior Biology and MB&B majors, who must devote two to three additional laboratory hours per week. Recommended to be taken after or concurrently with MCDB 205b.*

***MCDB 352La, LABORATORY IN NUCLEIC ACIDS I.** Kenneth Nelson.

TTh 1.30– IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

An introduction to many of the technologies used in molecular and cell biology. The course is organized as a project from a research laboratory within the MCDB department. Laboratories meet twice a week for the first half of the term. *With or after MCDB 202a, 205b, or 300a. Enrollment limited.*

Special registration procedures apply. Students must consult the instructor prior to the first week of classes.

***MCDB 353La, LABORATORY IN NUCLEIC ACIDS II.** Kenneth Nelson.

TTh 1.30– IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Continuation of MCDB 352La to more advanced methods and techniques in molecular and cell biology, including projects such as making and screening cDNA libraries or microarray screening and analysis. Laboratories meet twice a week for the second half of the term. *After MCDB 352La or with permission of instructor. Enrollment limited.*

Special registration procedures apply. Students must consult the instructor prior to the first week of classes.

***MCDB 354Lb, EXPERIMENTAL TECHNIQUES IN CELLULAR BIOLOGY.**

Joseph Wolenski.

MW 1.30–6.30 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Rigorous hands-on experience in three essential aspects of biomedical research: experimental design and rationale, proper bench techniques, and interpretation of results from original data. Bench techniques include mammalian cell culture, separation of proteins using denaturing gel electrophoresis (SDS-PAGE), immunoblotting, UV and colorimetric protein determination, and analysis of anticancer agents on cell physiology. Students present their data at lab meetings and present journal data at a short formal seminar. *Prepares for MCDB 475a or b or 485 or 495. Enrollment limited. Prerequisite: MCDB 205b.*

Special registration procedures apply. Students must contact the instructor prior to the start of the term.

***MCDB 355Lb, EXPERIMENTAL STRATEGIES IN CELLULAR BIOLOGY.**

Joseph Wolenski.

MW 1.30–6.30 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Advanced laboratory techniques and research strategies common to several disciplines, including biochemistry, physiology, and cell biology. Techniques include subcellular fractionation, organelle enrichment, immunoprecipitation of proteins, principles of centrifugation and column chromatography, and fundamentals of

light microscopy. Students also learn to stain cells and collect digital images using immunofluorescence microscopy. Toward the end of the term each student pursues an independent mini-project involving the purification of a protein of interest. Oral presentations of data are required. *Prepares for* MCDB 475a or b or 485 or 495. *Prerequisite:* MCDB 354Lb.

MCDB 360a^G, NEUROBIOLOGY. Haig Keshishian, Paul Forscher.

MWF 11.30-12.20 IV Sc (34)

Examination of the excitability of the nerve cell membrane as a starting point for the study of molecular, cellular, and intercellular mechanisms underlying the generation and control of behavior. *After a year of chemistry; a course in physics is strongly recommended.*

MCDB 361La^G, LABORATORY FOR NEUROBIOLOGY. Haig Keshishian, Robert Wyman.

T or W 1.30- IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Optional laboratory. Introduction to the neurosciences. Projects include the study of neuronal excitability, sensory transduction, CNS function, synaptic physiology, and neuroanatomy. *Concurrently with or after* MCDB 360a.

MCDB 370b^G, BIOTECHNOLOGY. Michael Snyder, Kenneth Nelson, Ronald Breaker, Joseph Wolenski.

MW 11.30-12.45 IV; Not CR/D/F Sc (34)

The principles and applications of cellular, molecular, and chemical techniques that advance biotechnology. Topics include the most recent tools and strategies used by government agencies, industrial labs, and academic research to adapt biological and chemical compounds as medical treatments, as industrial agents, or for the further study of biological systems. *Prerequisites:* MCDB 202a and 300a.

*MCDB 387b, THE EUKARYOTIC CELL CYCLE. Iain Dawson.

T 7-8.50 P.M. IV; Not CR/D/F Sc (0)

An examination of the regulation and coordination of the eukaryotic cell cycle, by means of a detailed critique of primary literature. Particular attention to the processes of development, differentiation, and oncogenic disease. *Enrollment limited, with preference to juniors and seniors. Prerequisite or corequisite:* MCDB 202a or 205b.

Special registration procedures apply. Students must contact the instructor prior to the first week of classes.

MB&B 405a^G, MOLECULAR GENETICS OF PROKARYOTES. Nigel Grindley, Patrick Sung, Joann Sweasy.

MCDB 410a^G, MOLECULAR BASIS OF DEVELOPMENT. Xing-Wang Deng, Martín García-Castro, Frank Slack, Weimin Zhong.

TTh 2.30-3.45 IV; Not CR/D/F Sc (27)

Current understanding of the molecular mechanism of cell signaling and development in multicellular organisms and their relevance to human diseases. Topics include the basics of cell signaling and experimental model organisms, cell proliferation and death, cell specification and determination, cell migration, hormonal regulation, and environmental regulation. *Intended for advanced students after completion of at least one MCDB core course or equivalent.*

MCDB 415b^G, CELLULAR AND MOLECULAR PHYSIOLOGY.

Emile Boulpaep, Michael Caplan.

MWF 9.30-10.20 IV; Not CR/D/F Sc (32)

Study of the processes that transfer molecules across membranes. Topics include the different classes of molecular machines that mediate membrane transport. Emphasis on interactions among transport proteins in determining the physiologic behaviors of cells and tissues. *Intended for seniors majoring in the biological sciences. Recommended preparation: MCDB 205b, 310a, 360a, or permission of instructor.*

MCDB 425a^G/MB&B 425a^G, BASIC CONCEPTS OF GENETIC ANALYSIS.

Tian Xu, Michael Koelle, and staff.

For description see under Molecular Biophysics & Biochemistry.

MCDB 430a^G, BIOLOGY OF THE IMMUNE SYSTEM. Sankar Ghosh,

Peter Cresswell, Akiko Iwasaki, Susan Kaech, Ruslan Medzhitov,

David Schatz, Mark Shlomchik.

MWF 9.30-10.20 IV; Not CR/D/F Sc (32)

The development of the immune system. Cellular and molecular mechanisms of immune recognition. Effector responses against pathogens; autoimmunity. *After MCDB 300a.*

★MCDB 435a, LANDMARK PAPERS IN CELL BIOLOGY.

Joel Rosenbaum.

2 HTBA IV; Not CR/D/F Sc (50)

Discussion and critical evaluation of selected research papers that were important in determining the directions of modern cell biological research. Emphasis on the nature of the problem, evaluation of the experimental approaches and results, and the authors' interpretation of the results. *Students should contact the instructor prior to the first week of classes. Prerequisites: courses in cell biology, biochemistry, and genetics, or permission of instructor.*

★MCDB 440b^G, BRAIN DEVELOPMENT AND PLASTICITY. Weimin Zhong, Elke Stein.

MW 2.30-3.45 IV Sc (37)

Exploration of recent advances in our understanding of brain development and plasticity, including neuronal determination, axon guidance, synaptogenesis, and developmental plasticity. *Prerequisite: MCDB 360a or permission of instructor.*

MCDB 452a^G/CPSC 452a/MB&B 452a^G, GENOMICS AND BIOINFORMATICS.

Dieter Söll, Mark Gerstein, Michael Snyder.

For description see under Molecular Biophysics & Biochemistry.

★MCDB 470a or b, TUTORIAL. Elke Stein.

HTBA IV; Not CR/D/F (0)

Individual or small-group study for qualified students who wish to investigate a broad area of 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. This is 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, available in the office of the director of undergraduate studies, and a written plan of study with bibliography, approved by the adviser. The form and proposal must be uploaded to the Classes server or submitted to the course instructor in 754 KBT by Wednesday, September 20, for the fall term and Tuesday, January 30, for the spring term. The final paper is due in the hands of the sponsoring faculty member, with a copy to the course instructor, by the beginning of reading period. 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 will count as an elective for the major. *One term of this course fulfills the senior requirement if taken in the senior*

year. Additional sections offered in Beijing, China, through the Peking University–Yale University Joint Undergraduate Program.

★MCDB 475a or b, RESEARCH. Elke Stein.

HTBA IV; Not CR/D/F (○)

Research projects under faculty supervision, ordinarily taken to fulfill the senior requirement. This course may be taken before the senior year, but it cannot substitute for other requirements. Students are expected to spend approximately ten hours per week in the laboratory and participate in monthly section meetings. At the beginning of the term the student must submit a written proposal of research approved by the Yale faculty sponsor and the instructor in charge of the course. A final research report is required before a grade is given. 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. Students should line up a research laboratory during the term preceding the research. Guidelines for the course should be obtained from the office of the director of undergraduate studies or downloaded from the Classes server. Written proposals are due Wednesday, September 20, for the fall term and Tuesday, January 30, for the spring term. *One term of this course fulfills the senior requirement if taken in the senior year. Additional sections offered in Beijing, China, through the Peking University–Yale University Joint Undergraduate Program.*

★MCDB 485, RESEARCH IN BIOLOGY. Elke Stein.

HTBA IV; Not CR/D/F (○) *Cr/Year only*

Individual two-term laboratory research projects under the supervision of a faculty member. Students are expected to spend ten to twelve hours per week in the laboratory and to attend monthly discussion groups. Written assignments include a research proposal, due at the beginning of the first term, and a research report that summarizes experimental results, due at the end of the second term. Students should line up a research laboratory during the term preceding the research. Guidelines for the course should be obtained from the office of the director of undergraduate studies or downloaded from the Classes server. Written proposals are due Wednesday, September 20, 2006. *Fulfills the senior requirement if taken in the senior year.*

★MCDB 495, INTENSIVE RESEARCH IN BIOLOGY. Martín García-Castro.

HTBA IV; Not CR/D/F 4 C Credits (○) *Cr/Year only*

Qualified students may undertake directed research in some field of biology during the senior year. Before registering for this course, the student must be accepted by a member of the Yale faculty for a research project and obtain the approval of the instructor in charge of the course. Students spend approximately twenty hours per week in the laboratory and prepare written and oral presentations of their research. Guidelines for the course are covered in detail in an information sheet that students should obtain from the office of the director of undergraduate studies early in the final term of the junior year. A written proposal must be submitted by Wednesday, September 13, 2006. *Fulfills the senior requirement if taken in the senior year.*

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 bulletin of the Graduate School and many are posted at <http://info.med.yale.edu/bbs>. Additional information is available from the directors of undergraduate and graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

BIOMEDICAL ENGINEERING

Director of undergraduate studies: James Duncan, 332 Brady Memorial Laboratory, 785-2427, 308 BECTON, 432-4217, james.duncan@yale.edu

FACULTY OF THE DEPARTMENT OF BIOMEDICAL ENGINEERING

PROFESSORS

Richard Carson, James Duncan (*Electrical Engineering*), Douglas Rothman, Mark Saltzman (*Chemical Engineering*), Steven Segal, Frederick Sigworth, Steven Zucker (*Electrical Engineering*)

ASSOCIATE PROFESSORS

Jacek Cholewicki (*Mechanical Engineering*), R. Todd Constable, Francesco d'Errico, Fahmeed Hyder, Laura Niklason, Lawrence Staib (*Electrical Engineering*), Hemant Tagare

ASSISTANT PROFESSORS

Robin de Graaf, Tarek Fahmy, Themis Kyriakides, Mark Laubach, Erin Lavik (*Chemical Engineering*), Michael Levene, Xenophon Papademetris

LECTURER

Camille Solbrig

Engineering methods and strategies are used to address important biomedical problems ranging from studies of physiological function using images to the development of artificial organs and new biomaterials. The major in Biomedical Engineering is designed to provide students with an understanding of the common methodologies that underlie many of these problems as well as the ability to develop quantitative approaches to understanding one of three biomedical engineering fields in more detail.

The flexible course structure of the major permits students to understand and bridge basic concepts in the life sciences and at least one of the traditional engineering disciplines offered at Yale, while also gaining a comprehensive understanding of biomedical engineering as a field of study.

Requirements of the major. The B.S. degree program in Biomedical Engineering offers three tracks: the bioimaging track, the biomechanics track, and the molecular engineering track.

During the freshman year, students study basic mathematics, chemistry, and biology. By the end of the sophomore year, they have taken physics, ENAS 194a or b, and BENG 350a, Physiological Systems. In the junior year, students obtain a comprehensive grounding in the field through taking BENG 351a and 352b, Biomedical Engineering I and II, and BENG 355L, Biomedical Engineering Laboratory, as well as an elective in one of the three areas of concentration in order to prepare for more advanced work. During the remainder of the junior and senior years, students acquire depth in one of the three areas of concentration. A senior seminar and a senior project permit students to gain practical, detailed information about their chosen area of concentration.

The following courses are prerequisite to the major for students in all tracks: MCDB 120a; the first term of CHEM 113 or 114, or CHEM 118a; ENAS 194a or b; MATH 112a or b, 115a or b, and 120a or b; PHYS 180a, 181b, 205La or Lb, and 206La or Lb (or 165La and 166Lb).

Students must complete ten term courses, totaling nine course credits, beyond the prerequisites, including at least three required courses in the chosen track, both terms of the Biomedical Engineering Laboratory (BENG 355L), and the two-term senior requirement.

All students in the major are required to take the following three term courses and one yearlong laboratory course: BENG 350a, 351a, 352b, and 355L. Students in the *bioimaging track* must also take three courses chosen from EENG 310a, BENG 349b, 410a, 421b, 436b, 445a, or CPSC 475b. Students in the *biomechanics track* must also take three courses chosen from MENG 185b, 280a, 361a, BENG 410a, 434a, or 457b. Students in the *molecular engineering track* must also take three courses chosen from BENG 410a, 434a, 435b, 464a, MENG 361a, or MB&B 300a. Any relevant course may be substituted with the permission of the director of undergraduate studies. By the end of senior year, two courses in the life sciences must have been included among the prerequisite and required courses for the major.

Senior requirement. In their senior year, all students must complete a one-term senior project (BENG 471a or 472b) and the senior seminar (BENG 480a).

Credit/D/Fail option. For students in the Class of 2009 and subsequent classes, no course taken on a Credit/D/Fail basis may count toward the major, including prerequisites.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Biomedical Engineering may be eligible to apply for a special program that includes industry research experience. See under Engineering.

Preparation for graduate study. The Biomedical Engineering curriculum is excellent preparation for graduate study in engineering, science, and medicine. In some cases, organic chemistry and/or certain biology courses may be substituted for courses in any one of the tracks after consultation with the director of undergraduate studies.

REQUIREMENTS OF THE MAJOR

Prerequisites: MCDB 120a; first term of CHEM 113 or 114, or CHEM 118a; ENAS 194a or b; MATH 112a or b, 115a or b, 120a or b; PHYS 180a, 181b, and 205La or Lb, 206La or Lb (or 165La, 166Lb)

Number of courses: Ten term courses, totaling nine course credits, beyond prerequisites (including the senior requirement)

Distribution of courses: Two courses in the life sciences among the prerequisite and required courses

Specific courses required: *All tracks*—BENG 350a, 351a, 352b, 355L; *bioimaging track*—three from EENG 310a, BENG 349b, 410a, 421b, 436b, 445a, or CPSC 475b; *biomechanics track*—three from MENG 185b, 280a, 361a, BENG 410a, 434a, or 457b; *molecular engineering track*—three from BENG 410a, 434a, 435b, 464a, MENG 361a, or MB&B 300a

Substitution permitted: Relevant course with permission of DUS

Senior requirement: Senior project (BENG 471a or 472b) and senior sem (BENG 480a)

Unless otherwise indicated, courses in Biomedical Engineering count toward the natural science requirement for the Class of 2008 and previous classes.

★BENG 090a, STEM CELLS: SCIENCE AND POLITICS. Erin Lavik.

TTh 9-10.15 WR, Sc (0) Fr sem

An introduction to the science of stem cells; focus on the various types, including their isolation, growth, and potential. Texts include newspaper articles, editorials, scientific journal articles, and general-interest articles. *Designed for non-scientists. Enrollment limited to freshmen.*

★BENG 100b, FRONTIERS OF BIOMEDICAL ENGINEERING.

Mark Saltzman.

TTh 10.30-11.20, Th 1-4 IV Sc (23)

The basic concepts of biomedical engineering and their connection with the spectrum of human activity. Introduction to the fundamental science and engineering on which biomedical engineering is based. Case studies of drugs and medical products illustrate the product development–product testing cycle, patent protection, and FDA approval. Designed for science and non–science majors.

BENG 349b, BIOMEDICAL DATA ANALYSIS. Richard Carson.

MWF 9.30–10.20 IV; Not CR/D/F QR (32)

Introduction to the analysis of biological and medical data associated with applications of biomedical engineering. Provides basics of statistics and analytical approaches for determination of quantitative biological parameters from experimental data. *Prerequisite:* MATH 120a or b. *After or concurrently with* ENAS 194a or b.

BENG 350a^G/MCDB 310a^G, PHYSIOLOGICAL SYSTEMS. Mark Saltzman and staff.

MWF 9.30–10.20 IV; Not CR/D/F Sc (32)

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 113 or 114 or PHYS 180a and 181b, MCDB 120a.

BENG 351a/CENG 351a, BIOMEDICAL ENGINEERING I: QUANTITATIVE PHYSIOLOGY. Tarek Fahmy.

TTh 11.30–12.45 IV; Not CR/D/F QR, Sc (24)

Together with the companion course BENG 352b, a yearlong presentation of the fundamentals of biomedical engineering. Demonstration of the use of engineering analysis and synthesis in problems in the life sciences and medicine; focus on modeling of molecular physiological processes and design of artificial organs. Lectures are coordinated with BENG 350a to illustrate how engineering analysis can be used to understand physiological processes. Additional topics include pharmacokinetics, heat and mass transfer in physiological systems, hemodialysis, drug delivery, and tissue engineering. *Concurrently with* BENG 350a. *Prerequisites:* MCDB 120a, *the first term of* CHEM 113 or 114, or 118a; PHYS 180a, 181b; MATH 115a or b; ENAS 194a or b.

BENG 352b/EENG 352b, BIOMEDICAL ENGINEERING II. James Duncan, Fahmeed Hyder.

TTh 11.30–12.45 IV; Not CR/D/F QR, Sc (24)

In conjunction with BENG 351a, a comprehensive introduction to the field of biomedical engineering. Topics include biosignals, medical imaging, mathematical modeling of biosystems, and biomechanics. *Prerequisites:* PHYS 180a and 181b, MATH 115a or b, and ENAS 194a or b.

BENG 355L, BIOMEDICAL ENGINEERING LABORATORY. Fahmeed Hyder, Lawrence Staib.

M 1–5 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit per term (0)

Introduction to laboratory techniques used in physiological measurements, medical signal processing, imaging technologies, dialysis, and radiophysics, including the hardware and software tools used in biomedical engineering.

***BENG 410a, PHYSICAL AND CHEMICAL BASIS OF BIOIMAGING AND BIOSENSING.** Douglas Rothman, Frederick Sigworth.

TTh 1–2.15 IV QR, Sc (26)

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 351a and 352b or permission of instructor.

★BENG 421b^G, PHYSICS OF MEDICAL IMAGING. R. Todd Constable.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc (34)

The physics of image formation, with special emphasis on techniques with medical applications. Emphasis on concepts common to different types of imaging, along with understanding how information is limited by physical phenomena. Topics include mathematical concepts of image analysis; formation of images by ionizing radiation; ultrasound; NMR and other energy forms; and methods of evaluating image quality. *Prerequisites:* ENAS 194a or b, and PHYS 180a, 181b, or 200a, 201b, and EENG 310a, or permission of instructor.

BENG 434a, BIOMATERIALS. Camille Solbrig.

TTh 9-10.15 IV Sc (22)

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 113 or 114; *organic chemistry recommended.*

BENG 435b^G, BIOMATERIAL-TISSUE INTERACTIONS. Themis Kyriakides.

MW 2.30-3.45 IV Sc (37)

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:* the first term of CHEM 113 or 114, or CHEM 118a, and MCDB 120a, or equivalents.

★BENG 436b^G, BIOPHOTONICS AND OPTICAL MICROSCOPY.

Michael Levene.

MW 4-5.15 IV (37)

A review of linear and nonlinear optical microscopies and other biophotonics applications. Topics include wide-field techniques, linear and nonlinear laser scanning microscopy, fundamentals of geometrical and physical optics, optical image formation, laser physics, single molecule techniques, fluorescence correlation spectroscopy, and light scattering. Discussion of fluorescence and the underlying physics of light-matter interactions that provide biologically relevant signals.

BENG 445a^G/EENG 445a^G, BIOMEDICAL IMAGE PROCESSING AND ANALYSIS. James Duncan, Lawrence Staib.

TTh 9-10.15 IV (22)

A study of the basic computational principles related to processing and analysis of biomedical images (e.g., magnetic resonance, computed X-ray tomography, fluorescence microscopy). Basic concepts and techniques related to discrete image representation, multidimensional frequency transforms, image enhancement/restoration, image segmentation, and image registration. *Prerequisite:* EENG 310a or permission of instructors. *Recommended preparation:* familiarity with probability theory.

BENG 457b^G/MENG 457b^G, BIOMECHANICS. Jacek Cholewicki.

TTh 2.30-3.45 IV; Not CR/D/F QR, Sc Meets RP (27)

An introduction to the application of mechanical engineering principles to biological materials and systems. Topics include ligament, tendon, bone, muscle; joints, gait analysis; exercise physiology. The basic concepts are directed toward an understanding of the science of orthopedic surgery and sports medicine. *Prerequisites: MENG 280a and 383a or permission of instructor.*

BENG 464a, TISSUE ENGINEERING. Erin Lavik.

M 2-5, W 3-5 IV Sc (○)

Introduction to the major aspects of tissue engineering, including materials selection, scaffold fabrication, cell sources, cell seeding, bioreactor design, drug delivery, and tissue characterization. Class sessions include lectures and hands-on laboratory work. *Prerequisite: the first term of CHEM 113 or 114, or CHEM 118a. Recommended preparation: organic chemistry.*

★**BENG 471a and 472b, SPECIAL PROJECTS.** Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (○)

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 is usually taken during the spring term of the senior year but with permission of the director of undergraduate studies can be taken any time during a student's career, and may be taken more than once. *Permission of both the instructor and the director of undergraduate studies is required.*

★**BENG 480a^G, SEMINAR IN BIOMEDICAL ENGINEERING.**

Michael Levene.

W 1-3 IV; Not CR/D/F (○)

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.

BIOPHYSICS

(See under Molecular Biophysics and Biochemistry.)

BRITISH STUDIES

(Courses at the Paul Mellon Centre in London)

Courses in British studies covering British history, history of art, literature, and drama are offered during the spring term by the Yale-in-London program at the Paul Mellon Centre for Studies in British Art, located in central London. Information about courses offered in spring 2007 and application forms will be available on the Web by September 15, 2006, at www.yale.edu/ycba/education. Inquiries may also be directed to the Yale-in-London office, Yale Center for British Art, 1080 Chapel Street (P.O. Box 208280, New Haven, CT 06520-8280), 432-2824. The application deadline for spring 2008 is Monday, April 9, 2007. A second application deadline for spring term 2007 is Friday, October 13, 2006. Students will be notified of acceptance within one month of the application deadline. Inquiries about the summer program, described in chapter I, should be directed to the same office. Applications for summer 2007 are due January 12, 2007.

CHEMICAL ENGINEERING

Director of undergraduate studies: Michael Loewenberg, 303 ML, 432-4334,
michael.loewenberg@yale.edu

FACULTY OF THE DEPARTMENT OF CHEMICAL ENGINEERING

PROFESSORS

Eric Altman, †Gaboury Benoit, †Donald Crothers, Menachem Elimelech, Abbas Firoozabadi (*Adjunct*), †Thomas Graedel, Gary Haller, †Edward Kaplan, Michael Loewenberg, Robert McGraw (*Adjunct*), Lisa Pfefferle, Joseph Pignatello (*Adjunct*), Daniel Rosner, †James Saiers, †Mark Saltzman, John Walz (*Adjunct*), L. Lee Wikstrom (*Adjunct*), †Kurt Zilm

ASSOCIATE PROFESSORS

Yehia Khalil (*Adjunct*), Paul Van Tassel

ASSISTANT PROFESSORS

†Michelle Bell, †Eric Dufresne, †Tarek Fahmy, William Mitch, Jordan Peccia

LECTURER

James Wallis

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

Chemical engineering has made significant contributions to a diverse range of scientific and technological developments such as drug delivery devices, microfluidic devices, environmental remediation, fuel cells, semiconductor processing, and enzyme design using biomimetics. The far-reaching impact of chemical engineering can be attributed to its focus on basic principles from physics, chemistry, and biology and its systematic approach to problem solving and analysis.

The Chemical Engineering program is focused on fundamental engineering science. The curriculum provides a strong background in basic science (mathematics, chemistry, physics) and the analysis of experiments and problems in the chemical engineering sciences (thermodynamics, chemical kinetics, fluid mechanics, and transport phenomena). A special feature of the program is the accessibility of laboratory research. Most majors participate in research with faculty members, often leading to a refereed journal publication.

A major in Chemical Engineering prepares graduates for a wide range of career options. Recent graduates have become professors, scientists at national laboratories, doctors, lawyers, managers, and policy makers.

The program has three central objectives: to provide graduates with an excellent engineering science background for graduate study in chemical, biomedical, and environmental engineering programs, as well as superior scientific and analytical preparation for medical school and law school; to prepare graduates for a diverse range of industrial careers through experience in chemical engineering design, process control, economics, safety, and ethics; and to provide graduates with a broad education that combines rigorous courses for the Chemical Engineering major with the Yale College distributional requirements.

Students considering the Chemical Engineering major are encouraged to take two terms of chemistry and mathematics during their freshman year. Interested students should contact the director of undergraduate studies.

Requirements of the major. Two degree programs are offered: a B.S. degree in Chemical Engineering that is accredited by the Accreditation Board for Engineering and Technology (ABET) and an unaccredited B.S. degree in Engineering Sciences (Chemical) that provides more flexibility for course work in other fields.

Prerequisites. Students in both degree programs take the following prerequisite courses: MATH 112a or b, 115a or b, and 120a or b; PHYS 180a, 181b; CHEM 114 and 116L, or 118a; ENAS 130b. Students with advanced high school preparation may reduce the number of prerequisites.

B.S. degree program in Chemical Engineering. The curriculum for the ABET-accredited B.S. degree in Chemical Engineering includes the following required courses beyond the prerequisites:

1. *Mathematics:* ENAS 194a or b, and MATH 222a or b or another advanced term course in mathematics or computer science

2. *Chemistry:* CHEM 220a or 225b; 221b or 227a; 332a, 333b and 331L (fall term)

3. *Engineering science:* MENG 361a and two term courses chosen from engineering or science electives

4. *Chemical engineering:* CENG 210a, 300a, 301b, 315b, 411a, 412b, 480a

Senior requirement. In their senior year students must pass CENG 416b, Chemical Engineering Process Design.

B.S. degree program in Engineering Sciences (Chemical). The curriculum for the B.S. degree in Engineering Sciences (Chemical) consists of ten term courses beyond the prerequisites, chosen in consultation with the director of undergraduate studies. The standard program includes the following courses:

1. *Mathematics:* ENAS 194a or b

2. *Chemistry:* CHEM 220a or 225b, and 221b or 227a; or 332a, 333b

3. *Engineering science:* MENG 361a

4. *Chemical engineering:* CENG 210a, 300a, 301b, 315b, 411a

Senior requirement. In their senior year students must complete a senior research project in CENG 490a or b.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Chemical Engineering or Engineering Sciences (Chemical) may be eligible to apply for a special program that includes industry research experience. See under Engineering.

REQUIREMENTS OF THE MAJOR

CHEMICAL ENGINEERING, B.S.

Prerequisites: MATH 112a or b, 115a or b, 120a or b; CHEM 114 and 116L, or 118a; PHYS 180a, 181b; ENAS 130b

Number of courses: Eighteen course credits beyond prerequisites (including the senior requirement)

Specific courses required: ENAS 194a or b; CHEM 220a or 225b; 221b or 227a; 332a, 333b and 331L (fall term); MENG 361a; CENG 210a, 300a, 301b, 315b, 411a, 412b, 480a

Senior requirement: CENG 416b

ENGINEERING SCIENCES (CHEMICAL), B.S.

Prerequisites: MATH 112a or b, 115a or b, 120a or b; CHEM 114 and 116L, or 118a; PHYS 180a, 181b; ENAS 130b

Number of courses: Ten course credits beyond prerequisites (including the senior requirement)

Specific courses required: ENAS 194a or b; CHEM 220a or 225b, and 221b or 227a; or 332a, 333b; MENG 361a; CENG 210a, 300a, 301b, 315b, 411a

Senior requirement: CENG 490a or b

Unless otherwise indicated, courses in Chemical Engineering count toward the natural science requirement for the Class of 2008 and previous classes.

CENG 120a/ENAS 120a/ENVE 120a, INTRODUCTION TO ENVIRONMENTAL ENGINEERING. Jordan Peccia.

For description see under Environmental Engineering.

CENG 210a/ENVE 210a, PRINCIPLES OF CHEMICAL ENGINEERING AND PROCESS MODELING. Lisa Pfefferle.

MW 1-2.15 IV; Not CR/D/F QR, Sc Meets RP (36)

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 120a or b or *permission of instructor.*

CENG 300a, CHEMICAL ENGINEERING THERMODYNAMICS.

Paul Van Tassel.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc Meets RP (34)

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 120a or b or *permission of instructor.*

CENG 301b, CHEMICAL KINETICS AND CHEMICAL REACTORS.

Gary Haller.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc Meets RP (34)

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 194a or b or *permission of instructor.*

CENG 315b/ENVE 315b, TRANSPORT PHENOMENA. Michael Loewenberg.

MW 1-2.15 IV; Not CR/D/F QR, Sc Meets RP (36)

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 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 194a or b or *permission of instructor.*

CENG 351a/BENG 351a, BIOMEDICAL ENGINEERING I: QUANTITATIVE PHYSIOLOGY. Tarek Fahmy.

For description see under Biomedical Engineering.

CENG 373a/ENVE 373a, AIR POLLUTION CONTROL. Yehia Khalil.

For description see under Environmental Engineering.

★CENG 377b/★ENVE 377b, WATER QUALITY CONTROL. William Mitch.

For description see under Environmental Engineering.

CENG 411a, SEPARATION AND PURIFICATION PROCESSES.

Daniel Rosner.

MW 2.30-3.45 IV; Not CR/D/F QR, Sc Meets RP (37)

Theory and design of separation processes for multicomponent and/or multi-phase 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. *Prerequisites:* CENG 300a or 315b or permission of instructor.

CENG 412b, CHEMICAL ENGINEERING LABORATORY. Eric Altman.
W 12-4 IV; Not CR/D/F Sc Meets RP (35)

Basic experiments in chemical engineering science, including interpretation, analysis, and modeling of experimental results. Typical experiments include liquid level control, convective heat transfer, electrophoresis of colloidal particles, surface tension, surface wettability measurements, particle sedimentation, micro-filtration, and flow in porous media.

CENG 416b/ENVE 416b, CHEMICAL ENGINEERING PROCESS DESIGN.
Yehia Khalil.

TTh 7-8.15 P.M. IV; Not CR/D/F QR, Sc Meets RP (0)

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. *Prerequisites:* CENG 301b and 411a.

CENG 471a or b, INDEPENDENT RESEARCH. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (0)

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.
Eric Altman.

TTh 9-10.15 IV; Not CR/D/F QR, Sc Meets RP (22)

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 194a or b or permission of instructor.

*CENG 490a or b, SENIOR RESEARCH PROJECT. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (0)

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.

COURSE IN ANOTHER DEPARTMENT THAT COUNTS TOWARD THE MAJOR

The following course counts equally with Chemical Engineering courses toward the requirements of the major.

MENG 361a, MECHANICAL ENGINEERING II: FLUID MECHANICS.
Alessandro Gomez.

CHEMISTRY

Director of undergraduate studies: Kurt Zilm, 249 SCL, 432-3956,
 kurt.zilm@yale.edu [F]; Patrick Vaccaro, 240 SCL, 432-3975,
 patrick.vaccaro@yale.edu [Sp]

FACULTY OF THE DEPARTMENT OF CHEMISTRY

PROFESSORS

†Sidney Altman, Gary Brudvig, Robert Crabtree, R. James Cross, Jr., John Faller,
 †Gary Haller, Andrew Hamilton, †Francesco Iachello, Mark Johnson, William
 Jorgensen, J. Michael McBride, Peter Moore, †Lynne Regan, Martin Saunders,
 Alanna Schepartz, Charles Schmuttenmaer, †Dieter Söll, †Thomas Steitz, †Scott
 Strobel, John Tully, Patrick Vaccaro, Kurt Zilm

ASSOCIATE PROFESSORS

Victor Batista, †Craig Crews, J. Patrick Loria

ASSISTANT PROFESSORS

Glenn Micalizio, Ann Valentine

LECTURERS

Iona Black, Christine DiMeglio, N. Ganapathi, Jonathan Parr

†A joint appointment with primary affiliation in another department.

The wide range of courses offered by the Department of Chemistry reflects the position of chemistry as the foundation of all the molecular sciences.

Students with B.A. or B.S. degrees in chemistry go on to a variety of professional callings. In addition to graduate work in chemistry, biochemistry, medicine, or other health-related disciplines, the department's graduates find their broad scientific training useful in fields such as business management and law. As contemporary society's problems involve ever more complex scientific issues, degree programs in the sciences become increasingly appropriate for students wishing to pursue careers in public policy, government, or public service. The breadth of exposure to the physical and life sciences makes chemistry an especially appropriate major for these students.

The department offers a flexible arrangement of beginning and upper-level courses intended to meet a variety of student interests. The choice of a proper course of study depends on the student's preparation and career goals. The director of undergraduate studies or any of the departmental advisers is available to assist students in choosing course offerings best suited to their educational needs. A list of advisers is available in the Chemistry department main office, 1 SCL.

The majority of students intending to major in one of the physical or life sciences, as well as those planning to pursue postgraduate studies in a health-related discipline, should begin the study of chemistry in their freshman year.

Placement in introductory courses. The introductory chemistry courses are designed to address the varied needs of Yale freshmen for a solid grounding in general chemistry. Placement in these courses is determined by the Chemistry department using achievement test scores as well as information provided by preregistration and by the Admissions Office. Students may gain access to more advanced courses by taking the department's placement examination.

There are six different courses that commonly serve as a student's entry into the study of chemistry at Yale. The majority of students begin with a general chemistry sequence: either CHEM 113, Chemistry with Problem Solving; CHEM 114, Comprehensive General Chemistry; or CHEM 118a, Quantitative Foundations of General Chemistry. All of these courses fulfill the requirements for general chemistry in the Chemistry major and serve as the general chemistry prerequisite for any of the more advanced courses offered by the department.

Students with a sufficiently strong background in chemistry may initiate their studies with courses in organic or physical chemistry. CHEM 125, Freshman Organic Chemistry, is designed expressly for freshmen. Other beginning courses in organic or physical chemistry (CHEM 220a and 221b, 225b and 227a, 328a, or 332a and 333b) are available to qualified freshmen. CHEM 332a, 333b, Physical Chemistry with Applications in the Physical Sciences, is taught with the needs of freshmen in mind. Placement in any of these advanced courses provides chemistry and life science students with greater flexibility in course selection during subsequent years.

In addition, the Chemistry department offers two one-term courses intended for non-science majors: CHEM 100b, Chemistry in Popular Novels, and 103b, Chemistry, Energy, and the Environment. These courses have no prerequisites. They do not satisfy medical school requirements or the requirements for any science major (including Chemistry). For students in the Class of 2008 and previous classes, CHEM 100b and 103b count toward the Group IV distributional requirement.

Placement guidelines. A typical student in CHEM 113 may have taken a year of high school chemistry as a sophomore, but has not been exposed to the problem-solving approach used in many university-level science courses. Students placed in CHEM 114 may have taken one or two years of chemistry in high school and have had some exposure to quantitative problem-solving scientific methods. A little more than half of the students placed in CHEM 114 last took chemistry as sophomores in high school. Students in CHEM 118a have done well in an advanced placement course in chemistry or shown other evidence of high achievement in science or mathematics. For instance, students having a Chemistry Advanced Placement test score of 5 are placed into CHEM 118a. Students eligible for CHEM 118a who also perform well on the department's placement examination may enroll in CHEM 125 or 220a. Those who have a strong background in physics and calculus may be eligible for CHEM 332a, 333b (or 328a).

Placement procedures. The Chemistry department reviews the admission records of all incoming freshmen prior to the beginning of the fall term. Using these data and information supplied by students in preregistration, the department determines the appropriate general chemistry sequence for every entering freshman. This initial placement level is posted at www.chem.yale.edu/~dus and outside the Chemistry department main office, 1 SCL, by the beginning of registration week in the fall. Students planning to enroll in a chemistry course should check this list as soon as possible for their initial placement level.

Students wishing to take a higher-numbered chemistry course than they have been assigned to in the initial placement, as well as all students wishing to elect a lecture course numbered higher than CHEM 118a, must attend the department's registration and orientation meeting and take the placement examination. Students are advised to review general chemistry prior to taking this examination. Use of an electronic calculator on the examination is permitted. Times and places for the examination are published in the *Calendar for the Opening Days of College*. After the examination final placements are listed at www.chem.yale.edu/~dus and outside 1 SCL.

Students who feel they have been placed incorrectly may appeal their course assignment by consultation with a Chemistry placement adviser. Sessions with placement advisers are scheduled during the first week of the fall term. See the *Calendar for the Opening Days of College* for times and places. Students wishing to change their placement should consult one of the advisers as soon as possible.

Laboratory registration. Registration for laboratory sections takes place at the first regularly scheduled meeting of the associated lecture course. Due to the nature of laboratory exercises it is impractical to preview laboratory courses during the course selection period.

Placement information for upperclassmen. Upperclassmen taking an introductory chemistry course must attend the Chemistry department registration and orientation meeting to be advised of their placement. Since CHEM 113 is restricted to freshmen, upperclassmen are placed in either CHEM 114 or 118a. Upperclassmen wishing to enroll in CHEM 220a or 225b may do so as long as they have satisfied the general chemistry prerequisite.

Placement examination and registration information. For further information about registration, placement examinations, course placement, and class scheduling, consult the *Calendar for the Opening Days of College*, the *Freshman Handbook*, and www.chem.yale.edu/~dus.

Information 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 both terms of CHEM 113 or 114, or by completing two terms of physical chemistry (CHEM 328a or 332a and CHEM 333b). Students taking the term course CHEM 118a can complete this requirement by taking any additional term course in nonorganic chemistry with laboratory, for instance, CHEM 252b and 251Lb.

Requirements of the major. Both the B.A. and B.S. degrees in Chemistry have a core-course requirement that includes a year of general chemistry and laboratory, a year of organic chemistry and laboratory, a year of physical chemistry and laboratory, and a term course in inorganic chemistry. There is a great deal of flexibility in fulfilling these requirements and in adapting the Chemistry degree program to the requirements of medical and other professional schools. Four typical sequences that meet the Chemistry core-course requirements are listed below.

Standard Chemistry Major Core Sequences

Requirement	Core 1	Core 2	Core 3	Core 4
General chemistry	CHEM 113 or 114, 116L	CHEM 118a, 119La	—	CHEM 119La
Organic chemistry	CHEM 220a, 221b, 222La, 223Lb	CHEM 225b, 227a, 222Lb, 223La	CHEM 125, 126L	CHEM 220a, 221b, 222La, 223Lb
Physical chemistry	CHEM 328a or 332a, CHEM 333b, first term of 331L	CHEM 328a or 332a, CHEM 333b, first term of 331L	CHEM 328a or 332a, CHEM 333b, first term of 331L	CHEM 328a or 332a, CHEM 333b, first term of 331L
Inorganic chemistry	CHEM 252b, or one from CHEM 450b, 452a, or 457a	CHEM 252b, or one from CHEM 450b, 452a, or 457a	One from CHEM 252b, 450b, 452a, or 457a	One from CHEM 252b, 450b, 452a, or 457a
Additional laboratory	One course credit from second term of CHEM 331L or from CHEM 224La or Lb, 251Lb, MB&B 360Lb	One and one-half course credits from second term of CHEM 331L, or from CHEM 224 La or Lb, 251Lb, MB&B 360Lb	Two course credits from CHEM 224La or Lb, 251Lb, second term of 331L, MB&B 360Lb	One and one-half course credits from second term of CHEM 331L or from CHEM 224La or Lb, 251Lb, MB&B 360Lb

Core 1 is suitable for freshmen without an advanced chemistry background. Core 2 is intended for students with a strong background in chemistry. Core 3 and Core 4 are intended for students whose thorough preparation in high school is confirmed by satisfactory performance on the department's advanced chemistry placement examination. Students in Core 3 or Core 4 will find it possible to enroll in many graduate Chemistry offerings by their junior year and are encouraged to do so. Permission of the instructor and of the director of undergraduate studies is required in each instance.

Students electing Core 1, 2, or 4 may substitute MB&B 360Lb for one term of CHEM 331L or one term of the organic chemistry laboratory requirement. Substitutions other than those indicated in the three core sequences may be made only with approval of the director of undergraduate studies. No Chemistry courses to be counted toward the major (including substitutions for advanced courses) may be taken Credit/D/Fail. The graduate course CHEM 560L may replace CHEM 331L, but may not be counted as an advanced course in Chemistry. The graduate course CHEM 562 may not be counted toward any requirement of the major.

Examples of typical programs are available from the Chemistry department main office, 1 SCL.

Prerequisites. Each core sequence contains a course in physical chemistry. MATH 112a or b, 115a or b (MATH 120a or b is recommended), and PHYS 180a, 181b (or 150a, 151b, or 200a, 201b) or their equivalents in advanced placement are prerequisites for the physical chemistry courses.

B.S. degree. In addition to one of the four core sequences, the B.S. degree requires five additional terms of advanced chemistry lecture courses. At least one of these courses must be a course in Chemistry or MB&B 300a or 301b. Within this restriction, up to two terms of CHEM 490 (involving original research, not a literature project) or up to two terms of relevant advanced science courses may be used in fulfilling the five advanced term course requirement, with approval of the director of undergraduate studies.

B.A. degree. The B.A. degree requires completion of one of the four core sequences and three additional terms of advanced chemistry lecture courses. One of these must be a Chemistry course or MB&B 300a or 301b. Within this restriction, up to two terms of CHEM 490 (laboratory work, not literature research) or up to two terms of relevant advanced science courses may be used in fulfilling the three advanced term course requirement, with approval of the director of undergraduate studies.

Senior requirement. Senior majors prepare a written report and make an oral presentation on their laboratory, literature, or chemical education project in the spring term of CHEM 490. The presentation is made during the latter portion of the term and the paper is due the first day of the reading period of the student's final term. Research or literature papers are expected to be fifteen to twenty-five pages in length (double-spaced, twelve-point font, exclusive of figures).

Special restrictions on yearlong lecture courses. Completion of the first term of any yearlong Chemistry lecture course (CHEM 113, 114, 125, 220a and 221b, 225b and 227a, and 332a and 333b) with a passing grade is a prerequisite for registration in the subsequent term.

Special restrictions on laboratory courses. Any Chemistry lecture course may be taken without the accompanying laboratory (except CHEM 125, for which CHEM 126L is a corequisite). However, the appropriate lecture course is a prerequisite or corequisite for each laboratory course. *A student who is not*

enrolled in the second term of a yearlong lecture course may not take the second term of the related laboratory course. This restriction can be waived only by the director of undergraduate studies. All Chemistry laboratories earn one course credit for the year's work with the exception of CHEM 226La or Lb and 331L, which earn a full credit per term.

While CHEM 490 may be used to substitute for advanced lecture courses, it may not in any circumstance be substituted for any of the required core laboratory courses.

Junior Year or Term Abroad. Participation in the Junior Year or Term Abroad program is available for qualified majors at Sussex University (U.K.). Interested students should consult the director of undergraduate studies and the Chemistry Junior Year Abroad coordinator, Robert Crabtree. For general information about the Junior Year or Term Abroad, see chapter III of this bulletin.

Combined B.S./M.S. degree program in Chemistry. 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 by the day a student's schedule is due in the sixth term of enrollment. Acceptance into the program requires two-thirds A or A- grades within the major and one-half A or A- grades overall after five terms. CHEM 490 must be taken in the fifth and sixth terms with grades of A or A- earned to continue in the program. Subsequent grades are irrelevant as long as normal progress is maintained. Typical B.S./M.S. degree programs include completion of Core 3 or Core 4 and a Physics course at the level of 200 or higher by the end of the fourth term. Eight 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 as CHEM 990.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 112a or b, 115a or b (120a or b suggested); PHYS 180a, 181b (or 150a, 151b; or 200a, 201b), or the equivalents in advanced placement

Number of courses: *B.A. degree*—eight to ten term lecture courses depending on placement; four lab course credits; *B.S. degree*—ten to twelve term lecture courses depending on placement; four lab course credits

Specific courses required: General chem (CHEM 113, or 114, or 118a, or acceleration credit, depending on placement); organic chem (CHEM 125, or 220a, 221b, or 225b, 227a); physical chem (CHEM 328a or 332a and CHEM 333b); inorganic chem (CHEM 252b, or 450b, or 452a, or 457a); three advanced chem courses for the B.A.; five for the B.S.; four chem lab credits including organic chem (CHEM 126L or CHEM 222La or Lb and 223La or Lb) and physical chem (CHEM 331L)

Substitution permitted: Certain approved labs for the second term of CHEM 331L; up to two relevant advanced science or math courses in other depts for advanced chem courses with permission of DUS; up to two terms of CHEM 490 for advanced chem courses with permission of DUS

Senior requirement: Oral presentation at a spring-term sem and written report, both based on research or literature project completed in spring term of CHEM 490

Unless otherwise indicated, courses in Chemistry count toward the natural science requirement for the Class of 2008 and previous classes.

COURSES FOR NONMAJORS WITHOUT PREREQUISITES

★CHEM 100b, CHEMISTRY IN POPULAR NOVELS. Iona Black.
Lect. TH 9-10.15; lab/disc. 3 HTBA IV; Not CR/D/F Sc (o)

Chemistry through the reading of popular novels and articles, both fiction and nonfiction. A laboratory component provides practical understanding of concepts and techniques. *Intended for non-science majors; no prerequisites. Does not satisfy premedical chemistry requirements or requirements for the Chemistry major.*

CHEM 103b, CHEMISTRY, ENERGY, AND THE ENVIRONMENT. John Tully.
Lect. TRH 1-2.15; disc. 1 HTBA IV Sc (26)

Introduction to principles that govern chemical processes in everyday life, with emphasis on the production and use of energy. Exploration of constraints imposed by the laws of thermodynamics and the underlying nature of chemical reactions, as well as associated direct and environmental costs. *Intended for non-science majors with a basic high school background in chemistry and physics, as well as high school algebra. Does not satisfy premedical chemistry requirements or requirements for the Chemistry major.*

INTRODUCTORY COURSES

Freshmen planning to take an introductory Chemistry course during their first term are required to preregister over the summer. Those planning to elect CHEM 125 or 332a must also register in person and take a placement examination as described in the text above and in the *Freshman Handbook*. Placement in other introductory Chemistry courses is made on the basis of test scores and other admissions data, as discussed in the text above. Time and place for the orientation meeting, registration, and placement examination are listed in the *Calendar for the Opening Days of College*. For further information on placement see the *Freshman Handbook*.

All freshman candidates for CHEM 125, 220a, 225b, 328a, or 332a are required to take the department's advanced chemistry placement examination.

*CHEM 113, CHEMISTRY WITH PROBLEM SOLVING. Victor Batista [F], Gary Brudvig [Sp], Iona Black.

Lect. MWF 10.30-11.20 IV; Not CR/D/F QR, Sc Meets RP (33)

Disc. M or Th 11.30-12.20 or T 1.30-2.20 or W 2.30-3.20

Prob-solv. M 7-7.50 P.M. or M 8-8.50 P.M. or T 7-7.50 P.M.

For beginning students in chemistry or for those whose exposure to the subject has been moderate. Special emphasis on scientific problem-solving skills through an additional discussion section devoted to quantitative reasoning. Fulfills the prerequisites for medical school and for all majors requiring a year of general chemistry as well as the general chemistry prerequisite for CHEM 220a or 225b. *Attendance at one discussion section and one problem-solving section required. May not be taken after CHEM 114 or 118a. Enrollment limited to freshmen.* Enrollment by placement only. For placement information see "Placement in introductory courses" in the text above.

*CHEM 114, COMPREHENSIVE GENERAL CHEMISTRY. Jonathan Parr [F], staff [Sp].

Lect. MWF 10.30-11.20 IV; Not CR/D/F QR, Sc Meets RP (33)

Disc. MTW or Th 11.30-12.20 or 1.30-2.20 or 2.30-3.20

A comprehensive survey of modern descriptive, inorganic, and physical chemistry for students with a good secondary school exposure to general chemistry. Fulfills the prerequisites for medical school and for all majors requiring a year of general chemistry as well as the general chemistry prerequisite for CHEM 220a or 225b. *Attendance at a discussion section required. May not be taken after CHEM 113, 118a, 125, 220a, 221b, or 225b. Normally to be accompanied by CHEM 116L.* Enrollment by placement only. For placement information see "Placement in introductory courses" in the text above.

CHEM 116L, GENERAL CHEMISTRY LABORATORY. N. Ganapathi.
MTWTh or F 12-3 or 1-4 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit per term
Meets RP (o)

In the fall term, laboratory techniques required for quantitative analysis, thermodynamics, and properties of gases. In the spring term, rate and equilibrium measurement, acid-base chemistry, synthesis of inorganic compounds, and qualitative and quantitative analysis. CHEM 116L *must accompany or follow* CHEM 113 or 114. *May not be taken after a higher-numbered laboratory.*

★CHEM 118a, QUANTITATIVE FOUNDATIONS OF GENERAL CHEMISTRY.
Mark Johnson.

Lect. MWF 10.30-11.20 IV; Not CR/D/F QR, Sc (33)

Disc. MTW or Th 11.30-12.20 or 1.30-2.20 or 2.30-3.20

An advanced general chemistry course emphasizing conceptual aspects and physical principles in general chemistry. Fulfills the general chemistry prerequisite for CHEM 220a or 225b. CHEM 118a in combination with CHEM 252b fulfills the prerequisites for medical school and for all majors requiring a year of general chemistry. *May not be taken after* CHEM 113, 114, 125, 220a, 221b, or 225b. Enrollment by placement only. For placement information see "Placement in introductory courses" in the text above.

CHEM 119La, LABORATORY FOR COMPREHENSIVE GENERAL CHEMISTRY.
N. Ganapathi, Jonathan Parr.

MTWTh or F 1-5 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (o)

Introductory laboratory for students with advanced standing. Emphasis on the fundamental quantitative and physical principles of general chemistry together with quantitative and data analysis. *Accompanies* CHEM 118a, 328a, or 332a.

★CHEM 125, FRESHMAN ORGANIC CHEMISTRY.

J. Michael McBride.

Lect. MWF 10.30-11.20; *disc.* 1 HTBA IV Sc Meets RP (33)

An introductory course focused on current theories of structure and mechanism in organic chemistry, their development, and their basis in experimental observation. Open to freshmen with excellent preparation in chemistry, mathematics, and physics who have taken the department's advanced chemistry placement examination. For placement information see "Placement procedures" in the text above. *Must be taken concurrently with* CHEM 126L.

CHEM 126L, LABORATORY FOR FRESHMAN ORGANIC CHEMISTRY.

Christine DiMeglio.

MT or Th 1-5, or W 12-4 IV; Not CR/D/F Sc

$\frac{1}{2}$ C Credit per term (o)

Basic, modern laboratory techniques are introduced during the first term. Focus is expanded to include one-, two-, and three-step syntheses of target molecules during the second term. *Concurrently with* CHEM 125.

INTERMEDIATE COURSES

CHEM 220a, ORGANIC CHEMISTRY. Staff.

Lect. MWF 9.30-10.20 IV Sc Meets RP (32)

Disc. MTW or Th 12.30-1.20 or 1.30-2.20 or 2.30-3.20

An introductory course covering the fundamental principles of organic chemistry. The laboratory for this course is CHEM 222La. *After* CHEM 113, 114, 118a, or 333b. *Students who have earned a grade of less than C in one of the general chemistry courses are cautioned that they may not be sufficiently prepared for this course. Usually followed by* CHEM 221b.

CHEM 221b, THE ORGANIC CHEMISTRY OF LIFE PROCESSES.

Glenn Micalizio.

Lect. MWF 9.30-10.20 IV Sc Meets RP (32)*Disc.* MTW or Th 12.30-1.20 or 1.30-2.20 or 2.30-3.20

The principles of organic reactivity and how they form the basis for biological processes. The laboratory for this course is CHEM 223Lb. *After* CHEM 220a. *Students who have earned a grade of less than C in one of the general chemistry courses are cautioned that they may not be sufficiently prepared for this course.*

CHEM 222La or Lb, LABORATORY FOR ORGANIC CHEMISTRY I.

Christine DiMeglio.

MTTh or F 1-5 or W 12-4 IV Sc $\frac{1}{2}$ C Credit (o)

First term of an introductory laboratory sequence covering basic synthetic and analytic techniques in organic chemistry. In choosing their laboratory, students are reminded of the accompanying discussion sections for organic chemistry lecture courses. *After or concurrently with* CHEM 220a, 221b, 225b, or 227a.

CHEM 223La or Lb, LABORATORY FOR ORGANIC CHEMISTRY II.

Christine DiMeglio.

MTTh or F 1-5 or W 12-4 IV Sc $\frac{1}{2}$ C Credit (o)

Second term of an introductory laboratory sequence covering basic synthetic and analytic techniques in organic chemistry. In choosing their laboratory, students are reminded of the accompanying discussion sections for organic chemistry lecture courses. *After or concurrently with* CHEM 221b or 227a. *Prerequisite:* CHEM 222La or Lb.

CHEM 224La or Lb, ADVANCED CHEMISTRY LABORATORY.

Christine DiMeglio.

M 1-5 or W 12-4 IV Sc $\frac{1}{2}$ C Credit (o)

A one-term course in advanced chemistry laboratory technique, synthesis, and chemical analysis intended to bring the student closer to independent research. Offered subject to available laboratory space and sufficient enrollment. *After* CHEM 126L or 223La or Lb. *A second term of this laboratory may be elected to provide coverage equivalent to that of* CHEM 226La or Lb.

CHEM 225b, COMPREHENSIVE ORGANIC CHEMISTRY I.

William Jorgensen.

MWF 9.30-10.20; *disc.* 1 HTBA IV Sc Meets RP (32)

The first half of a two-term comprehensive introductory sequence in organic chemistry. Molecular structure and mechanism and interpretation of organic chemical reactivity. The laboratory for this course is CHEM 222Lb. The second course in this sequence is CHEM 227a. *After* CHEM 118a.

CHEM 226La or Lb, INTENSIVE ADVANCED CHEMISTRY LABORATORY.

Christine DiMeglio.

M 1-5 and W 12-4 IV Sc (o)

An intensive course in advanced organic chemistry laboratory technique intended to bring the student closer to independent research. Included are an independent laboratory project and presentation, library research training, and training in the use of various analytical techniques. *Offered subject to available laboratory space and sufficient enrollment. After* CHEM 126L or 223La or Lb.

CHEM 227a, COMPREHENSIVE ORGANIC CHEMISTRY II.

Martin Saunders.

Lect. MWF 9.30-10.20; *disc.* 1 HTBA IV Sc Meets RP (32)

The second part of a two-term comprehensive introductory sequence in organic chemistry. Spectroscopic structure determination and organic synthesis. The laboratory for this course is CHEM 223La. *After* CHEM 225b.

CHEM 251Lb, INORGANIC CHEMISTRY LABORATORY. Jonathan Parr.

MTW or Th 1-5 IV WR, Sc $\frac{1}{2}$ C Credit (0)

Introductory laboratory course covering synthetic and physical characterization techniques in inorganic chemistry. *After* CHEM 126L or 223La or Lb; *concurrently with or after* CHEM 252b, 452a, or 457a.

CHEM 252b, INTRODUCTORY INORGANIC CHEMISTRY. Jonathan Parr.

Lect. MWF 9.30-10.20 IV Sc Meets RP (32)

Disc. MTW or Th 11.30-12.20 or 1.30-2.20

The "vigor and diversity" of modern inorganic chemistry are presented; an introduction to the fundamental concepts of solid-state chemistry, coordination chemistry, and organometallic chemistry. CHEM 252b in combination with CHEM 118a fulfills the prerequisites for medical school and for all majors requiring a year of general chemistry. *After* CHEM 125, 221b, or 227a. *May not be taken after* CHEM 450b, 452a, or 457a.

CHEM 328a, PHYSICAL CHEMISTRY WITH APPLICATIONS IN THE BIOLOGICAL SCIENCES. Peter Moore.

Lect. TTh 9-10.15; *disc.* 1 HTBA IV QR, Sc Meets RP (22)

Physical chemical principles and their application to the chemical and life sciences. Topics include thermodynamics, chemical and biochemical kinetics, solution physical chemistry, electrochemistry, and membrane equilibria. CHEM 332a is preferred for Chemistry majors. *Prerequisites:* PHYS 180a, 181b, or 200a, 201b preferred; PHYS 150a, 151b acceptable; MATH 112a or b and 115a or b required; MATH 120a or b suggested; CHEM 113, 114, 118a, or 125; or permission of instructor. *May not be taken after* CHEM 332a. (Formerly the first term of CHEM 330)

CHEM 331L, LABORATORY FOR PHYSICAL CHEMISTRY.

Patrick Vaccaro [F], R. James Cross, Jr. [Sp], N. Ganapathi.

Lect. F 1.30-2.20; *lab* MTW or Th 1-5 IV Sc Meets RP (0)

Laboratory course introducing physical chemical techniques and emphasizing quantitative analysis of experimental data. Receives full course credit. *After or concurrently with* CHEM 328a or 332a and CHEM 333b. *Prerequisites:* PHYS 180a, 181b, or 200a, 201b preferred; PHYS 150a, 151b acceptable; MATH 112a or b and 115a or b. *Successful completion of the first term of CHEM 331L required before enrollment in the second term. Advanced Chemistry majors may wish to enroll in the graduate laboratory CHEM 560L as an alternative course; permission of the instructor and the director of graduate studies is required. Meets on Wednesday, Thursday, and Friday from 1.30 to 2.30 for the first week of the term.*

*CHEM 332a and 333b, PHYSICAL CHEMISTRY WITH APPLICATIONS IN THE PHYSICAL SCIENCES. Charles Schmuttenmaer [F],

Patrick Vaccaro [Sp].

Lect. MWF 10.30-11.20; *disc.* 1 HTBA IV QR, Sc Meets RP (33)

A comprehensive survey of modern physical and theoretical chemistry as applied to the physical sciences. *Enrollment limited to majors in Chemistry, Engineering, Geology and Geophysics, Mathematics, and Physics, and selected freshmen. Prerequisites:* PHYS 180a, 181b or 200a, 201b preferred; PHYS 150a, 151b acceptable; MATH 112a or b and 115a or b required; MATH 120a or b suggested; topics from MATH 222a or b, 225b, and 230 are useful in the second term; CHEM 113, 114, 118a, or 125; or permission of instructor. CHEM 332a may not be taken after CHEM 328a.

ADVANCED COURSES

*CHEM 418a^G, ADVANCED ORGANIC CHEMISTRY I. William Jorgensen.

MWF 9.30-10.20 IV Sc Meets RP (32)

Concise overview of structure, properties, thermodynamics, kinetics, reactions, and intermolecular interactions for organic molecular systems. *Prerequisites:* CHEM 125, 221b, 225b, or 227a, and CHEM 328a or 332a, and CHEM 333b. (Formerly the first term of CHEM 420)

CHEM 421b^G, INTRODUCTION TO CHEMICAL BIOLOGY.

Alanna Schepartz.

TTh 9-10.15 IV; Not CR/D/F Sc Meets RP (22)

A one-term introduction to the origins and emerging frontiers of chemical biology. Discussion of the key molecular building blocks of biological systems and the history of macromolecular research in chemistry. *Prerequisites:* organic chemistry (CHEM 125 or CHEM 225b and 227a or CHEM 220a and 221b) and introductory biochemistry (MCDB 120a or equivalent).

CHEM 423a^G, SYNTHETIC METHODS IN ORGANIC CHEMISTRY.

Glenn Micalizio.

MWF 10.30-11.20 IV Sc Meets RP (33)

A discussion of modern methods. Topics include functional group manipulation, synthesis and functionalization of stereodefined double bonds, carbonyl addition chemistry, and synthetic designs. Normally taken only by students with a special interest in organic synthesis; for other students, CHEM 418a is more appropriate. *After* CHEM 125, 221b, or 227a.

CHEM 425b^G, SPECTROSCOPIC METHODS OF STRUCTURE

DETERMINATION. Martin Saunders.

MWF 9.30-10.20 IV Sc Meets RP (32)

Applications of NMR, ESR, infrared, UV, visible, and mass spectroscopy to chemical problems concerning structures and reactions. X-ray crystallography. Computer simulation of NMR spectra. *Prerequisites:* CHEM 125, 221b, or 227a. *Recommended preparation:* CHEM 328a or 332a and CHEM 333b.

[CHEM 426a^G, COMPUTATIONAL CHEMISTRY AND BIOCHEMISTRY]CHEM 430b^G, STATISTICAL MECHANICS AND THERMODYNAMICS.

Victor Batista.

MWF 9.30-10.20 IV QR, Sc Meets RP (32)

The fundamentals of statistical mechanics developed and used to elucidate gas phase and condensed phase behavior, as well as to establish a microscopic derivation of the postulates of thermodynamics. Topics include ensembles; Fermi, Bose, and Boltzmann statistics; density matrices; mean field theories; phase transitions; chemical reaction dynamics; time-correlation functions; and Monte Carlo and molecular dynamics simulations. *After* CHEM 328a or 332a, and CHEM 333b, or equivalents.

CHEM 440a^G, MOLECULES AND RADIATION I. Kurt Zilm.

Lect. MWF 8.30-9.20; disc. T 10.30-11.20 IV QR, Sc Meets RP (31)

An integrated treatment of quantum mechanics and modern spectroscopy. Basic wave and matrix mechanics, perturbation theory, angular momentum, group theory, time-dependent quantum mechanics, selection rules, coherent evolution in two-level systems, lineshapes, and NMR spectroscopy. *After* CHEM 328a or 332a and CHEM 333b, or with permission of instructor.

CHEM 442b^G, MOLECULES AND RADIATION II. Mark Johnson.

Lect. TTh 11.30-12.45; disc. I HTBA IV QR, Sc Meets RP (24)

An extension of the material covered in CHEM 440a to atomic and molecular spectroscopy, including rotational, vibrational, and electronic spectroscopy, as well as an introduction to laser spectroscopy. *After* CHEM 328a or 332a, and CHEM 333b, or with permission of instructor.

[CHEM 449b^G, BIOPHYSICAL CHEMISTRY]

CHEM 450b^G, THEORETICAL AND INORGANIC CHEMISTRY.

John Faller.

TTh 9-10.15 IV Sc Meets RP (22)

Elementary group theory, molecular orbitals, states arising from molecular orbitals containing several electrons, ligand field theory, and electronic structure of metal complexes. Introduction to the major physical methods used in the determination of molecular structure and the bonding of polyatomic molecules. May be taken independently of CHEM 452a. *Prerequisite:* CHEM 328a or 332a and CHEM 333b; CHEM 457a or equivalent and an introduction to quantum mechanics strongly recommended.

CHEM 452a^G, ORGANOMETALLIC CHEMISTRY. Robert Crabtree.

TTh 9-10.15 IV Sc Meets RP (22)

A survey of the organometallic chemistry of the transition elements and of homogeneous catalysis. May be taken independently of CHEM 450b. *Prerequisites:* CHEM 125, 221b, or 227a, and CHEM 252b.

CHEM 457a^G, MODERN COORDINATION CHEMISTRY. John Faller.

TTh 11.30-12.45 IV Sc Meets RP (24)

The principles of modern inorganic chemistry. Main group and transition element chemistry: reactions, bonding, structure, and spectra. *Prerequisites:* CHEM 125, 221b, or 227a, and CHEM 252b.

CHEM 470a^G, INTRODUCTORY QUANTUM CHEMISTRY.

R. James Cross, Jr.

TTh 9-10.15 IV QR, Sc Meets RP (22)

The elements of quantum mechanics developed and illustrated with applications in chemistry and chemical physics. *Prerequisites:* CHEM 328a or 333a, CHEM 333b, and MATH 120a or b.

★CHEM 490, INDEPENDENT RESEARCH IN CHEMISTRY. Victor Batista,

J. Patrick Loria.

Lab HTBA IV; Not CR/D/F Meets RP (0)

After consulting with the director of undergraduate studies, students choose to work on individual laboratory or theoretical research problems under the direction of a faculty member in chemistry or a closely related field. Students can familiarize themselves with ongoing research within the department by reviewing the departmental Web site (www.chem.yale.edu) and by attending an evening seminar series during the first week of the fall term. Specific dates and times of the evening seminars may be obtained in the department office, 1 SCL. Independent work may also encompass research in chemical education or a literature project. Occasional required seminars address literature searching, research methods, and scientific ethics. Students present their research results in a formal seminar series late in the spring term. May be taken multiple times for credit except in the case of a literature project, in which case credit may be awarded for only one term. At least ten hours of laboratory research weekly.

To enroll, the student must complete a CHEM 490 registration form (available at the department office, 1 SCL), have it signed by both the intended faculty adviser and one of the course instructors, and submit it to the department office for approval by the director of undergraduate studies prior to the date on which

the student's schedule is due. All students taking CHEM 490 must also consult with the director of undergraduate studies for approval of their projects; the consultation must take place no later than midterm of the term preceding enrollment in CHEM 490.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate courses in chemistry that may be of particular interest to undergraduates are listed in the bulletin of the Graduate School. Information about them is available in the office of the director of undergraduate studies. Enrollment requires permission of both the director of graduate studies and the instructor.

CHILD STUDY CENTER

***CHLD 125a/*PSYC 125a/*TPRP 125a, CHILD DEVELOPMENT.** Donna Bella, Nancy Close, Carla Horwitz, Jody Platner.

W 1.30-3.20, 3 HTBA III; Not CR/D/F WR, So (o)

The reading of selected material with supervised participant-observer experience in infant programs, a day-care and kindergarten center, or a family day-care program. Regularly scheduled seminar discussions emphasize both theory and practice. An assumption of the course is that it is not possible to understand children—their behavior and development—without understanding their parents and the relationship between child and parents. The focus is on infancy as well as early childhood. *Enrollment limited to juniors and seniors. Meets requirements for Teacher Preparation's early childhood certification.*

***CHLD 126a or b/*TPRP 191a or b, CLINICAL CHILD DEVELOPMENT AND ASSESSMENT OF YOUNG CHILDREN.** Nancy Close.

For description see under Teacher Preparation & Education Studies.

***CHLD 127a/*PSYC 127a/*TPRP 127a, EARLY CHILDHOOD METHODS.**

Carla Horwitz.

M 2.30-4.20, 3 HTBA III WR, So Meets RP (o)

Development of curricula for preschool children—infants, toddlers, three-, four-, and five-year-olds—in light of current research and child development theory. *Meets requirements for Teacher Preparation's early childhood certification.*

***CHLD 128b/*PSYC 128b/*TPRP 128b, LANGUAGE, LITERACY, AND PLAY.**

Nancy Close, Carla Horwitz, and staff.

TTh 9-10.15 III WR, So Meets RP (o)

Examination of the complicated role that play has in the development of language and literacy skills among preschool-aged children. Topics include social-emotional, cross-cultural, cognitive, and communicative aspects of play. *Meets requirements for Teacher Preparation's early childhood certification.*

***CHLD 350a/*PSYC 350a, AUTISM AND RELATED DISORDERS I.**

Ami Klin, Fred Volkmar.

T 3.30-5.20 III; Not CR/D/F So Meets RP (o)

Major topics in the etiology, diagnosis, treatment, and natural history of childhood autism and other severe disorders of early onset. Topics also include retardation, behavioral disorders, and childhood psychosis. Supervised experience. *Prerequisite: an introductory psychology course. Enrollment limited to juniors and seniors.*

★CHLD 351b/★PSYC 351b, AUTISM AND RELATED DISORDERS II.

Ami Klin, Fred Volkmar.

Th 3.30-5, 3 HTBA III So (o)

Advanced study of the evaluation of individual children with autism and associated disorders, experience in the design of curricula, and work with individual children and groups of children with autism and similar disorders. Supervised experience. *Prerequisite: an introductory psychology course.*

★CHLD 360a/★PSYC 363a, LOVE AND ATTACHMENT. James Leckman,
Linda Mayes.

M 2.30-4.20 III So (o)

Although romantic and early parental love are clearly distinctive developmental periods, an examination of those elements shared in common—the perception of an altered mental state, intrusive thoughts and images associated with a heightened awareness of the other, and a complex behavioral repertoire aimed at eliciting a reciprocal response—may provide a useful vantage point for considering the evolution and neurobiology of love and its range of normal and psychopathologic outcomes.

CHINESE

(*See under East Asian Languages and Literatures and under Peking University–Yale University Joint Undergraduate Program.*)

CHINESE STUDIES

(*See under East Asian Studies and under Peking University–Yale University Joint Undergraduate Program.*)

CLASSICAL LANGUAGES AND LITERATURES

Director of undergraduate studies: Celia Schultz, 202 PHELPS, 432-0991,
celia.schultz@yale.edu

FACULTY OF THE DEPARTMENT OF CLASSICAL LANGUAGES AND LITERATURES

PROFESSORS

Egbert Bakker, Victor Bers, Kirk Freudenburg, Verity Harte, James John (*Visiting*),
Donald Kagan, Diana Kleiner, Christina Kraus (*Chair*), John Matthews, William
Metcalf (*Adjunct*), Tessa Rajak (*Visiting*)

ASSOCIATE PROFESSORS

Michael Anderson, Corinne Pache

ASSISTANT PROFESSORS

Jay Fisher, Milette Gaifman, Celia Schultz

LECTURERS

Serena Connolly, Veronika Grimm, Joseph Solodow

The Department of Classical Languages and Literatures offers a major in Classics, 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. In addition, the study of Greek or Latin literature may be combined with the study of other languages and literatures in a Literature major. For details see under The Literature Major. For courses in modern Greek, see under Hellenic Studies.

I. THE MAJOR IN CLASSICS

The major in Classics is primarily a liberal arts major. It provides an excellent general education in a comprehensive humanistic discipline; it can also give the background necessary for those 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 powers of critical analysis, appreciation of literary values, and understanding of the ancient cultural traditions which constitute the foundation of Western civilization. Courses in other literatures, in history, and in philosophy are strongly recommended for students enrolled in the Classics major.

The candidate for the Classics major may elect either the standard or the intensive major. In both these majors the department recognizes two kinds of concentration, one aiming at knowledge of both ancient literatures, the other concentrating on either Greek or Latin literature. Courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

The standard major for the Class of 2009 and previous classes. A standard major in both literatures requires no fewer than six term courses, totaling eight course credits, in Greek and Latin at the level of 390 or above, including the double-credit Survey for the Major in Classics (GREK 498a and 499b or LATN 498a and 499b), and two additional courses in related areas of history and art. The language courses should also include GREK 390a or LATN 390b and at least three term courses at the level of 400 or above in the language whose survey (498a, 499b) is not elected. One of the additional courses in a related field must be a term course in ancient history, and the other must be a term course in ancient history, classical art and archaeology, or classical civilization.

Students majoring in one literature (Greek or Latin) are required to take no fewer than six term courses, totaling eight course credits, in that literature at the level of 390 or above, including the double-credit Survey for the Major in Classics in the language chosen and either GREK 390a or LATN 390b. They must also take a term of ancient history related to the literature they have chosen and an additional term course in ancient history, classical art and archaeology, or classical civilization. They are encouraged to do some work in the second language and may substitute two terms at the 300 level in the second language for two 400-level courses in the major literature.

The standard major for the Class of 2010 and subsequent classes. A standard major in both literatures requires no fewer than ten term courses. These include six term courses in Greek and Latin at the level of 390 or above, surveys of the history of Greek and Latin literature in translation (CLCV 498a and 499b), and two additional courses in related areas of history and art. The language courses should include GREK 390a or LATN 390b and five term courses at the level of 400 or above. One of the additional courses in a related field must be a term course in ancient history, and the other must be a term course in ancient history, classical art and archaeology, or classical civilization.

Students majoring in one literature (Greek or Latin) are required to take no fewer than ten term courses. These include six term courses in that literature at the level of 390 or above, surveys of the history of Greek and Latin literature in translation (CLCV 498a and 499b), a term course in ancient history related to the chosen literature, and an additional term course in ancient history, classical art and archaeology, or classical civilization. The language courses should include GREK 390a or LATN 390b and at least five term

courses at the level of 400 or above. Students are encouraged to do some work in the second language and may substitute two terms at the 300 level in the second language for two 400-level courses in the major literature.

Senior requirement. At the end of the senior year the student majoring in both literatures takes a comprehensive examination in the history of Greek and Latin literature and in translation of both languages; the student majoring in one literature takes a senior departmental examination in the history of the literature of the major and in translation of that literature.

The intensive major is designed for students who desire the opportunity for a larger measure of independence than the standard major offers. Besides fulfilling the requirements of the standard major (in both literatures, in Greek, or in Latin), students in the intensive major devote two terms in the senior year to writing an essay (CLSS 490a and 491b) under the regular guidance of a faculty adviser. A brief prospectus of the essay should be submitted preferably at the end of the junior year and in no case later than September 30 of the senior year. The candidate should submit two copies of the senior essay to the director of undergraduate studies no later than April 1 of the senior year.

• **Foreign language requirement** (*Class of 2008 and previous classes*). Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in Latin by a score of 4 or higher on either of the Advanced Placement tests in Latin (Vergil, Catullus–Horace). The requirement may also be met by successful completion of either GREK 300a and 301b or LATN 300a and 301b, or of a one-term course at the 400 level in either language.

Foreign language distributional requirement (*Class of 2009 and subsequent classes*). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: *Class of 2009 and earlier, two literatures (Greek and Latin)*—eight term courses, totaling ten course credits; *Class of 2009 and earlier, one literature (Greek or Latin)*—eight term courses, totaling ten course credits; *Class of 2010 and later, two literatures (Greek and Latin)*—ten term courses; *Class of 2010 and later, one literature (Greek or Latin)*—ten term courses

Specific courses required: *Class of 2009 and earlier*—GREK 390a or LATN 390b; GREK 498a, 499b, or LATN 498a, 499b; *Class of 2010 and later*—GREK 390a or LATN 390b; CLCV 498a and 499b

Substitution permitted: *One literature*—two courses in the other lit at the 300 level or above for two in the major lit at the 400 level

Distribution of courses: *Class of 2009 and earlier, two literatures*—six courses in both langs at level 390 or above, with at least three at the 400 level or above in the lang whose survey (498a, 499b) is not elected; one course in ancient hist; one addtl course in ancient hist, classical art and archaeol, or classical civiliz; *Class of 2009 and earlier, one literature*—six courses in lit at level 390 or above; one course in ancient hist related to lit of major; one addtl course in ancient hist, classical art and archaeol, or classical civiliz; *Class of 2010 and later, two literatures*—eight courses in both langs at level 390 or above, with at least five at the 400 level or above; one course in ancient hist; one addtl course in ancient hist, classical art and archaeol, or classical civiliz; *Class of 2010 and later, one literature*—eight courses in lit at level 390 or above; one course in ancient hist related to lit of major; one addtl course in ancient hist, classical art and archaeol, or classical civiliz

Senior requirement: Senior dept exam in history of Greek and Latin lit (*two lits*) or lit of the major (*one lit*); translation in both (*two lits*) or one (*one lit*) lit

Intensive major: Senior essay (CLSS 490a, 491b) in addition to above

II. 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 members of contemporary society. Ancient texts are studied primarily in translation, though under the guidance of instructors who know ancient literature in the original languages.

Candidates for the major complete at least twelve term courses (including the senior seminar) in Classics and related departments by the end of the senior year. Of these, two should be in ancient history and/or classical art and archaeology; and two must be in Greek or Latin, or both, at the 300 level or above (the latter courses should be completed by the end of the junior year). Students in the Class of 2010 and subsequent classes should also take two survey courses, CLCV 498a and 499b. It is strongly recommended that candidates elect one course each in the general areas of ancient epic, drama, philosophy, and Roman civilization. Candidates for the major are encouraged to take related courses in other departments. Courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

Senior requirement. Students are required to take a two-term seminar or tutorial (CLCV 450a, 451b) in their senior year to fulfill the senior requirement.

Programs for all majors must be approved by the director of undergraduate studies.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses (including the two-term senior sem)

Specific courses required: *Class of 2009 and earlier*—none; *Class of 2010 and later*—CLCV 498a, 499b

Distribution of courses: (a) two in ancient hist and/or classical art and archaeol;
(b) two in Greek or Latin (or both) at 300 level or above

Senior requirement: Senior sem (CLCV 450a, 451b)

III. 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 program 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.

The standard major for the Class of 2009 and previous classes. The major in Ancient and Modern Greek requires at least eight term courses, totaling ten course credits: candidates must complete no fewer than four term courses, totaling six course credits, at the level of 390 or above in ancient Greek, including the double-credit Survey for the Major in Classics (GREK 498a and 499b), and one additional course in ancient Greek history. The language courses should include GREK 390a. 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) or above, as well as 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. Courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

The standard major for the Class of 2010 and subsequent classes. The major in Ancient and Modern Greek requires at least ten term courses. These include four term courses at the level of 390 or above in ancient Greek, surveys of the history of Greek and Latin literature in translation (CLCV 498a and 499b), and one term course in ancient Greek history. The language courses should include GREK 390a. 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) or above, as well as 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. Courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

Senior requirement. At the end of the senior year the student takes a comprehensive examination in the history of Greek literature.

The intensive major is designed for students who desire a larger measure of independence than that offered by the standard major. Students in the intensive major devote two terms of the senior year to writing an essay (CLSS 490a and 491b) under the regular guidance of a faculty member. A brief prospectus of the essay should be submitted preferably at the end of the junior year and in no case later than September 30 of the senior year. The candidate should submit two copies of the senior essay to the director of undergraduate studies no later than April 1 of the senior year.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: *Class of 2009 and earlier*—eight term courses, totaling ten course credits; *Class of 2010 and later*—ten term courses

Specific courses required: *Class of 2009 and earlier*—GREK 390a, 498a, and 499b; *Class of 2010 and later*—GREK 390a, CLCV 498a, 499b

Distribution of courses: *Class of 2009 and earlier*—Six course credits in ancient Greek; one term course in ancient Greek hist; two term courses in modern Greek; one in postclassical Greek hist or culture; *Class of 2010 and later*—six term courses in ancient Greek; one term course in ancient Greek hist; two term courses in modern Greek; one in postclassical Greek hist or culture

Senior requirement: Senior dept exam

Intensive major: Senior essay (CLSS 490a, 491b) in addition to above

PLACEMENT POLICY

Students are encouraged to take courses as advanced as they can handle with profit and pleasure. The department, recognizing the great variety in 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 practicable.

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 301B after a 400-level course in the fall, or to be admitted to a 400-level course in Greek after completion of GREK 300A. Freshmen are encouraged to take advantage of the initial course selection period before course schedules are due to find the most appropriate course.

GREEK

GREK 110A, BEGINNING GREEK: THE ELEMENTS OF GREEK GRAMMAR.

Staff.

MTWThF 10.30-11.20 I; Not CR/D/F L1 1½ C Credits

Meets RP (33)

Introduction to ancient Greek. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for GREK 111B. *No prior knowledge of Greek assumed.*

GREK 111B, BEGINNING GREEK: REVIEW OF GRAMMAR AND SELECTED READINGS. Staff.

MTWThF 10.30-11.20 I; Not CR/D/F L2 1½ C Credits

Meets RP (33)

Continuation of GREK 110A. Emphasis on consolidating grammar and on readings from Greek authors. The sequence GREK 110A, 111B prepares for 300A or 301B. *Prerequisite: GREK 110A or equivalent.*

GREK 300A, GREEK PROSE: AN INTRODUCTION. Serena Connolly.

MWF 10.30-11.20 I; Not CR/D/F L3 (33)

Close reading of selections from classical Greek prose with review of grammar. *For the Class of 2009 and subsequent classes, counts as L4 if taken after GREK 301B or equivalent.*

GREK 301B, HOMER: AN INTRODUCTION. Staff.

MWF 10.30-11.20 I; Not CR/D/F L3 (33)

A first approach to reading Homeric poetry in Greek. Selected books of the *Iliad* or the *Odyssey*. *For the Class of 2009 and subsequent classes, counts as L4 if taken after GREK 300A or equivalent.*

GREK 390A^G, SYNTAX AND STYLISTICS. Victor Bers.

TTh 9-10.15 I; Not CR/D/F L5, Hu (22)

A review of accidence and syntax, elementary composition, and analysis of Greek prose styles of the fifth and fourth centuries B.C., including a comparison of “prosaic” and “poetic” syntax. *Prerequisite: previous familiarity with some Greek prose beyond the elementary level, or permission of instructor.*

GREK 410B^G/PHIL 215B, PLATO’S *REPUBLIC*. Verity Harte.

TTh 2.30-3.45 I or II; Not CR/D/F L5, Hu (0)

Reading and discussion of the Greek text of Plato’s *Republic*, Book Ten. Topics include Plato’s notorious criticism of art, his discussion of the true nature of soul, and the myth of Er, which portrays the afterlife of the soul.

GREK 413a, LONGUS'S *DAPHNIS AND CHLOE*. Jay Fisher.

MW 11.30-12.45 I; Not CR/D/F L5, Hu (34)

Close reading of selections from the Greek novel *Daphnis and Chloe* by Longus. Attention to grammar and style, the literary and historical contexts of the novel, and its reception as one of the first extant novels in the West. A bridge course between 300-level and the other 400-level courses. *Prerequisite*: GREK 301b or equivalent.

GREK 421a^G, AESCHYLUS, *PROMETHEUS BOUND*, AND SOPHOCLES, *PHILOCTETES*. Victor Bers.

TTh 2.30-3.45 I; Not CR/D/F L5, Hu (27)

Examination of two "eccentric" tragedies enacted in notionally desolate settings, linked in plot by Heracles' intervention. Topics include protagonists afflicted by extreme physical pain who challenge a supposedly inevitable outcome; theatrical treatment of the intersection of the human and the divine; the disputed authenticity of *Prometheus Bound*; and the "unsophoclean" aspects of *Philoctetes*.

GREK 443b^G, HOMER'S *ILLIAD*. Michael Anderson.

MW 9-10.15 I; Not CR/D/F L5, Hu (32)

Reading of selected books of the *Iliad*, with attention to Homeric language and style, the Homeric view of heroes and gods, and the reception of Homer in antiquity.

*GREK 494a or b, INDEPENDENT TUTORIAL IN GREEK LANGUAGE AND LITERATURE. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F L5 (0)

For students with advanced Greek 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 classes may be offered toward the major.

*GREK 498a^G and 499b^G, SURVEY FOR THE MAJOR IN CLASSICS: HISTORY OF GREEK LITERATURE.

I; Not CR/D/F L5, Hu 2 C Credits per term

498a: TTh 11.30-12.45, I HTBA (24) Michael Anderson

499b: TTh 9-10.15, I HTBA (22) Victor Bers

A comprehensive treatment of Greek literature from Homer to the Hellenistic age. The student is expected to read extensively in the original language, working toward familiarity with the range and variety of the literature. Prepares for the comprehensive examinations in Classics for those majoring in both literatures or concentrating on Greek. *After at least two term courses in Greek numbered in the 400s.*

LATIN

LATN 110a, BEGINNING LATIN: THE ELEMENTS OF LATIN GRAMMAR.

Serena Connolly and staff.

I; Not CR/D/F L1 1½ C Credits Meets RP (61)

110a-1: MTWThF 9.30-10.20

110a-2: MTWThF 10.30-11.20

110a-3: MTWThF 1.30-2.20

Introduction to Latin. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for LATN 111b. *No prior knowledge of Latin assumed. Preregistration, which is required, is on Tuesday, September 5, at the Academic Fair in WLH from 2 to 4 P.M.*

LATN 111b, BEGINNING LATIN: REVIEW OF GRAMMAR AND SELECTED READINGS. Staff.

- I; Not CR/D/F L2 1½ C Credits Meets RP (61)
 111b-1: MTWThF 9.30-10.20
 111b-2: MTWThF 10.30-11.20
 111b-3: MTWThF 1.30-2.20

Continuation of LATN 110a. Emphasis on consolidating grammar and on readings from Latin authors. The sequence LATN 110a, 111b prepares for 300a or 301b. *Prerequisite: LATN 110a or equivalent.*

LATN 300a, LATIN PROSE: AN INTRODUCTION. Serena Connolly and staff.

- 300a-1: MWF 9.30-10.20 I; Not CR/D/F L3 (61)
 300a-2: MWF 10.30-11.20 I; Not CR/D/F L3 (61)
 300a-3: MWF 1.30-2.20 I; Not CR/D/F L3 (61)

Close reading of a major work of classical prose; review of grammar as needed. *For the Class of 2009 and subsequent classes, counts as L4 if taken after LATN 301b or equivalent.*

LATN 301b, LATIN POETRY: AN INTRODUCTION. Jay Fisher and staff.

- 301b-1: MWF 9.30-10.20 I; Not CR/D/F L3 (61)
 301b-2: MWF 10.30-11.20 I; Not CR/D/F L3 (61)
 301b-3: MWF 1.30-2.20 I; Not CR/D/F L3 (61)

The course is devoted to Vergil. *For the Class of 2009 and subsequent classes, counts as L4 if taken after LATN 300a or equivalent.*

LATN 390b, LATIN SYNTAX AND STYLE. Joseph Solodow.

- TTh 11.30-12.45 I; Not CR/D/F L5, Hu (24)

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.

LATN 410a^G, LIVY'S FIRST PENTAD. Celia Schultz.

- MW 2.30-3.45 I; Not CR/D/F L5, Hu (37)

A close reading of the first pentad of Livy's *Ab urbe condita*.

LATN 411a, EARLY ROME: AENEAS TO ROMULUS. Joseph Solodow.

- TTh 1-2.15 I L5, Hu (26)

Investigation of how the Romans imagined the founding of their nation and their city, events to which they attached the highest importance yet about which they had little information. Careful reading of both prose and verse by Vergil, Livy, Ovid, and others. A bridge course between 300-level and the other 400-level courses.

LATN 419b^G, VERGIL'S *GEORGICS*. Kirk Freudenburg.

- TTh 11.30-12.45 I; Not CR/D/F L5, Hu (24)

A close reading of Vergil's *Georgics*. Attention to grammar, syntax, vocabulary, and verse technique, as well as to larger matters of genre, style, and cultural context.

LATN 437b^G, ROMAN COMEDY. Jay Fisher.

- MW 2.30-3.45 I; Not CR/D/F L5, Hu (37)

A close reading of the *Aulularia* of Plautus and the *Adelphoe* of Terence, with attention to the literary, social, and historical contexts of both plays. *Prerequisite: LATN 301b or equivalent.*

LATN 447b^G/HIST 206b, ROMAN SOCIAL HISTORY IN LATIN TEXTS.

John Matthews.

- TTh 2.30-3.45 I; Not CR/D/F L5, Hu (0)

A study of issues in the social and economic life of the Roman Empire from the first century through the fifth. Readings from legal, documentary, epigraphic, and literary sources of the period.

LATN 461b, LATIN POPULAR LITERATURE. Serena Connolly.

MW 9-10.15 I; Not CR/D/F L5, Hu (32)

Close reading of Latin literature containing (or purporting to contain) popular diction. Works include Plautus's *Menaechmi* and Petronius's *Cena Trimalchionis*, with additional selections from fables, personal correspondence, and graffiti. Focus on style, genre, characterization, and audience.

LATN 480b^G, LUCRETIUS. Celia Schultz.

MW 1-2.15 I; Not CR/D/F L5, Hu (36)

Close reading of selected books of Lucretius's *De Rerum Natura* from both a poetic and a philosophical perspective.

★LATN 494a or b, INDEPENDENT TUTORIAL IN LATIN LANGUAGE AND LITERATURE. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F L5 (○)

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 classes may be offered toward the major.

★LATN 498a^G and 499b^G, SURVEY FOR THE MAJOR IN CLASSICS: HISTORY OF LATIN LITERATURE. Kirk Freudenburg [F], Christina Kraus [Sp].

MW 11.30-12.45, 1 HTBA I; Not CR/D/F L5, Hu

2 C Credits per term (34)

A survey of Latin literature from the earliest texts to the sixth century C.E., with the main focus on the period from the second century B.C.E. to the second century C.E. Diachronic, synchronic, generic, and topical models of organization. Prepares for the comprehensive examinations in Classics for those majoring in both literatures or concentrating on Latin. *After at least two term courses in Latin numbered in the 400s.*

CLASSICS

★CLSS 445b^G, NUMISMATICS. William Metcalf.

Th 1.30-3.20 II; Not CR/D/F Hu (○)

An introduction to the history of ancient coinage and the modern methodology of numismatic study. Brief consideration of the Greek background is followed by detailed treatment of the Roman republic and empire. *Prerequisite: proficiency in Greek and Latin.*

★CLSS 490a and 491b, SENIOR ESSAY FOR THE INTENSIVE MAJOR IN CLASSICS. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (○)

Qualified students may write a senior essay in ancient literature or classical archaeology under the guidance of a faculty adviser. A written statement of purpose must be submitted to the director of undergraduate studies.

CLASSICAL CIVILIZATION

CLCV 114b, GREEK MYTHOLOGY. Michael Anderson.

MW 11.30-12.20, 1 HTBA I or II Hu (34)

A survey of traditional Greek tales about gods and heroes; the roles of these tales in the artistic, religious, private, and civic life of the Greek world; and modern theories on the origins and functions of myths in ancient societies.

CLCV 124a/HIST 222a, THE CITY OF CONSTANTINOPLE FROM
CONSTANTINE TO JUSTINIAN. John Matthews.

TTh 2.30-3.45 II; Not CR/D/F Hu (0)

The history and urban development of Constantinople from its foundation by Constantine the Great to the reign of Justinian. Readings from ancient sources in translation. Attention to the topography and physical development of the city and to the city's role in the religious development of the Roman Empire.

★CLCV 143a/★HUMS 382a, ANCIENT ROME: ETHNIC ASSIMILATION AND
XENOPHOBIA. Kirk Freudenburg.

MW 9-10.15 II; Not CR/D/F Hu (32)

Study of the effects of Rome's imperial expansion upon its collective notions of national purpose and character from the third century B.C.E. to the second century C.E. Focus on relating historical issues of global (imperial-corporate) expansion to problems of the modern world.

CLCV 160b/HSAR 243b, GREEK ART AND ARCHITECTURE.

Milette Gaifman.

For description see under History of Art.

CLCV 175a/ARCG 252a/HSAR 252a, ROMAN ARCHITECTURE. Diana Kleiner.

For description see under History of Art.

CLCV 182a/HSAR 240a/RLST 179a, GREEK RELIGION: MYTH, BLOOD, AND
FESTIVAL. Milette Gaifman.

TTh 11.30-12.45 II Hu (24)

Exploration of Greek religious thought and practice in their historical context, with consideration of the significance of religion in various aspects of public and private life in the Greek *polis*. Religion as the motivation for masterpieces of ancient Greece, such as the Parthenon on the Athenian Acropolis, and cultural institutions such as Greek tragedy and the Olympic Games. Themes include oracles, mystery cults, and hero-cults. Special attention to the unique role of myth in Greek religious experience.

★CLCV 204a^G/★HIST 412a^G/★JDST 230a^G, NEW APPROACHES TO JOSEPHUS.
Tessa Rajak.

For description see under Judaic Studies.

CLCV 205a/HIST 205a, INTRODUCTION TO ANCIENT GREEK HISTORY.

Donald Kagan.

TTh 11.30-12.45 II Hu (24)

An introductory course in Greek history tracing the development of Greek civilization as manifested in political, intellectual, and creative achievements from the Bronze Age to the end of the classical period. Students read original sources in translation as well as the works of modern scholars.

CLCV 206a/HIST 217a, INTRODUCTION TO ROMAN HISTORY: THE
REPUBLIC. William Metcalf.

MW 2.30-3.45 II Hu (37)

The development of the Roman Republic to the end of the Civil Wars in 30 B.C. Readings from ancient sources in translation, with emphasis on the means by which history can be written by engaging these texts with the evidence of archaeology, art history, epigraphy, and numismatics.

CLCV 207b/HIST 218b, INTRODUCTION TO ROMAN HISTORY: THE
EMPIRE. Serena Connolly.

MW 2.30-3.45 II Hu (37)

A survey of the history of the Roman Empire through the six centuries from its establishment by Augustus to the reign of Justinian. Attention to social, intellectual, and religious changes—as well as to the framework of historical events within which these changes took place—and to the processes by which the Roman Empire was replaced by the institutions of Byzantium and the Western Middle Ages.

★CLCV 208a/★HIST 408a, RELIGIONS OF THE ROMAN EMPIRE.

Veronika Grimm.

MW 11.30-12.45 II; Not CR/D/F Hu (○)

A survey of the religions of Rome and its empire from the Republic to the time of Constantine. Readings from ancient texts, in translation, and secondary sources.

★CLCV 227b/★HIST 409b/★WGSS 227b, ELITE WOMEN OF ANTIQUITY.

Adam Marshak.

M 2.30-4.20 II; Not CR/D/F Hu (○)

Examination of the role and perception of women in the political realm of the Greco-Roman world. Consideration of several prominent individuals and their effects on political history in antiquity. Topics include general perceptions of women and their roles in Greco-Roman society, women's ability to exercise political power, public presentation of politically active women, and society's reaction to political activity by women. *Prerequisite:* CLCV 206a or 207b, or *permission of instructor.*

CLCV 232b/HIST 208b, FOOD AND DIET IN GRECO-ROMAN ANTIQUITY.

Veronika Grimm.

TTh 1-2.15 II Hu (26)

A review of evidence concerning dietary habits and attitudes in the Greco-Roman world, examining the various meanings of eating and drinking in literary texts and the significance of food and drink in social and religious life and in health care. *Readings in translation.*

CLCV 235b/HIST 207b, NERO AND HIS AGE. John Matthews.

TTh 11.30-12.45 II; Not CR/D/F Hu (○)

Examination of the political, social, and cultural developments of the reign of Nero. Study of the literary and documentary evidence for the period, as well as the material and archaeological remains, especially from the city of Rome.

★CLCV 239b^G/★HIST 413b^G/★JDST 231b^G, DIASPORA INTERACTION AMONG JEWS, GREEKS, AND ROMANS. Tessa Rajak.

For description see under Judaic Studies.

★CLCV 402b/★PHIL 400b^G, PLATO'S PHILOSOPHICAL PSYCHOLOGY.

Verity Harte.

For description see under Philosophy.

★CLCV 406a/★HIST 406a, ATHENIAN IMPERIAL DEMOCRACY.

Donald Kagan.

T 2.30-4.20 II; Not CR/D/F Hu (27)

A history of Greece in the years between the Persian invasion and the Peloponnesian War, with emphasis on Athens. *Prerequisite:* CLCV 205a or *equivalent.*

★CLCV 407b^G/★HIST 407b^G, THUCYDIDES AND THE PELOPONNESIAN WAR. Donald Kagan.

T 1.30-3.20 II; Not CR/D/F Hu (○)

A study both of the great war between Athens and Sparta that transformed the world of the Greek city-states and of the brilliant historian and political thinker who described it. *Prerequisite:* CLCV 205a or *equivalent.*

★CLCV 408a/★HSAR 426a, THE ARTS OF PERIKLEAN ATHENS: DEMOCRACY, EMPIRE, AND RELIGION. Millette Gaifman.
W 2.30-4.20 II; Not CR/D/F Hu Meets RP (○)

A study of Athenian works of art and architecture from the fifth century B.C., a time when Athens was a flourishing artistic center and a political and military capital. Topics include the temples on the Athenian Acropolis, sculptures by Pheidias and Polykleitos, and pictorial innovations of the era. Consideration of artistic production as the material expression of political, military, and religious ideologies of the age of Perikles.

★CLCV 450a and 451b, SENIOR PROJECT FOR THE MAJOR IN CLASSICAL CIVILIZATION. Consult the director of undergraduate studies.
HTBA II; Not CR/D/F (○)

An appropriate instructor is assigned to each student by the director of undergraduate studies in consultation with the student. In the first term, selected readings compensate for individual deficiencies and help the student achieve a balanced overview. In the second term, each student explores in depth a subject of personal interest—in literature, archaeology, art, philosophy, or history.

★CLCV 494a or b, INDEPENDENT TUTORIAL IN CLASSICAL CIVILIZATION. Consult the director of undergraduate studies.
HTBA II; Not CR/D/F (○)

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 classes may be offered toward the major. *Readings in translation.*

[CLCV 498a, SURVEY OF THE HISTORY OF GREEK LITERATURE]

[CLCV 499b, SURVEY OF THE HISTORY OF LATIN LITERATURE]

OTHER COURSES RELEVANT TO THE MAJOR

HIST 210a/HUMS 229a, THE EARLY MIDDLE AGES, 284–1000.
Anders Winroth.
For description see under History.

★HUMS 221a, CLASSICAL TO ROMANTIC EPIC. Jane Levin.

★LITR 455a^G/★GMST 311a/★HUMS 358a, PLATO'S LEGACY. Carol Jacobs.
For description see under Literature.

PHIL 125a, INTRODUCTION: ANCIENT PHILOSOPHY.
Susanne Bobzien.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Various graduate seminars are open to juniors and seniors with the qualifications expected of graduate students, i.e., proficiency in the pertinent ancient and modern languages. Descriptions of the courses are available from the director of undergraduate studies. Permission is required of the instructor, the director of undergraduate studies, and the director of graduate studies.

COGNITIVE SCIENCE

Director of undergraduate studies: Brian Scholl, 304 SSS, 432-4629,
brian.scholl@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM IN COGNITIVE SCIENCE

PROFESSORS

Woo-kyoung Ahn (*Psychology*), Stephen Anderson (*Linguistics*), Paul Bloom (*Psychology, Linguistics*), Marvin Chun (*Psychology*), Michael Della Rocca (*Philosophy*), Carol Fowler (*Adjunct*) (*Linguistics, Psychology*), Tamar Gendler (*Chair*) (*Philosophy*), Louis Goldstein (*Linguistics*), Laurence Horn (*Linguistics*), Marcia Johnson (*Psychology*), Frank Keil (*Psychology, Linguistics*), Drew McDermott (*Computer Science*), Sun-Joo Shin (*Philosophy*), Henry Smith (*Law School*), David Watts (*Anthropology*), Karen Wynn (*Psychology*), Steven Zucker (*Computer Science*)

ASSOCIATE PROFESSORS

Amy Arnsten (*School of Medicine*), Katalin Balog (*Philosophy*), Christy Marshuetz (*Psychology*), Brian Scholl (*Psychology*)

ASSISTANT PROFESSORS

Maria Babyonyshev (*Linguistics*), Jeremy Gray (*Psychology*), Maria Piñango (*Linguistics*), Laurie Santos (*Psychology*), Brian Scassellati (*Computer Science*), Teresa Treat (*Psychology*), Charles Yang (*Linguistics*)

Cognitive science is concerned with the study of how organisms (especially humans) acquire, represent, manipulate, and use information. A common metaphor in cognitive science is the notion of the mind/brain as an abstract computing device: in those terms, the goal of the discipline is to provide explicit accounts of the mental computations that underlie intelligent performance and the kinds of information that are used.

Cognitive science has emerged at the interface of several disciplines, including computer science, linguistics, neuroscience, psychology, and philosophy. Among the focal objects of study that have provided the foundations for contemporary cognitive science as a field are language, vision, reasoning and knowledge representation, motor planning and control, and the nature of consciousness. Major progress has been made in all of these areas by adopting a broad perspective that places them within a more general study of the mind. This includes empirical studies of the development of cognitive abilities, experimental work on how adults process language and perceive the world, attempts to infer the structure of cognitive systems from patterns of breakdown in pathology, and computational research that attempts to simulate the cognitive systems that underlie language and perception.

Despite the diversity of perspectives and methods, however, cognitive scientists share the central goal of understanding the unitary structure of human intellectual functioning. It is this common goal that integrates researchers from traditionally separate disciplines into the emerging unified field of cognitive science. The major in Cognitive Science prepares students to participate in this study by exposing them to work in a variety of fields, while encouraging an integration of this knowledge through interdisciplinary courses and seminars.

Introductory courses. An introductory survey course, CGSC 110A, is normally taken by the end of the fall term of the sophomore year and prior to admission to the major. An introductory survey course in psychology, linguistics, computer science, neuroscience, or philosophy should also be taken by the end of the fall term of the sophomore year.

Requirements of the major. A total of fifteen course credits is required for the major, including the two introductory courses and the senior colloquium and project. The remaining twelve term courses are chosen from an approved list that includes work in psychology, linguistics, computer science, neuroscience, and philosophy bearing on the study of the mind and its relation to the brain. Of these, the student should take four courses in one field, three in another, two in a third, and one in a fourth, with the remaining two courses selected (with the approval of the director of undergraduate studies) from courses relevant to the student's program in Cognitive Science. The particular selection of courses must be approved by the director of undergraduate studies in order to assure overall coherence and breadth.

Specific programs will vary considerably depending on the student's choice of areas of concentration, as well as the offerings of participating departments from year to year. Programs could be designed around cognitive and developmental psychology, human and nonhuman models of cognition, computational vision, philosophy of language, judgment and decision making, language and thought, intelligence in artificial and natural systems, neurosciences, and a variety of other topics.

Senior requirement. In the senior year, majors take the senior colloquium and project, CGSC 490. In the fall term students begin researching and writing a senior essay under the guidance of an appropriate faculty member in an area of cognitive science. In the spring term, students complete the senior essay. Throughout the senior year, students meet regularly with one another and with the faculty in the context of this course to discuss current work in cognitive science and their own developing research projects.

Application to the major. Students must apply to enter the major at the end of the fall term of the sophomore year. Applications must be made in writing to the director of undergraduate studies no later than Monday, December 11, in 109 K. Applications must include both an official or unofficial transcript of work at Yale that lists fall-term 2006 courses and a brief statement of purpose, which serves to indicate academic interests and expected focus within the areas of the Cognitive Science major. Application forms are available on line at www.yale.edu/perception/cogsci. Applicants will be notified of decisions concerning admission to the major in January 2007.

REQUIREMENTS OF THE MAJOR

Prerequisites: CGSC 110a or equivalent and an introductory survey course in a related discipline as specified

Number of courses: Fifteen course credits (including prerequisites and the senior requirement)

Distribution of courses: Four term courses from one field, three from another, two from a third, and one from a fourth; two addtl term courses from any relevant area

Specific courses required: None

Senior requirement: CGSC 490

INTRODUCTORY COURSES

CGSC 110a/PSYC 130a, INTRODUCTION TO COGNITIVE SCIENCE.

Brian Scholl.

MW 2.30-3.45 III So (o)

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.

★CGSC 201a/★PSYC 120a, BRAIN AND THOUGHT: AN INTRODUCTION TO THE HUMAN BRAIN. Amy Arnsten.

TH 2.30-3.20, 1 HTBA IV; Not CR/D/F Sc (27)

An introduction to human brain anatomy, physiology, and function for Cognitive Science and non-science majors. Focus on basic concepts of neural function and on brain mechanisms underlying higher cognitive abilities. Includes readings about and videos of patients with neuropsychiatric disorders or brain lesions. *For the Class of 2008 and previous classes, counts toward the natural science requirement.*

ADVANCED COURSES

★CGSC 407b/★PSYC 407b, COGNITIVE SCIENCE OF CAUSALITY.

Frank Keil.

For description see under Psychology.

★CGSC 471a and 472b, DIRECTED RESEARCH IN COGNITIVE SCIENCE.

Brian Scholl.

HTBA III; Not CR/D/F (o)

Research projects for qualified students, primarily seniors. 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. *May be elected for one or two terms.*

★CGSC 473a and 474b, DIRECTED READING IN COGNITIVE SCIENCE.

Brian Scholl.

HTBA III; Not CR/D/F (o)

Individual study for qualified students, primarily seniors, who wish to investigate an area of cognitive science not covered in regular courses. The student must be supervised by a member of the Cognitive Science faculty, who sets the requirements and meets regularly with the student. 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 term paper, but individual faculty members may set alternative equivalent requirements. *May be elected for one or two terms.*

★CGSC 490, SENIOR COLLOQUIUM AND PROJECT. Stephen Anderson.

W 3.30-5.20 III; Not CR/D/F 1 C Credit (o) *Cr/Year only*

A research colloquium leading to the selection of a topic for, and the completion of, the senior essay. Seniors in the major attend regular colloquium presentations by outside scholars and, together with program faculty, discuss them along with other current work in the field. By the end of the fall term students choose an essay topic. During the spring term presentations become more narrowly focused on the students' work on their senior projects.

COURSES IN OTHER DEPARTMENTS RELEVANT TO COGNITIVE SCIENCE

CPCSC 201a or b, INTRODUCTION TO COMPUTER SCIENCE.

CPCSC 202a, MATHEMATICAL TOOLS FOR COMPUTER SCIENCE.

Dana Angluin.

CPCSC 365b, DESIGN AND ANALYSIS OF ALGORITHMS.

Daniel Spielman.

- CPSC 470a^G, ARTIFICIAL INTELLIGENCE. Drew McDermott.
- ★CPSC 473b^G, INTELLIGENT ROBOTICS. Brian Scassellati.
- CPSC 475b^G/EENG 475b^G, COMPUTATIONAL VISION AND BIOLOGICAL PERCEPTION. Steven Zucker.
For description see under Computer Science.
- ★CPSC 477a^G, NEURAL NETWORKS FOR COMPUTING. Willard Miranker.
- CPSC 478b^G, COMPUTER GRAPHICS. Julie Dorsey.
- ECON 156b, MATHEMATICAL ECONOMICS: GAME THEORY.
Dirk Bergemann.
- ★EP&E 340b/★PHIL 458b^G, PHILOSOPHY OF SOCIAL SCIENCE.
Thomas McCarthy.
For description see under Ethics, Politics, & Economics.
- LING 117a^G/PSYC 137a, LANGUAGE AND MIND. Maria Piñango.
For description see under Linguistics.
- LING 120a^G/PSYC 318a, GENERAL PHONETICS. Louis Goldstein.
For description see under Linguistics.
- LING 130b^G/PSYC 322b, EVOLUTION OF LANGUAGE. Stephen Anderson.
For description see under Linguistics.
- LING 132a^G, INTRODUCTION TO PHONOLOGICAL ANALYSIS.
Darya Kavitskaya.
- LING 135b^G, PHONOLOGICAL THEORY. Stephen Anderson.
- LING 153a^G, SYNTAX I. Maria Babyonyshev.
- LING 163b^G/PSYC 163b, LANGUAGE ACQUISITION. Maria Babyonyshev.
For description see under Linguistics.
- ★LING 180b^G, MORPHOLOGY. Maria Piñango.
- ★LING 221b^G/★PSYC 326b^G, THE RELATION OF SPEECH TO LANGUAGE.
Carol Fowler.
For description see under Linguistics.
- LING 231b^G/PSYC 331b, NEUROLINGUISTICS. Maria Piñango.
For description see under Linguistics.
- ★LING 240b^G, PROSODIC STRUCTURES. Darya Kavitskaya.
- LING 254b^G, SYNTAX II. Maria Babyonyshev.
- LING 256b^G, GRAMMATICAL RELATIONS. Laurence Horn.
- ★LING 260a^G, TOPICS IN SYNTAX: THE SYNTAX-SEMANTICS INTERFACE.
Maria Piñango.
- ★LING 263a^G, SEMANTICS. Ashwini Deo.
- LING 275a^G, PRAGMATICS. Laurence Horn.
- MCDB 360a^G, NEUROBIOLOGY. Haig Keshishian, Paul Forscher.
For description see under Biology.

- MCDB 361La^G, LABORATORY FOR NEUROBIOLOGY. Haig Keshishian, Robert Wyman.
For description see under Biology.
- ★MCDB 440b^G, BRAIN DEVELOPMENT AND PLASTICITY. Weimin Zhong, Elke Stein.
For description see under Biology.
- PHIL 115a, FIRST-ORDER LOGIC. Sun-Joo Shin.
- PHIL 267a^G, MATHEMATICAL LOGIC I. Sun-Joo Shin.
- ★PHIL 268b^G, MATHEMATICAL LOGIC II. Sun-Joo Shin.
- PHIL 269b, PHILOSOPHY OF SCIENCE. Jill North.
- PHIL 272a, PHILOSOPHY OF MIND. Katalin Balog.
- PHIL 276b, METAPHYSICS. Troy Cross.
- PHIL 282b, FREE WILL. Katalin Balog.
- ★PHIL 425b^G, CONSCIOUSNESS—PHILOSOPHICAL ISSUES. Katalin Balog.
- ★PHIL 428a^G, PERSONAL IDENTITY AND THE SELF. Katalin Balog.
- ★PHIL 429a^G, IMAGINATION. Tamar Gendler.
- ★PHIL 430a^G, PROPOSITIONS AND EVENTS. Zoltán Szabó.
- ★PHIL 457b^G/★HUMS 381b, BIOLOGY, EVOLUTION, AND CULTURE. Jonathan Gilmore.
For description see under Philosophy.
- PSYC 140a, DEVELOPMENTAL PSYCHOLOGY. Frank Keil.
- PSYC 170a, BEHAVIORAL NEUROSCIENCE. Ewan McNay.
- PSYC 171b, SEX, EVOLUTION, AND HUMAN NATURE. Laurie Santos.
- PSYC 176a, BASICS OF LEARNING AND MEMORY. Thomas Brown.
- ★PSYC 240a, RESEARCH METHODS IN CONDITIONING AND LEARNING. Allan Wagner.
- ★PSYC 371a, LABORATORY IN ANIMAL COGNITION. Laurie Santos.
- ★PSYC 402a^G, TOPICS IN INFANT STUDIES. Karen Wynn.
- ★PSYC 454b^G, SENSORY INFORMATION PROCESSING. Lawrence Marks.
- ★PSYC 457a^G, CONCEPTS AND CATEGORIZATION. Woo-kyoung Ahn.

COLLEGE SEMINARS IN THE RESIDENTIAL COLLEGES

Residential college seminars for the fall and spring terms are described on line at www.yale.edu/collegeseminar. The fall- and spring-term listings contain course titles, descriptions, readings, and prerequisites. Course syllabi are available on closed reserve at Cross Campus Library and on line at classes.yale.edu.

College seminars begin meeting on the first day of classes each term. Students attend the first session of the college seminar and submit an application card to the instructor at the end of that session. Each term, a student is permitted to submit one first-choice card and two others. No more than three cards are accepted from any student. A student may enroll in no more than two college seminars in any given term.

COMPARATIVE LITERATURE

The Comparative Literature department offers undergraduate courses under the rubric “The Literature Major,” and a graduate degree in Comparative Literature. For a listing of Yale College courses, see under The Literature Major.

COMPUTER SCIENCE

Director of undergraduate studies: Stanley Eisenstat, 208 AKW, 432-1246, stanley.eisenstat@yale.edu

FACULTY OF THE DEPARTMENT OF COMPUTER SCIENCE

PROFESSORS

Dana Angluin, James Aspnes, Julie Dorsey, Stanley Eisenstat, Joan Feigenbaum, Michael Fischer, David Gelernter, Paul Hudak, Gil Kalai (*Adjunct*), Ravindran Kannan, Drew McDermott, Willard Miranker (*Adjunct*), Vladimir Rokhlin, Holly Rushmeier, Martin Schultz, Zhong Shao, Avi Silberschatz (*Chair*), Daniel Spielman, Steven Zucker

ASSOCIATE PROFESSORS

Brian Scassellati, Yang Richard Yang

SENIOR LECTURER

Robert Dunne

Computer science is one of the most dynamic and progressive intellectual enterprises of our age, and a knowledge of computing is becoming essential for almost all areas of scholarly work. The Department of Computer Science offers courses and programs that provide students with the understanding of computers and computer science they will need for any career.

The department offers two degree programs for students majoring in Computer Science, as well as interdepartmental majors in conjunction with the Departments of Mathematics (see Computer Science and Mathematics), Psychology (see Computer Science and Psychology), and Electrical Engineering (see Electrical Engineering and Computer Science). A major in Computer Science prepares a student for graduate study in computer science or in other disciplines that rely heavily on computers and for occupations in which a substantial knowledge of computing is required.

Introductory courses. The department offers a range of introductory courses to accommodate students of varying backgrounds and interests.

1. CPSC 079b is a freshman seminar that examines the basic methods used for defining shapes, materials, and lighting when creating computer-generated images. Principles are applied through use of modeling/rendering software systems rather than through computer programming. Proficiency in high school-level algebra, trigonometry, and geometry is assumed.

2. CPSC 101b is an introduction for nonmajors to some of the most important ideas in computer science: what the computer is; how it works; what it can do and what it cannot do, now and in the future. No previous programming experience is required.

3. CPSC 112a or b is a one-term introductory course in computer programming for students majoring in any subject area. It is sufficient preparation for CPSC 201a or b.

4. CPSC 150a addresses interactions between computing and other topics on the modern intellectual agenda, including philosophy, psychology, and social prophecies about the future. It is intended not for nonscientists who want to understand computing, but for nonscientists who want to understand the humanities and social sciences better by learning about key ideas in computing that have affected other fields.

5. CPSC 156b is intended for students at all levels of technological expertise and inclination who want to examine some of the challenges that technologists, lawyers, policymakers, economists, entrepreneurs, ethicists, and others must face as computers play an increasingly important role in daily life.

6. CPSC 178a introduces graphical visualization of data and concepts. It is intended for nonmajors who are interested in using computer-based visualization tools as a medium for communication and discovery in science, engineering, business, and the arts.

7. CPSC 180a or b is a study of the legal issues arising from the use of computers in contemporary society, particularly in the context of the Internet.

8. CPSC 201a or b introduces potential Computer Science majors to the various aspects of computer science and its theories and methods. Students with prior programming experience may elect CPSC 201a or b without taking an introductory course.

9. CPSC 202a presents the mathematical tools necessary for further study of computer science. It is intended for potential Computer Science majors, but it is also appropriate for students without a strong mathematical background who want exposure to formal methods of reasoning and the methods of discrete mathematics and linear algebra.

Requirements of the major. The B.S. and the B.A. degree programs have the same required core courses: CPSC 201a or b; CPSC 202a or MATH 244a; CPSC 223b, 323a, 365b, and 490a or b. The B.S. degree program requires six additional intermediate or advanced courses in Computer Science, for a total of twelve; the B.A. degree program, four, for a total of ten. CPSC 480a or b and 490a or b may not be counted toward these electives. All courses in the major must be taken for a letter grade.

Students majoring in Computer Science are advised to complete CPSC 201a or b and 223b by the end of the sophomore year.

For students who already know how to program, typical B.S. programs starting in the freshman and sophomore years are:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
CPSC 201a	CPSC 202a CPSC 323a	Two electives	CPSC 490a
CPSC 223b	CPSC 365b One elective	Two electives	One elective
and			
	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
	CPSC 201a CPSC 202a	CPSC 323a One elective	CPSC 490a Two electives
	CPSC 223b	CPSC 365b One elective	Two electives

For typical B.A. programs, two of the electives would be omitted.

Electives. 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 director of undergraduate studies, be counted toward the requirements.

Students considering graduate study in computer science are advised to take CPSC 421a and 422b, as well as courses covering the breadth of computer science, including programming languages and systems, artificial intelligence, scientific computing, and theoretical computer science.

Students interested in using computers to solve scientific and engineering problems are advised to take CPSC 440b 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 202a. 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 222a or b, 225b, or 230 and MATH 112a or b, 115a or b, or 120a or b.

Senior requirement. In the senior year students must take CPSC 490a or b, an independent project course in which students select an adviser to guide them in advanced research in a subfield of computer science. With permission of the director of undergraduate studies, students may enroll in 490a or b more than once or before their senior year.

Schedule approval. All Computer Science majors in the sophomore, junior, and senior years should have their programs approved by the director of undergraduate studies.

Combined B.S./M.S. degree program in Computer Science. 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. The requirements are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree in Computer Science.
2. In fulfilling these requirements, students must complete eight graduate courses from the approved list, up to two of which may, with the permission of the director of undergraduate studies 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 690a or b, 691a or b, or 692a or b.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: *B.S. degree*—twelve term courses taken for a letter grade (including the senior project); *B.A. degree*—ten term courses taken for a letter grade (including the senior project)

Specific courses required: *B.S. and B.A. degrees*—CPSC 201a or b; CPSC 202a or MATH 244a; CPSC 223b, 323a, 365b

Distribution of courses: *B.S. degree*—six addtl intermediate or advanced Comp Sci courses; *B.A. degree*—four addtl intermediate or advanced Comp Sci courses

Substitution permitted: Advanced courses in other depts, with permission of DUS

Senior requirement: Senior project (CPSC 490a or b)

Unless otherwise indicated, courses in Computer Science do not count toward the natural science requirement for the Class of 2008 and previous classes.

INTRODUCTORY COURSES

★CPSG 079b, DIGITAL PHOTOREALISM. Julie Dorsey.

TTh 2.30-3.45 (o) Fr sem

Examination of basic methods used to define shapes, materials, and lighting when creating computer-generated images. Topics include the input and behavior of different classes of mathematical models for shape texture, such as meshes, splines, and implicit functions; texture models such as noise and turbulence functions; sample-based techniques; and lighting techniques such as ray tracing, radiosity, and direct lighting. Principles are applied through use of modeling/rendering software systems rather than through computer programming. *Proficiency in high school-level algebra, trigonometry, and geometry is assumed. Enrollment limited to freshmen.*

CPSG 101b, GREAT IDEAS IN COMPUTER SCIENCE. Stanley Eisenstat.

TTh 1-2.15 IV QR (o)

An introduction for nonmajors to some of the most important ideas in computer science: what the computer is; how it works; what it can do and what it cannot do, now and in the future. Topics include algorithms, elementary programming, hardware, language interpretation, software engineering, complexity, models of computation, and artificial intelligence. *No previous programming experience required.*

CPSG 112a or b, INTRODUCTION TO PROGRAMMING.

112a: MWF 10.30-11.20 IV QR (33) Paul Hudak

112b: MWF 11.30-12.20 IV QR (34) Drew McDermott

Development on the computer of programming skills, problem-solving methods, and selected applications. *No previous experience with computers necessary.*

CPSG 150a, COMPUTER SCIENCE AND THE MODERN INTELLECTUAL AGENDA. David Gelernter.

MW 11.30-12.45 IV; Not CR/D/F (34)

An 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.*

CPSG 156b, THE INTERNET: COEVOLUTION OF TECHNOLOGY AND SOCIETY. Joan Feigenbaum.

TTh 2.30-3.45 IV; Not CR/D/F (o)

Introduction to how the Internet works and how it has affected daily life in the twenty-first century. Topics include Internet architecture and design philosophy; Internet-based business; user privacy; online identity; and digital copyright.

CPSG 178a, VISUALIZATION: DATA, PIXELS, AND IDEAS.

Holly Rushmeier.

MW 1-2.15 IV; Not CR/D/F QR (o)

An introduction to the use of computer graphics as a medium for communication and discovery. Topics include computer graphics primitives and their association with data, relationships, and concepts to generate an image; real-time interactions with images; and the application of visualization to a variety of application domains, from science and engineering to business and the arts. *No previous experience with computers necessary.*

CPSG 180a or b, COMPUTERS AND THE LAW. Robert Dunne.

MW 11.30-12.45 III So (34)

A survey and exploration of legal issues arising from the use of computers in contemporary society, particularly in the context of the Internet. Topics include the nature of cyberspace and cybercommunities, constitutional rights on the electronic frontier, privacy and electronic communication, anonymity, censorship, computer crime and torts, liability issues, and intellectual property. *No previous experience with computers or law necessary.*

★CPSC 181a, PRIVACY IN THE DIGITAL AGE. Robert Dunne.

MW 1-2.15 III; Not CR/D/F So (o)

Consideration of potential legal problems arising from computing technology. Topics include legal issues related to databases and privacy rights, user interfaces, Web filtering software, hot links, data communications, digitized pornography, and junk e-mail. *After CPSC 180a or b.*

CPSC 182b, INTELLECTUAL PROPERTY IN THE DIGITAL AGE.

Robert Dunne.

MW 1-2.15 III; Not CR/D/F So (o)

An exploration of issues, problems, and opportunities in the interpretation, design, and enforcement of copyright, trademark, trade secret, and patent laws in the context of computer hardware, software, and networks. *After CPSC 180a or b.*

CPSC 201a or b, INTRODUCTION TO COMPUTER SCIENCE.

IV; Not CR/D/F QR

201a: MWF 10.30-11.20 (33) Brian Scassellati

201b: MWF 11.30-12.20 (34) Dana Angluin

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. *After CPSC 112a or b or equivalent.*

CPSC 202a, MATHEMATICAL TOOLS FOR COMPUTER SCIENCE.

Dana Angluin.

MWF 11.30-12.20 IV; Not CR/D/F QR (34)

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.

CPSC 209b/ARCG 163b/HUMS 338b/NELC 163b^G, FROM PICTOGRAPH TO PIXEL: CHANGING WAYS OF HUMAN COMMUNICATION.

John Darnell, Michael Fischer, Beatrice Gruendler.

For description see under Near Eastern Languages & Civilizations.

CPSC 223b, DATA STRUCTURES AND PROGRAMMING TECHNIQUES.

Michael Fischer.

TTh 1-2.15 IV; Not CR/D/F QR (o)

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. *After CPSC 201a or b or equivalent.*

CPSC 240a, INTRODUCTION TO COMPUTATIONAL SCIENCE.

Martin Schultz.

TTh 2.30-3.45 IV; Not CR/D/F QR (o)

An introduction to computer science for students interested in learning how to program and the methods and ideas of computational science. The programming language MATLAB is used. Applications drawn from a variety of disciplines. *Prerequisite:* MATH 115a or b or equivalent. *No previous programming experience necessary.*

INTERMEDIATE COURSES

CSPC 323a, INTRODUCTION TO SYSTEMS PROGRAMMING AND COMPUTER ORGANIZATION. Stanley Eisenstat.

MW 1-2.15 IV; Not CR/D/F QR Meets RP (o)

Machine architecture and computer organization, systems programming in a high-level language, assembly language, issues in operating systems, software engineering, prototyping in nonprogramming languages. *After* CSPC 223b.

CSPC 365b, DESIGN AND ANALYSIS OF ALGORITHMS. Daniel Spielman.

TTh 2.30-3.45 IV; Not CR/D/F QR (27)

Paradigms for problem solving: divide and conquer, recursion, greedy algorithms, dynamic programming, randomized and probabilistic algorithms. Techniques for analyzing the efficiency of algorithms and designing efficient algorithms and data structures. Algorithms for graph theoretic problems, network flows, and numerical linear algebra. Provides algorithmic background essential to further study of computer science. *After* CSPC 202a and 223b.

ADVANCED COURSES

CSPC 421a^G, COMPILERS AND INTERPRETERS. Zhong Shao.

MW 1-2.15 IV; Not CR/D/F QR (36)

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. *After* CSPC 323a.

CSPC 422b^G, OPERATING SYSTEMS. James Aspnes.

MW 1-2.15 IV; Not CR/D/F QR (36)

The design and implementation of operating systems. Topics include synchronization, deadlock, process management, storage management, file systems, security, protection, and networking. *After* CSPC 323a.

CSPC 424b^G, PARALLEL PROGRAMMING TECHNIQUES.

David Gelernter.

TTh 1-2.15 IV; Not CR/D/F QR (26)

Software structures, architectures, and algorithms for parallel and distributed applications, focusing on coordination frameworks for asynchronous concurrency (that is, on the code that creates and manages multiple processes and performs the interprocess communication necessary to create integrated ensembles). Coordination languages and program-development environments. The fast-changing WAN-software picture. Parallel and distributed programming exercises on LANS. *After* CSPC 323a.

[CSPC 425a^G, THEORY OF DISTRIBUTED SYSTEMS]

[CSPC 430a^G, FORMAL SEMANTICS]

CSPC 431a^G, FUNDAMENTALS OF COMPUTER MUSIC. Paul Hudak.

TTh 1-2.15 IV; Not CR/D/F QR (o)

Study of the theoretical and practical fundamentals of computer-generated music. Music and sound representations, acoustics and sound synthesis, scales and tuning systems, algorithmic and heuristic composition, and programming languages for computer music. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. *After CPSC 202a and CPSC 223b or with permission of instructor.*

[CPSC 433b^G, COMPUTER NETWORKS]

CPSC 434a^G, MOBILE COMPUTING AND WIRELESS NETWORKING.

Yang Richard Yang.

MW 2.30-3.45 IV; Not CR/D/F QR (37)

An introduction to the principles of mobile computing and its enabling technologies. Topics include principles of mobile computing; wireless systems; information management; location-independent and location-dependent computing models; disconnected and weakly connected operation models; human-computer interactions; mobile applications and services; security; power management; and sensor networks. *Prerequisites:* CPSC 202a and 323a.

CPSC 436a/^{}EENG 460a, NETWORKED EMBEDDED SYSTEMS AND SENSOR NETWORKS. Andreas Savvides.

For description see under Electrical Engineering. *For students in the Class of 2008 and previous classes, counts toward the natural science requirement.*

*CPSC 437a^G, INTRODUCTION TO DATABASES. Avi Silberschatz.

TTh 2.30-3.45 IV; Not CR/D/F QR (0)

An 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. Implementation of databases: file structures, indexing, query processing, transactions, concurrency control, recovery systems, and security. *After or concurrently with CPSC 323a and 365b.*

CPSC 439b^G/^EEENG 449b^G, COMPUTER SYSTEMS. Staff.

For description see under Electrical Engineering. *For students in the Class of 2008 and previous classes, counts toward the natural science requirement.*

CPSC 440b^G, NUMERICAL COMPUTATION I. Vladimir Rokhlin.

MW 2.30-3.45 IV; Not CR/D/F QR (37)

Algorithms for numerical problems in the physical, biological, and social sciences: solution of linear and nonlinear systems of equations, interpolation and approximation of functions, numerical differentiation and integration, optimization. *After CPSC 112a or b or an equivalent introductory programming course; MATH 120a or b; and MATH 222a or b or 225b or CPSC 202a.*

CPSC 445b^G, INTRODUCTION TO DATA MINING. Martin Schultz.

TTh 2.30-3.45 IV; Not CR/D/F QR (0)

A study of algorithms and systems that allow computers to find patterns and regularities in databases, to perform prediction and forecasting, and to improve their performance generally through interaction with data. *After CPSC 202a, 223b, and MATH 222a or b, or equivalents.*

CPSC 452a/MB&B 452a^G/MCDB 452a^G, GENOMICS AND BIOINFORMATICS.

Dieter Söll, Mark Gerstein, Michael Snyder.

For description see under Molecular Biophysics & Biochemistry. *For students in the Class of 2008 and previous classes, counts toward the natural science requirement.*

[CPSC 455b^G, ECONOMICS AND COMPUTATION]

[CPSC 457b^G, SENSITIVE INFORMATION IN A WIRED WORLD]

[CPSC 460b^G, THEORETICAL METHODS IN COMPUTER SCIENCE]

CPSC 462a^G/AMTH 462a^G, GRAPHS AND NETWORKS. Daniel Spielman.
For description see under Applied Mathematics.

[CPSC 463a^G, MACHINE LEARNING]

[CPSC 465a^G, TOPICS IN ALGORITHMS]

CPSC 467a^G, CRYPTOGRAPHY AND COMPUTER SECURITY.
Michael Fischer.

TTh 1-2.15 IV; Not CR/D/F QR (26)

A survey of such private and public key cryptographic techniques as DES, RSA, and zero-knowledge proofs, and their application to problems of maintaining privacy and security in computer networks. Focus on technology, with consideration of such societal issues as balancing individual privacy concerns against the needs of law enforcement, vulnerability of societal institutions to electronic attack, export regulations and international competitiveness, and development of secure information systems. *Some programming may be required. After CPSC 202a and 223b.*

CPSC 468b^G, COMPUTATIONAL COMPLEXITY. Joan Feigenbaum.

TTh 1-2.15 IV; Not CR/D/F QR (0)

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. *After CPSC 365b or with permission of instructor.*

CPSC 469b^G, RANDOMIZED ALGORITHMS. Ravindran Kannan.

TTh 2.30-3.45 IV; Not CR/D/F QR (27)

A study of randomized algorithms from several areas: graph algorithms, algorithms in algebra, approximate counting, probabilistically checkable proofs, and matrix algorithms. Topics include an introduction to tools from probability theory, including some inequalities such as Chernoff bounds. *After CPSC 365b; CPSC 460b or solid background in computer science and mathematics desirable. Taught in alternate years.*

CPSC 470a^G, ARTIFICIAL INTELLIGENCE. Drew McDermott.

MWF 2.30-3.20 IV; Not CR/D/F QR (37)

An introduction to artificial intelligence research, focusing on reasoning and perception. Topics include knowledge representation, predicate calculus, temporal reasoning, vision, robotics, planning, and learning. *After CPSC 201a or b and 202a.*

★CPSC 473b^G, INTELLIGENT ROBOTICS. Brian Scassellati.

MWF 10.30-11.20 IV; Not CR/D/F QR (0)

An introduction to the construction of intelligent, autonomous systems. Sensory-motor coordination and task-based perception. Implementation techniques for behavior selection and arbitration, including behavior-based design, evolutionary design, dynamical systems, and hybrid deliberative-reactive systems. Situated learning and adaptive behavior. *After CPSC 202a and 223b.*

CPSC 475b^G/EENG 475b^G, COMPUTATIONAL VISION AND BIOLOGICAL PERCEPTION. Steven Zucker.

MW 1-2.15 IV; Not CR/D/F QR, Sc Meets RP (36)

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. *After MATH 120a or b and CPSC 112a or b, or with permission of instructor. For students in the Class of 2008 and previous classes, counts toward the natural science requirement.*

★CPSC 477a^G, NEURAL NETWORKS FOR COMPUTING.

Willard Miranker.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Artificial neural networks as a computational paradigm studied with application to problems in associative memory, learning, pattern recognition, perception, robotics, and other areas. Development of models for the dynamics of neurons and methods such as learning for designing neural networks. Concepts, designs, and methods compared and tested in software simulation. Brain and consciousness studies are optional topics. *Programming and knowledge of linear algebra and calculus required.*

CPSC 478b^G, COMPUTER GRAPHICS. Julie Dorsey.

TTh 4-5.15 IV; Not CR/D/F QR (27)

An 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. *Assumes solid C or C++ programming skills and a basic knowledge of calculus and linear algebra. After CPSC 202a and 223b; MATH 222a or b recommended.*

[CPSC 479b^G, ADVANCED COMPUTER GRAPHICS: RENDERING TECHNIQUES]

★CPSC 480a or b, DIRECTED READING. Staff.

HTBA IV; Not CR/D/F (○)

Individual study for qualified students who wish to investigate an area of computer science not covered in regular courses. A student must be sponsored by a faculty member who sets the requirements and meets regularly with the student. Requires a written plan of study approved by the faculty adviser and the director of undergraduate studies. *May be taken more than once for credit.*

★CPSC 490a or b, SPECIAL PROJECTS. Staff.

HTBA IV; Not CR/D/F (○)

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.*

COMPUTER SCIENCE AND ELECTRICAL ENGINEERING

(See under *Electrical Engineering and Computer Science.*)

COMPUTER SCIENCE AND MATHEMATICS

Directors of undergraduate studies: Stanley Eisenstat (Computer Science), 208 AKW, 432-1246, stanley.eisenstat@yale.edu; Gregg Zuckerman (Mathematics), 450 DL, 432-4198, gregg@math.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.

The major requires fourteen term courses as well as a senior project. Six of the fourteen courses must be in computer science: CPSC 201a or b, 223b, 323a, 365b, 440b, and one additional advanced term course other than CPSC 480a or b or 490a or b. The remaining eight courses must be in mathematics: MATH 120a or b, either 222a or b or 225b, 244a, and five additional advanced term courses. MATH 230 may replace MATH 120a or b and 222a or b or 225b.

The senior requirement is a project or an essay on a topic acceptable to both departments. An oral report on the mathematical aspects of the project must be presented to the Mathematics faculty.

The entire program of each student majoring in Computer Science and Mathematics must be approved by the director of undergraduate studies in each department.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Fourteen term courses

Specific courses required: CPSC 201a or b, 223b, 323a, 365b, 440b, MATH 120a or b, either 222a or b or 225b, 244a

Distribution of courses: Five additional advanced courses in mathematics; one additional advanced course in computer science, which may not be CPSC 480a or b or 490a or b

Substitution permitted: MATH 230 for MATH 120a or b and 222a or b or 225b

Senior requirement: Senior project or senior essay on topic acceptable to Computer Science and Mathematics depts; oral report on mathematical aspects of project to Mathematics dept

COMPUTER SCIENCE AND PSYCHOLOGY

Directors of undergraduate studies: Stanley Eisenstat (Computer Science), 208 AKW, 432-1246, stanley.eisenstat@yale.edu; Woo-kyoung Ahn (Psychology), 319 SSS, 432-9626, psychdus@yale.edu

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, neural modes of computation, and biological perception.

The prerequisite for the major is PSYC 110a or b. Beyond the prerequisite, the major requires fourteen term courses as well as a senior project.

Eight of the fourteen courses must be in computer science: CPSC 201a or b, 202a, 223b, 323a, 365b, and three advanced computer science courses in artificial intelligence or neural computing. CPSC 480a or b may not be counted as one of these courses.

The remaining six courses must be in psychology, including PSYC 200a, at least one from PSYC 210–299, at least two courses from the social science point of view, indicated as List A under Psychology, and at least one course in cognitive psychology or cognitive science listed in Psychology (e.g., PSYC 120a, 130a, 220b, 331b).

A second course in cognitive psychology or cognitive science may substitute for one of the courses in artificial intelligence or neural computing.

Senior requirement. The senior project must be approved by the director of undergraduate studies in each department. If taken for course credit in CPSC 490a or b or PSYC 490a or 491b, the senior project course is in addition to the fourteen required courses.

REQUIREMENTS OF THE MAJOR

Prerequisite: PSYC 110a or b

Number of courses: Fourteen term courses beyond prerequisite (not including the senior project)

Specific courses required: CPSC 201a or b, 202a, 223b, 323a, 365b; PSYC 200a

Distribution of courses: Eight courses in computer science with three advanced courses in AI or neural computing; six courses in psychology, with at least one from PSYC 210–299, at least two from List A under Psychology, and at least one course in cognitive psychology or cognitive science listed in Psychology

Substitution permitted: One addtl course in cognitive psychology or cognitive science for one course in AI or neural computing

Senior requirement: Senior project, approved by DUS in each dept

COPTIC

(See under Near Eastern Languages and Civilizations.)

CZECH

(See under Slavic Languages and Literatures.)

DEVANE LECTURE COURSE

DEVN 190b/EVST 190b/PLSC 360b, MODERN CAPITALISM AND ENVIRONMENT: PATHWAYS TO SUSTAINABILITY OR END OF THE ROAD? James Gustave Speth.

TTTh 4-5.15, I HTBA III; Not CR/D/F So (o)

Discussion of whether modern capitalism can sustain the environment, and whether the environment can sustain modern capitalism, in an era when the world economy is poised to double and then double again within a half century. Examination of major environmental trends and conditions, followed by a review of current thinking about the relationships among capitalism, growth, and the environment. Consideration of a variety of prescriptions that have been proposed to take economy and environment off collision course.

DIRECTED STUDIES

Director of undergraduate studies: Jane Levin, 53 Wall St., 432-1314, jane.levin@yale.edu; director: María Rosa Menocal, 53 Wall St., 432-0670, maria.menocal@yale.edu

Directed Studies, a selective program for freshmen, is an interdisciplinary study of Western civilization. One hundred twenty-five students are accepted each year.

All students enrolled in Directed Studies take three yearlong courses—literature, philosophy, and historical and political thought—in which they read the central texts of the Western tradition. The fall term introduces students to the principal works of classical antiquity and to the Judeo-Christian tradition. The fall term ends with the Middle Ages. The spring term begins with the Renaissance and ends with the twentieth century.

Each course meets weekly for one lecture and two seminars; seminars have eighteen students and one faculty member. The regular lectures and seminars are complemented by a series of colloquia. Distinguished members of the faculty are invited to speak on major issues arising from the work in the program, on related disciplines not included in the program, and on the relationship between Western civilization and the non-Western world. Colloquium topics in recent years have included poetry and translation, the origin of consciousness in Greek art, Christians, Muslims, and Jews in medieval Spain, and Western views of China.

Directed Studies fulfills the following distributional requirements: two course credits in the humanities and arts, two course credits in the social sciences, and two course credits in writing. The program serves as a strong foundation for all majors in Yale College, including those in the sciences.

★DRST 001, DIRECTED STUDIES: LITERATURE. Jane Levin, Ala Alryyes, Michael Anderson, Shameem Black, Amerigo Fabbri, Hilary Fink, Virginia Jewiss, Richard Maxwell, Claude Rawson, Pamela Schirmeister, Ruth Yeazell.

Lect. W 11.30-12.20; *disc.* HTBA WR [F], Hu (63)

An examination of major literary works with an aim of understanding how a tradition develops. In the fall term, works and authors include Homer, Aeschylus, Sophocles, Vergil, the Bible, and Dante. In the spring term, authors vary somewhat from year to year and include Petrarch, Cervantes, Shakespeare, Milton, Goethe, Wordsworth, Dostoevsky, and Eliot.

★DRST 002, DIRECTED STUDIES: PHILOSOPHY. Jonathan Gilmore, Michael Della Rocca, Greg Ganssle, Tamar Gendler, John Hare, Verity Harte, James Kreines, Anthony Kronman, David Miller, Matthew Smith, Michael Weber.

Lect. F 11.30-12.20; *disc.* HTBA WR [Sp], Hu (24)

An examination of major figures in the history of Western philosophy with an aim of discerning characteristic philosophical problems and their interconnections. Emphasis on Plato and Aristotle in the fall term. In the spring term, modern philosophers include Descartes, Berkeley, Hume, Kant, and Nietzsche.

★DRST 003, DIRECTED STUDIES: HISTORICAL AND POLITICAL THOUGHT. Kathryn Slanski, Elizabeth Foster, Paul Freedman, Bryan Garsten, Charles Hill, Margaret Litvin, Karuna Mantena, Steven Smith, Norma Thompson, Roy Tsao.

Lect. M 11.30-12.20; *disc.* HTBA So (34)

A study of works of primary importance to political thought and intellectual history. Focus on the role of ideas in shaping events, institutions, and the fate of the individual. In the fall term, Herodotus, Thucydides, Plato, Aristotle, Augustine, and Aquinas. In the spring term, Machiavelli, Hobbes, Locke, Rousseau, Burke, Tocqueville, Emerson, Marx, Nietzsche, and Arendt.

DRAMA

(See under *Theater Studies*.)

EAST ASIAN LANGUAGES AND LITERATURES

Director of undergraduate studies: Christopher Hill, 305 HGS, 432-2867,
chris.hill@yale.edu

FACULTY OF THE DEPARTMENT OF EAST ASIAN LANGUAGES AND LITERATURES

PROFESSORS

Kang-i Sun Chang, Edward Kamens, Haun Saussy, John Treat (*Chair*)

ASSISTANT PROFESSORS

Aaron Gerow, Christopher Hill, Paize Keulemans, Jing Tsu

SENIOR LECTURER

Koichi Shinohara

LECTURERS

Chi-wah Chan, Charles Laughlin

SENIOR LECTORS

Seungja Choi, Koichi Hiroe, Zhengguo Kang, Yoshiko Maruyama, John Montanaro,
Ling Mu, Michiaki Murata, Hiroyo Nishimura, Masahiko Seto, Mari Stever, Wei Su,
William Zhou

LECTORS

Hsiu-hsien Chan, Min Chen, Angela Lee-Smith, Rongzhen Li, Ninghui Liang, Fan
Liu, Jianhua Shen, Haiwen Wang, Peisong Xu, Jianxin Zhao

The Department of East Asian Languages and Literatures offers majors in Chinese and Japanese. These are liberal arts majors intended to give the student a general knowledge of Chinese or Japanese literature and the techniques of literary analysis, and advanced oral and written skills in one of these languages. The department also offers language courses in Korean and courses in East Asian humanities. Courses in Indonesian and Vietnamese are listed under Southeast Asia Studies in this bulletin.

Because the study of an East Asian language presents special challenges, all students interested in these languages are encouraged to begin their studies as early as possible in their careers at Yale. Students must begin language study no later than the sophomore year in order to complete the requirements of either major in the department. The Richard U. Light Fellowship, administered by the Office of International Education and Fellowship Programs, provides opportunities for qualified Yale students to study East Asian languages in East Asia. Numerous other fellowships are also available. Language requirements may be met in part by taking accelerated language courses elsewhere, but students wishing to receive credit for language study completed at another university must take a placement examination to determine their level of proficiency. Students considering a major in the department should consult the director of undergraduate studies early in their careers at Yale. It is a department policy that Yale College students may not audit language courses.

Course numbering. Courses in Chinese, Japanese, and Korean with numbers from 100 to 199 are language courses. Courses in Chinese and Japanese with numbers from 200 to 399 are courses in literature and film. Of the latter, courses numbered from 200 to 249 are introductory courses in pre-modern literature; courses numbered from 250 to 299 are introductory

courses in modern literature or film; courses numbered from 300 to 349 are more advanced courses in premodern literature; and courses numbered from 350 to 399 are more advanced courses in modern literature or film.

Placement examination. Students who are enrolling in the department's language classes 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 at the beginning of the year. The times and places of the examinations are listed in the *Calendar for the Opening Days* and on the departmental Web site (www.yale.edu/eall/undergrad). The Chinese examination has an online component accessed through the same site. Students returning from programs abroad must consult with the director of undergraduate studies before reentering the language program.

- *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in Chinese, Japanese, or Korean by successful completion of a course at the intermediate level. Courses fulfilling the requirement are: in Chinese, CHNS 130, Intermediate Modern Chinese, or CHNS 133, Intermediate Modern Chinese for Advanced Learners; in Japanese, JAPN 140, Intermediate Japanese; in Korean, KREN 130, Intermediate Korean, or KREN 133, Intermediate Korean for Advanced Learners. Students may also fulfill the requirement by passing a departmental examination given at the beginning of the fall term, equivalent to the successful completion of any of the courses listed above. No term credit is earned by passing the examination. The times and places of the examinations are listed in the *Calendar for the Opening Days* and on the departmental Web site (www.yale.edu/eall/undergrad).

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under "Distributional Requirements" in chapter III, section A.

I. THE MAJOR IN CHINESE

The major in Chinese is designed to give the student a broad understanding of the chief forms and themes of Chinese literature through reading in the original language. By the senior year, the student majoring in Chinese can acquire advanced skills in speaking and reading Chinese and in interpreting Chinese literature.

Prerequisite to the major is CHNS 130 or the equivalent. The major consists of at least eleven other courses, which fall into the following seven categories: (1) Chinese literature in translation: two term courses at the 200 or 300 level, of which one must be in premodern literature; (2) third-year Chinese: two terms of CHNS 150 or the equivalent; (3) two terms of literary Chinese: CHNS 160 or the equivalent; (4) one general literature course, such as ENGL 129 or LITR 120a or 300b, or a course on Japanese literature at the 200 level; (5) one course conducted in English that gives an overview of Chinese culture, such as HIST 315a or 316b; (6) Chinese literature in the original language: two term courses that involve the study of literary texts (premodern or modern vernacular) to be chosen from the fourth-year Chinese language courses in which literary texts are used (such as CHNS 157), CHNS 170a, or other courses at the discretion of the director of undergraduate studies; (7) the senior essay.

In order to acquaint themselves with the breadth of the field, students majoring in Chinese should take one or more courses in Chinese literature in translation as early as possible in their careers at Yale. Graduate courses in Chinese may count toward the major; enrollment in them requires permission of the instructor and of the director of graduate studies.

Senior requirement. Students prepare a senior essay in CHNS 491a or b or in CHNS 492.

REQUIREMENTS OF THE MAJOR

Prerequisite: CHNS 130 or equivalent

Number of courses: Eleven term courses beyond prerequisite (including a one-term senior essay), or twelve term courses (if a two-term senior essay is included)

Specific courses required: CHNS 150 and 160 or equivalent

Distribution of courses: Two courses in Chinese lit in translation, including one in premodern lit; one general lit course; one course in English giving an overview of Chinese culture; two courses in Chinese lit in the original lang

Substitution permitted: Other courses substantially concerned with the study of Chinese lang and/or lit for two courses in Chinese lit in translation with permission of DUS

Senior requirement: Senior essay (CHNS 491a or b or 492)

II. THE MAJOR IN JAPANESE

The Japanese major immerses the student in the breadth and depth of the Japanese literary tradition, premodern through modern. By the senior year, the student majoring in Japanese can acquire advanced skills in speaking and reading Japanese and in interpreting Japanese literature.

Prerequisite to the major is JAPN 140 or the equivalent. The major consists of at least eleven other courses, which fall into the following seven categories: (1) Japanese literature in translation or Japanese film: three term courses at the 200 or 300 level, of which one must be in premodern literature and one in modern literature; (2) advanced modern Japanese: two terms of JAPN 150 or the equivalent; (3) literary Japanese: JAPN 160a; (4) one general literature or film course, such as ENGL 129, LITR 120a or 300b, FILM 150a, or a course on Chinese literature at the 200 level; (5) one course in English that gives an overview of Japanese culture, such as ANTH 254a; (6) Japanese literature in the original language: two term courses that involve the study of literary or other types of texts, premodern or modern, such as JAPN 157, 161b, or other courses as approved by the director of undergraduate studies; (7) the senior essay.

In order to acquaint themselves with the breadth of the field, students majoring in Japanese should take one or more courses in Japanese literature in translation as early as possible in their careers at Yale. Graduate courses in Japanese may count toward the major; enrollment in them requires permission of the instructor and of the director of graduate studies.

Senior requirement. Students prepare a senior essay in JAPN 491a or b or in JAPN 492.

REQUIREMENTS OF THE MAJOR

Prerequisite: JAPN 140 or equivalent

Number of courses: Eleven term courses beyond prerequisite (including a one-term senior essay) or twelve term courses (if a two-term senior essay is included)

Specific courses required: JAPN 150 or equivalent; JAPN 160a

Distribution of courses: Three courses in Japanese lit in translation or Japanese film, including one in premodern lit and one in modern lit; one general lit or film course; one course in English giving overview of Japanese culture; two courses on Japanese lit in the original lang

Substitution permitted: Other courses substantially concerned with the study of Japanese lang and/or lit for two courses in Japanese lit in translation with permission of DUS

Senior requirement: Senior essay (JAPN 491a or b or 492)

EAST ASIAN HUMANITIES

EALL 201a/RLST 133a, JAPANESE RELIGIONS. Koichi Shinohara.
For description see under Religious Studies.

★EALL 210b/★LITR 255b, LITERARY MODERNIZATION IN JAPAN AND KOREA. John Treat.

MW 2.30-3.45 I Hu (○)

A survey of how Japanese and Korean literature met the challenges of modernization from the time of the Opium Wars in the mid-nineteenth century to the start of the Second World War. *Enrollment limited to 20. No knowledge of Japanese or Korean required.*

★EALL 215a/★EAST 403a/★FILM 319a, EAST ASIAN CINEMA AND TRANSNATIONAL TROPES. Jinhee Choi.

For description see under East Asian Studies.

CHINESE

★CHNS 115, ELEMENTARY MODERN CHINESE. William Zhou, John Montanaro, Jianhua Shen.

MTWThF 9.30-10.20 or 10.30-11.20 or 11.30-12.20 I; Not CR/D/F L1-L2
3 C Credits Meets RP (○) *Cr/Year only*

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. To be followed by CHNS 130. *Additional sections offered in Beijing, China, through the Peking University-Yale University Joint Undergraduate Program.*

★CHNS 118, ELEMENTARY MODERN CHINESE FOR ADVANCED LEARNERS. Ninghui Liang.

MTWThF 9.30-10.20 I; Not CR/D/F L1-L2 3 C Credits Meets RP
(○) *Cr/Year only*

First level of the advanced learner sequence. Intended for students with some 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. To be followed by CHNS 133. Placement confirmed by placement test on first day of class and by instructor.

★CHNS 130, INTERMEDIATE MODERN CHINESE. Ling Mu, Rongzhen Li.

MTWThF 10.30-11.20 or 11.30-12.20 I; Not CR/D/F L3-L4
3 C Credits Meets RP (61)

An intermediate course that continues intensive training in listening, speaking, reading, and writing and consolidates what students have achieved in the first year of study, allowing students to improve oral fluency, study more complex grammatical structures, and enlarge both reading and writing vocabulary. To be followed by CHNS 150. *Prerequisite:* CHNS 115 or equivalent.

★CHNS 133, INTERMEDIATE MODERN CHINESE FOR ADVANCED LEARNERS. Peisong Xu.

MTWThF 10.30-11.20 or 11.30-12.20 I; Not CR/D/F L3-L4
3 C Credits Meets RP (61)

The second level of the advanced learner sequence. Intended for students with intermediate to advanced oral proficiency and high 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 attain an advanced level in all of them. To be followed by CHNS 153. *Prerequisite*: CHNS 118 or equivalent.

★CHNS 150, ADVANCED MODERN CHINESE I. Rongzhen Li, Haiwen Wang.

MTWThF 10.30-11.20 or 11.30-12.20 I; Not CR/D/F L5
3 C Credits (61)

Third level of the standard foundational sequence of modern Chinese language study in the areas of 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. Introduction to a wide variety of written forms and styles. Use of both traditional and simplified forms of Chinese characters. *After* CHNS 130.

★CHNS 153, ADVANCED MODERN CHINESE I FOR ADVANCED LEARNERS. Zhengguo Kang.

MWF 9.30-10.20 or 10.30-11.20 I; Not CR/D/F L5 (61)

Third level of the advanced learner sequence in Chinese. Intended for students with advanced speaking and listening skills (able to conduct conversations fluently on broad topics) but with high intermediate reading and writing skills (able to write 1,000–1,200 characters). Readings on contemporary life in China and Taiwan, supplemented with authentic video and other selected reading materials. Class discussion, presentations, and regular written assignments. Texts in simplified characters with vocabulary in both simplified and traditional characters. *After* CHNS 133 or equivalent.

★CHNS 154, ADVANCED MODERN CHINESE II. Jianhua Shen, Fan Liu.

MWF 10.30-11.20 or 11.30-12.20 I; Not CR/D/F L5 (61)

Fourth level of the standard foundational sequence of modern Chinese language study in the areas of 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. *After* CHNS 150 or equivalent.

★CHNS 155G, CHINESE THROUGH FILM. Zhengguo Kang.

MWF 1.30-2.20 I; Not CR/D/F L5 (0)

A survey of Chinese films of the past twenty years, optimized for language teaching. Texts include plot summaries, critical essays, and some scripts. Discussions, screenings, presentations, and writing workshops consolidate the four language skills. *After* CHNS 150 or equivalent.

★CHNS 156G, READINGS IN CONTEMPORARY CHINESE TEXTS. Wei Su.

MW or TTh 11.30-12.45 I; Not CR/D/F Meets RP (61)

Selected readings in Chinese fiction, essays, and articles of the past twenty years. Lectures, discussions, and written work in Chinese aim at integrated mastery of the modern language. *After* CHNS 150 or equivalent.

★CHNS 157, READINGS IN MODERN CHINESE SHORT STORIES. Wei Su.

MWF 9.30-10.20 I; Not CR/D/F L5 (32)

An advanced language course designed to continue the development of students' overall language skills through reading and discussion of modern short stories. *Conducted in Chinese. After CHNS 150 or equivalent.*

★CHNS 160^G, INTRODUCTION TO LITERARY CHINESE. Paize Keulemans.
MWF 10.30-11.20 I; Not CR/D/F L₅ Meets RP (33)

Reading and interpretation of texts in various styles of literary Chinese (*wenyan*), with attention to basic problems of syntax and literary style. *After CHNS 133 or 150 or equivalent.*

★CHNS 170a^G, ADVANCED READINGS IN MODERN CHINESE LITERATURE. Jing Tsu.

MW 11.30-12.45 I; Not CR/D/F L₅, Hu (34)

Close textual analysis of modern Chinese literature in the original language. Concentration on criticism, comprehension, and translations of selected texts from the 1960s to the present. Issues of narrative techniques, approaches toward reading, and the vicissitudes of Chinese literature in the contemporary period. *After CHNS 154 or 156 or equivalent.*

CHNS 200a^G/LITR 172a^G, MAN AND NATURE IN CHINESE LITERATURE.

Kang-i Sun Chang.

TTh 1-2.15 I; Not CR/D/F Hu (○) Tr

An exploration of the concepts of man and nature in traditional Chinese literature, with special attention to aesthetic and cultural meanings. Topics include the centrality of Taoism and lyricism; Buddhism and poetry; body and sexuality; contemplation and self-cultivation; travel in literature; landscape and the art of description; images of Utopian communities as compared to the Western notion of Utopia; ideas of self-identity; dream, nature, and passion. *No knowledge of Chinese required.*

[CHNS 201b^G/WGSS 405b, WOMEN AND LITERATURE IN TRADITIONAL CHINA]

★CHNS 210b^G/★LITR 174b, CHINESE VISIONS OF VIOLENCE IN *THE OUTLAWS OF THE MARSH*. Paize Keulemans.

MW 2.30-3.45 I Hu (○) Tr

A study of *The Outlaws of the Marsh*, one of the most important Chinese pre-modern vernacular novels. Focus on the moral, political, and literary questions surrounding violence, a central theme of the work. *No knowledge of Chinese required.*

CHNS 250a^G, MODERN CHINESE LITERATURE: PERSONS, PLACES, AND THINGS. Jing Tsu.

TTh 11.30-12.45 I Hu (○) Tr

An introduction to modern Chinese literature from the late nineteenth century through the twentieth. Questions of humanism, race, nationalism, travel, literary modernity, and cosmopolitanism. Works by Liu E, Wu Jianren, Li Boyuan, Lu Xun, Ba Jin, Ding Ling, Yu Dafu, Guo Moruo, Mao Dun, Xiao Hong, Zhang Ailing, Zhu Tianwen, Xi Xi, and Yu Hua. *No knowledge of Chinese required.*

CHNS 255b^G, LITERARY DIASPORA AND THE IDEA OF CHINA. Jing Tsu.

MW 11.30-12.45 I Hu (○) Tr

A study of the Chinese literary diaspora and sinophone literature, with a focus on the contemporary period. Survey of works from mainland China, Hong Kong, Malaysia, Taiwan, France, England, and the United States through the lenses of cultural exile, sojourn, immigration, transnationalism, and nativism. *No knowledge of Chinese required.*

CHNS 360a or b, CONTEMPORARY BEIJING CULTURE. Charles Laughlin.
HTBA I Hu (o)

An introduction to literature and the visual and performing arts in Beijing from the 1990s to the present, with emphasis on global influences and local debates. Readings of literary works in translation and English-language studies of contemporary arts and letters. Field trips to museums, theaters, performance spaces, and music venues. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

*CHNS 400b^G, MATERIALS AND METHODS FOR RESEARCH IN CHINESE STUDIES. Chi-wah Chan.

W 3.30–5.20 I or II (o)

Lectures, discussion, and written exercises designed to develop skills in using traditional Chinese research materials. *Prerequisite: CHNS 150 or equivalent.*

*CHNS 470a and 471b, INDEPENDENT TUTORIAL. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

For students with advanced Chinese 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.*

*CHNS 491a or b, SENIOR ESSAY. Director of undergraduate studies.

HTBA I; Not CR/D/F (o)

Preparation of a one-term senior essay under faculty supervision.

*CHNS 492, YEARLONG SENIOR ESSAY. Director of undergraduate studies.

HTBA I; Not CR/D/F (o)

Preparation of a two-term senior essay under faculty supervision.

JAPANESE

*JAPN 115, ELEMENTARY JAPANESE. Hiroyo Nishimura,

Yoshiko Maruyama, Michiaki Murata, Mari Stever.

MTWThF 9.30–10.20 OR 10.30–11.20 I; Not CR/D/F L1–L2 3 C Credits
Meets RP (61) *Cr/Year only*

An introductory course in spoken Japanese. Drills in pronunciation and conversation; lectures on grammar; and an introduction to reading and writing, including *hiragana*, *katakana*, and 200 *kanji*.

*JAPN 140, INTERMEDIATE JAPANESE. Masahiko Seto,

Yoshiko Maruyama, Michiaki Murata.

MTWThF 10.30–11.20 OR 11.30–12.20 I; Not CR/D/F L3–L4
3 C Credits Meets RP (61)

Emphasis on continued development in both written and spoken Japanese with reinforcement of previously learned patterns and structures. Besides the text, teaching materials include audio- and videotapes for listening comprehension and speaking practice, as well as multimedia materials. *Prerequisite: JAPN 115 or equivalent.*

*JAPN 150, ADVANCED JAPANESE I. Mari Stever.

MWF 1–2.15 OR 2.30–3.45 I; Not CR/D/F L5 3 C Credits
Meets RP (61)

An advanced Japanese language course designed to continue the development of students' proficiency in aural and reading comprehension, as well as speaking and writing skills. Reading and discussion of short stories, essays, and journal articles. Listening to and discussion of television and radio broadcasts. Writing practice includes a diary, letters, essays, and criticism. *After JAPN 140 or equivalent.*

★JAPN 157, ADVANCED JAPANESE II. Koichi Hiroe.

MWF 1-2.15 I; Not CR/D/F L5 3 C Credits (○)

Close reading of modern Japanese writings in current affairs, social science, cultural history, and modern literature. Students develop their speaking, listening, and writing skills through discussion and written exercises. *Conducted in Japanese. After JAPN 150 or equivalent.*

JAPN 160a^G, INTRODUCTION TO LITERARY JAPANESE. Edward Kamens.

MW 2.30-3.45 I; Not CR/D/F L5 Meets RP (○)

Introduction to the grammar and style of the premodern literary language (*bungotai*) through a variety of texts. *After JAPN 150 or equivalent.*

★JAPN 161b^G, READINGS IN LITERARY JAPANESE. Edward Kamens.

M 1.30-3.20 I; Not CR/D/F L5 Meets RP (○)

Close analytical reading of a selection of texts from the Nara through Tokugawa periods: prose, poetry, and various genres. *After JAPN 160a or equivalent.*

★JAPN 162, ADVANCED JAPANESE III. Koichi Hiroe.

TTh 1-2.15 I; Not CR/D/F L5 (○)

Further development of skills used in academic settings, including public speaking, formal presentations, and expository writing based on research. Materials include lectures, scholarly papers, criticism, fiction, and films. *After JAPN 157 or equivalent; recommended to be taken after or concurrently with JAPN 160a.* (Formerly JAPN 158)

JAPN 200a/LITR 175a, THE JAPANESE CLASSICS. Edward Kamens.

TTh 2.30-3.45 I (○) Tr

Prose narratives, poetry collections, and plays from the eighth through the nineteenth centuries. Topics include the relation of gender to modes of writing, recurring themes of nature, love, warfare, and the supernatural, and the place of Japanese literature within the scope of world literature. *No knowledge of Japanese required.*

JAPN 250a^G/LITR 260a, MODERN JAPANESE FICTION. Christopher Hill.

TTh 1-2.15 I Hu (○) Tr

An introduction to Japanese fiction from the 1890s to the 1980s. Novels and stories by such writers as Natsume Soseki, Tanizaki Jun'ichiro, and Oe Kenzaburo; discussion of major trends such as modernism and writing by women. *No knowledge of Japanese required.*

JAPN 251b^G/LITR 251b, JAPANESE LITERATURE AFTER 1970. John Treat.

TTh 11.30-12.45 I Hu (○) Tr

A continuation of JAPN 250a. Study of Japanese literature published between 1970 and the present. Writers may include Murakami Ryu, Maruya Saiichi, Shimada Masahiko, Nakagami Kenji, Yoshimoto Banana, Yamada Eimi, Murakami Haruki, and Medoruma Shun. *No knowledge of Japanese required.*

[JAPN 252a^G, THE ATOMIC BOMBINGS OF JAPAN IN WORLD CULTURE]

JAPN 260b^G/LITR 252b, IMAGINING SPACE IN JAPANESE FICTION AND FILM. Christopher Hill.

TTh 1-2.15 I or II Hu (○) Tr

Representations of space in modern fiction and selected films. Aesthetic forms as they establish social and psychological space; urbanization, wartime destruction, and rural transformations as they affect the representation of space. Writers and directors include Kawabata, Enchi, Ôe, Murakami, and Miyazaki. *No knowledge of Japanese required.*

[JAPN 271a^G/FILM 448a^G, JAPANESE CINEMA AFTER 1960]

[JAPN 350b^G/LITR 339b, NATURALIST LITERATURE IN THE GLOBAL FRAME]

★JAPN 470a and 471b, INDEPENDENT TUTORIAL. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (○)

For students with advanced Japanese 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.*

★JAPN 491a or b, SENIOR ESSAY. Director of undergraduate studies.

HTBA I; Not CR/D/F (○)

Preparation of a one-term senior essay under faculty supervision.

★JAPN 492, YEARLONG SENIOR ESSAY. Director of undergraduate studies.

HTBA I; Not CR/D/F (○)

Preparation of a two-term senior essay under faculty supervision.

KOREAN

★KREN 115, ELEMENTARY KOREAN. Angela Lee-Smith and staff.

MTWThF 9.30-10.20 I; Not CR/D/F L1-L2 3 C Credits Meets RP
(32) *Cr/Year only*

A beginning course in modern Korean. Pronunciation, lectures on grammar, conversation practice, and introduction to the writing system (*Hankul*).

★KREN 130, INTERMEDIATE KOREAN. Seungja Choi and staff.

MTWThF 10.30-11.20 I; Not CR/D/F L3-L4 3 C Credits
Meets RP (33)

Continued development of skills in modern Korean, spoken and written, leading to intermediate-level proficiency. *After KREN 115 or equivalent.* (Formerly KREN 135)

★KREN 133, INTERMEDIATE KOREAN FOR ADVANCED LEARNERS.

Angela Lee-Smith.

MTWThF 10.30-11.20 I; Not CR/D/F L3-L4 3 C Credits
Meets RP (33)

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.

★KREN 150, ADVANCED MODERN KOREAN. Seungja Choi and staff.

TTh 11.30-12.45 I; Not CR/D/F L5 Meets RP (24)

An advanced course in modern Korean. Reading of short stories, essays, and journal articles, and introduction of 400 Chinese characters. Students develop their speaking and writing skills through discussions and written exercises. *Conducted in Korean. After KREN 130 or equivalent.*

KREN 251b/FILM 315b, KOREAN CINEMA AFTER 1961. Seungja Choi.

TTh 1-2.15, 1 HTBA I Hu (○)

Exploration of Korean national cinema from the early 1960s to the present. Study of cinematic representations in the context of such themes as history, nationhood, gender, identity, and traditional culture. Attention to formal aspects of the films, including film styles and cinematography. *No knowledge of Korean required. Discussion section conducted in Korean available for students who have completed KREN 150 or equivalent.*

★KREN 470a and 471b, INDEPENDENT TUTORIAL. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (○)

For students with advanced Korean 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 by the end of the first week of classes and its approval by the director of undergraduate studies.*

EAST ASIAN STUDIES

Director of undergraduate studies: Koichi Shinohara, 451 College St., 432-0839, koichi.shinohara@yale.edu [F]; Mimi Yiengpruksawan, 34 Hillhouse Ave., 432-3426, mimi.yiengpruksawan@yale.edu [Sp]; <http://research.yale.edu/eastasianstudies>

FACULTY ASSOCIATED WITH THE PROGRAM OF EAST ASIAN STUDIES

PROFESSORS

Kang-i Sun Chang (*East Asian Languages & Literatures*), Deborah Davis (*Sociology*), Koichi Hamada (*Economics*), Valerie Hansen (*History*), Edward Kamens (*East Asian Languages & Literatures*), William Kelly (*Anthropology*), Youngsook Pak (*East Asian Studies, History of Art*) (*Visiting*), Frances Rosenbluth (*Political Science*), Haun Saussy (*Comparative Literature, East Asian Languages & Literatures*), Helen Siu (*Anthropology*), Jonathan Spence (*History*), John Treat (*East Asian Languages & Literatures*), Mimi Yiengpruksawan (*Chair*) (*History of Art*)

ASSOCIATE PROFESSOR

Michael Auslin (*History*)

ASSISTANT PROFESSORS

Jinhee Choi (*East Asian Studies, Film Studies*) (*Visiting*), Aaron Gerow (*East Asian Languages & Literatures, Film Studies*), Christopher Hill (*East Asian Languages & Literatures*), Paize Keulemans (*East Asian Languages & Literatures*), Pierre Landry (*Political Science*), Karen Nakamura (*Anthropology*), Lillian Lanying Tseng (*History of Art*), Jing Tsu (*East Asian Languages & Literatures*)

SENIOR LECTURERS

Annping Chin (*History*), Marcus Noland (*East Asian Studies, Economics*) (*Visiting*), Koichi Shinohara (*Religious Studies, East Asian Languages & Literatures*)

LECTURERS

Chi-wah Chan, Jinhee Choi, Nicole Cohen, Gareth Fisher, Hoi-cun Kim, Charles Laughlin

SENIOR LECTORS

Seungja Choi, Koichi Hiroe, Zhengguo Kang, Yoshiko Maruyama, John Montanaro, Ling Mu, Michiaki Murata, Hiroyo Nishimura, Masahiko Seto, Mari Stever, Wei Su, William Zhou

LECTORS

Hsiu-hsien Chan, Min Chen, Angela Lee-Smith, Rongzhen Li, Ninghui Liang, Fan Liu, Jianhua Shen, Haiwen Wang, Peisong Xu, Jianxin Zhao

In the East Asian Studies major students concentrate on either China or Japan and organize their work in the humanities or the social sciences. Students also have the opportunity to take courses related to Korea, as the Council on East Asian Studies continues to expand the study of Korea in the undergraduate curriculum. The major offers a liberal education by providing a degree of mastery of a significant field of learning. At the same time, it serves as excellent preparation for graduate study or for business and professional careers in which an understanding of East Asia is essential.

The major. 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.

Prerequisite to the major is CHNS 115 or JAPN 115 or the equivalent. Beyond the prerequisite, the major consists of thirteen term courses, which may include up to six taken in a preapproved program of study abroad, normally Yale's Junior Year or Term Abroad. Required courses are intermediate Chinese (CHNS 130) or Japanese (JAPN 140) and third-year Chinese or Japanese. Six term credits must be taken in East Asian language courses. Beyond the language requirement, the major consists of seven additional required courses, six in the country of concentration and one outside it. Of the six courses in the country of concentration, one must be in the premodern period, at least two must be seminars, and one is the senior requirement (a senior seminar culminating in a senior thesis, a one-term senior essay, or a senior directed research project). These courses are normally taken at Yale during the academic year, but with prior approval of the director of undergraduate studies the requirement may be fulfilled through successful course work undertaken elsewhere.

Senior requirement. All students must satisfy a senior requirement undertaken during the senior year. This requirement can be met in one of three ways. Students may take one seminar in the country of concentration, culminating in a senior thesis. Alternatively, students who are unable to write a senior essay in a seminar may complete a one-term senior essay in EAST 480a or b or a one-credit, two-term senior research project in EAST 491 culminating in an essay.

Upon entering the major, students are expected to draw up intellectually coherent sequences of courses in consultation with the director of undergraduate studies. They must consult with the director of undergraduate studies each term concerning their course schedules. They should identify as soon as possible a faculty adviser in the area of their specialization. As a multidisciplinary program, East Asian Studies draws on the resources of other departments and programs in the University. The following listing of 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. For a complete listing of courses approved for the major, see <http://research.yale.edu/eastasianstudies>. Students are also encouraged to visit E-Assisted Planning at <http://www.cls.yale.edu/eap> for help in planning the major.

REQUIREMENTS OF THE MAJOR

- Prerequisite:** CHNS 115 or JAPN 115 (or equivalent)
Number of courses: Thirteen term courses beyond prerequisite (including the senior requirement), of which up to six may be earned in preapproved study abroad
Specific courses required: CHNS 130, 150, or JAPN 140, 150, or equivalent
Distribution of courses: A total of seven courses on East Asia, of which six are in, and one is outside, the area of concentration (China or Japan). One of the area of concentration courses must be in the premodern era and two must be seminars
Senior requirement: One senior-year seminar culminating in a senior thesis, or a one-term senior essay in EAST 480a or b, or a one-credit, two-term senior research project in EAST 491

EAST 201b/HSAR 354b, INTRODUCTION TO KOREAN ART. Youngsook Pak.
 TTh 2.30-3.45 II; Not CR/D/F Hu (27)

An introduction to the arts of Korea, designed for students with minimal prior knowledge of East Asian art. Presentation of a diverse range of artifacts, topics, and techniques, including methods of distinguishing Korean art from that of neighboring countries.

*EAST 401b/*ANTH 445b, RELIGION AND GLOBALIZATION IN EAST ASIA.
 Gareth Fisher.

F 1.30-3.20 III; Not CR/D/F WR, So (0)

Examination of differing ways in which people of East Asian countries have turned to religion to mediate and adapt to rapid cultural changes brought about through recent globalization. Consideration of the role and impact of established religious traditions such as Buddhism, Confucianism, and Shinto; Western religions such as Christianity; and “cults” such as Aum Shinrikyo and the Falun Gong.

*EAST 402a/*HIST 485a, JAPAN AND KOREA: A TRANSNATIONAL HISTORY.
 Nicole Cohen.

F 1.30-3.20 II; Not CR/D/F Hu (0)

The history of Japanese-Korean interaction from early times through the present. Topics include cultural, economic, political, and diplomatic exchange; cross-cultural images of “self” and “other”; changing borders; and conflict and conciliation.

*EAST 403a/*EALL 215a/*FILM 319a, EAST ASIAN CINEMA AND
 TRANSNATIONAL TROPES. Jinhee Choi.

M 3.30-5.20 II; Not CR/D/F Hu (0)

Examination of the mechanisms and conditions that facilitate and enhance transnational cultural flows in Asia. Focus on three major areas in cultural exchanges: film genre and style, coproduction strategies, and the star system.

*EAST 404b/*HSAR 488b, ART AND RELIGION IN KOREA.
 Youngsook Pak.

W 3.30-5.20 II; Not CR/D/F Hu (0)

Consideration of ways that the visual arts in Korea were influenced by different religious systems, namely shamanism, Daoism, Buddhism, and Confucianism.

★EAST 408a/★SOCY 395a, WEALTH AND POVERTY IN MODERN CHINA.
Deborah Davis.
For description see under Sociology.

★EAST 480a *or* b, ONE-TERM SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F (o)

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 49I, SENIOR RESEARCH PROJECT. Consult the director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F 1 C Credit (o) *Cr/Year only*

Two-term directed research project under the supervision of a ladder faculty member. Students should write essays using Chinese- or Japanese-language materials when possible. Essays should be based on primary material, whether in Chinese or Japanese or English. Summary of secondary material is not acceptable.

ELECTIVES WITHIN THE MAJOR

ANTH 254a, JAPAN: CULTURE, SOCIETY, MODERNITY. Karen Nakamura.

ANTH 256b/WGSS 366b, MINORITIES AND SEXUALITIES IN MODERN JAPAN. Karen Nakamura.

For description see under Anthropology.

ANTH 282b, SPORT, SOCIETY, AND CULTURE. William Kelly.

★CHNS 160^G, INTRODUCTION TO LITERARY CHINESE. Paize Keulemans.
For description see under East Asian Languages & Literatures.

★CHNS 210b^G/★LITR 174b, CHINESE VISIONS OF VIOLENCE IN *THE OUTLAWS OF THE MARSH*. Paize Keulemans.
For description see under East Asian Languages & Literatures.

CHNS 360a *or* b, CONTEMPORARY BEIJING CULTURE. Charles Laughlin.
For description see under East Asian Languages & Literatures.

★EALL 210b/★LITR 255b, LITERARY MODERNIZATION IN JAPAN AND KOREA. John Treat.
For description see under East Asian Languages & Literatures.

ECON 429a^G, ECONOMIC DEVELOPMENT OF JAPAN. Koichi Hamada.

HIST 314b, EARLY SOURCES IN CHINESE INTELLECTUAL TRADITIONS.
Annping Chin.

HIST 315a, HISTORY OF TRADITIONAL CHINA TO 1600. Valerie Hansen.

HIST 316b, HISTORY OF MODERN CHINA, 1600–2007. Jonathan Spence.

★HIST 481b, TRAVEL ON THE SILK ROAD. Valerie Hansen.

HSAR 350b, CHINESE ART AND THE MODERN WORLD.
Lillian Lanying Tseng.

- HSAR 351a/ARCG 212a, ART AND ARCHAEOLOGY IN CHINA.
Lillian Lanying Tseng.
For description see under History of Art.
- HSAR 363a *or* b, SURVEY OF JAPANESE ART. Mimi Yiengpruksawan.
- *HSAR 438b/*HUMS 379b/*RNST 421b, SILK ROAD RENAISSANCE.
Anne Dunlop.
For description see under History of Art.
- *HSAR 481b, ART AND ARCHITECTURE OF THE FORBIDDEN CITY IN CHINA. Lillian Lanying Tseng.
- JAPN 160a^G, INTRODUCTION TO LITERARY JAPANESE.
Edward Kamens.
For description see under East Asian Languages & Literatures.
- *JAPN 161b^G, READINGS IN LITERARY JAPANESE. Edward Kamens.
For description see under East Asian Languages & Literatures.
- JAPN 200a/LITR 175a, THE JAPANESE CLASSICS. Edward Kamens.
For description see under East Asian Languages & Literatures.
- JAPN 250a^G/LITR 260a, MODERN JAPANESE FICTION.
Christopher Hill.
For description see under East Asian Languages & Literatures.
- JAPN 251b^G/LITR 251b, JAPANESE LITERATURE AFTER 1970. John Treat.
For description see under East Asian Languages & Literatures.
- JAPN 260b^G/LITR 252b, IMAGINING SPACE IN JAPANESE FICTION AND FILM. Christopher Hill.
For description see under East Asian Languages & Literatures.
- KREN 251b/FILM 315b, KOREAN CINEMA AFTER 1961. Seungja Choi.
For description see under East Asian Languages & Literatures.
- *PLSC 379a^G, JAPANESE POLITICS AND POLITICAL ECONOMY.
Frances Rosenbluth.
- *PLSC 384a^G/*EP&E 317a, POWER AND AUTHORITY IN CHINA'S LOCALITIES. Pierre Landry.
For description see under Political Science.
- PLSC 445a/INTS 336a, THE POLITICAL ECONOMY OF GREATER CHINA.
Pierre Landry.
For description see under Political Science.
- RLST 133a/EALL 201a, JAPANESE RELIGIONS. Koichi Shinohara.
For description see under Religious Studies.

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 director of undergraduate studies, and the director of graduate studies.

ECOLOGY AND EVOLUTIONARY BIOLOGY

Director of undergraduate studies: Leo Buss, 101 OML, 432-3837,
maureen.cunningham@yale.edu, www.ecb.yale.edu

Students interested in the area of ecology and evolutionary biology may find courses and major requirements listed under Biology, Area I. Students should consult an adviser from the appropriate list in that section.

The faculty roster for the Department of Ecology and Evolutionary Biology may be found under Biology. The department offers undergraduate courses in an area of concentration in the Biology major. See under Biology, Area I.

ECONOMICS

Director of undergraduate studies: Robert Evenson, 27 Hillhouse Ave.,
432-3621 or 432-3574, qazi.azam@yale.edu

FACULTY OF THE DEPARTMENT OF ECONOMICS

PROFESSORS

Joseph Altonji, Donald Andrews, Dirk Bergemann, Steven Berry, Truman Bewley, Donald Brown, Luis Cabral (*Visiting*), Judith Chevalier, Ward Curran (*Visiting*), Eduardo Engel, Robert Evenson, Ray Fair, John Geanakoplos, Itzhak Gilboa (*Visiting*), Pinelopi Goldberg, Timothy Guinnane, Philip Haile, Koichi Hamada, Gerald Jaynes, Yuichi Kitamura, Alvin Klevorick, Jaymin Lee (*Visiting*), Richard Levin, Robert Mendelsohn, Giuseppe Moscarini, Barry Nalebuff, William Nordhaus, Wojciech Olszewski (*Visiting*), Peter Phillips, Benjamin Polak, Miguel Ramirez (*Visiting*), John Roemer, Mark Rosenzweig, Herbert Scarf, T. Paul Schultz, Robert Shiller, Martin Shubik, Tony Smith, T. N. Srinivasan, Shyam Sunder, Christopher Udry, Ernesto Zedillo

ASSOCIATE PROFESSORS

Patrick Bayer, Hanming Fang, George Hall, Carolyn Moehling, Rohini Pande

ASSISTANT PROFESSORS

Irene Brambilla, Bjoern Bruegemann, Dino Gerardi, Justine Hastings, Dean Karlan, Fabian Lange, Taisuke Otsu, Ebonya Washington

LECTURERS

Irasema Alonso, Michael Boozer, Cheryl Doss, Howard Forman, Douglas Gollin, Sandy Pensler, Sonia Pereira, Nicholas Perna, Gretta Saab, Michael Schmertzler (*Visiting*), David Swensen, Dean Takahashi

Economics concerns the wealth of nations, its origins in production and exchange, its allocation among competing uses, its distribution among individuals, and its accumulation or decline. Economics seeks to discern both the common features and the differences in the institutions by which societies throughout the world, today and in the past, have organized economic life. The approach is descriptive and analytical. Many issues of national and international policy are considered, and the focus is on social institutions and market outcomes rather than on individual economic performance. Thus economics at Yale is regarded and taught as part of a liberal education, not as a preparation for any particular vocation.

Nonetheless economics provides an especially relevant background for several professions. In recent years about three-quarters of majors in Economics have entered law school or have gone on to graduate work in economics, business administration, and other professional fields, often after having worked in a related field for two or three years before beginning

graduate or professional education. About one-quarter have pursued careers with business firms, government, or other organizations without graduate or professional training.

Requirements of the major. Students majoring in Economics are required to take twelve term courses numbered 110 or above, two of which may be the introductory economics courses and one of which is a mathematics course selected from the following: MATH 112a or b, 115a or b, 118a or b, or 120a or b. The remaining nine courses are in Economics. Seven of the nine must be economics courses taken at Yale. All majors must take the following core courses: one term of intermediate microeconomics (chosen from ECON 150a or b or 152a), one term of intermediate macroeconomics (chosen from ECON 153b or 154a or b), and one term of econometrics (chosen from ECON 161a or b or 163b). These required courses for the major should be completed prior to the senior year and are prerequisites for departmental seminars. Majors must also take two starred departmental seminars (courses in the 450–491 range), including at least one in their senior year, to fulfill the senior requirement for the major. One course in a related field, such as accounting, another social science, or advanced mathematics, may be counted toward the Economics major with written permission of the director of undergraduate studies. In order to receive such permission, a student must be a declared major. Related-course credit forms are due by midterm (as it appears in the Yale College calendar) of the term in which the course is offered. Once a related course is approved as a course counting toward the major, it must be counted toward the major. For the Class of 2008 and previous classes, a maximum of two courses taken on a Credit/D/Fail basis may be counted toward the requirements of the major. For the Class of 2009 and subsequent classes, courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major, except with permission of the director of undergraduate studies.

Introductory courses. These courses serve students considering a major in Economics as well as others who would like an introduction to the subject. Most students enroll in ECON 115a or b and 116a or b, lecture courses with a discussion section. ECON 115a or b is concerned with microeconomics and includes such topics as markets, prices, production, distribution, and the allocation of resources. ECON 116a or b covers such macroeconomic issues as unemployment, inflation, growth, and international economics. Students may take either term without the other, except that ECON 116b (but not 116a) has introductory microeconomics as a prerequisite. Students are encouraged to take the two-term sequence in order to obtain an introduction to the broad scope of economics.

ECON 110a and 111b are limited-enrollment alternatives to ECON 115a or b and 116a or b; they are open only to freshmen selected from those who pre-register during the designated sign-up period. ECON 117a is an introductory microeconomics course with environmental applications. The substance of ECON 110a, 115a or b, and 117a is similar, and ECON 111b and 116a or b are similar as well. A student may receive credit for only one course each in introductory micro- and macroeconomics.

The department recommends that freshmen interested in majoring in Economics take introductory economics in the freshman year. They are also urged to meet the mathematics requirement during the freshman year. In order to make the introductory courses available to all freshmen and to students majoring in other subjects, the introductory courses do not have a mathematics requirement.

Exemptions from the introductory economics courses. Students who have a score of 5 on the Advanced Placement test for microeconomics and/or macroeconomics are exempted from the introductory courses and may enroll directly in intermediate courses. Students who have high scores in examinations in economics that are equivalent to Advanced Placement, such as the GCE A-level or Higher Level International Baccalaureate, may also be exempted from the introductory courses. Such students should consult the director of undergraduate studies regarding exemption.

Econometrics and mathematics recommendations. Students considering an empirical senior essay are advised to take the ECON 162a, 163b econometrics sequence. The department also recommends that majors complete MATH 118a or b, a term course covering the elements of multivariate calculus and linear algebra most relevant to economic theory. An alternative to MATH 118a or b is two term courses including MATH 120a or b (multivariate calculus) and MATH 222a or b or MATH 225b (linear algebra).

Advanced courses. Above the introductory level the department offers a wide selection of courses that explore in greater detail material presented in the introductory courses. Advanced courses are grouped in the following categories: (1) theory, quantitative, and mathematical economics; (2) market organization; (3) human resources; (4) finance; (5) international and development economics; (6) public sector. Many of these advanced courses apply theory and econometrics to economic problems and institutions, and for this reason some advanced courses list one or more of the theory or econometric courses as prerequisites. Most advanced courses have as a prerequisite two terms of introductory economics and the one-term mathematics requirement.

Seminars. 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 in the advanced courses.

There is preregistration for starred departmental seminars, and enrollment is limited. Applications are received in the Undergraduate Studies office, Room 101, 28 Hillhouse Avenue, during the designated sign-up period in the preceding term. Preference is given to senior Economics majors (including those in Economics and Mathematics) who have not yet completed two seminars. Students must take two of three core courses before enrolling in a seminar. Seminar enrollment lists will be posted outside Room 101, 28 Hillhouse Avenue, and on the Economics undergraduate Web page at www.econ.yale.edu. The seminar requirement must be met by Yale Economics department seminars; seminars in other departments or taken elsewhere will not suffice. Residential college seminars do not count toward the major.

Senior requirement. In their senior year, majors are required to take two starred departmental seminars in economics (ECON 450–491), or, if they have taken a departmental seminar in their junior year, one such seminar. *In all cases students must enroll in one seminar during their senior year.* Enrollment in ECON 491a counts as one seminar.

To be considered for Distinction in the Major, students must meet the grade standards for distinction (see chapter I) and submit a senior essay written in ECON 491a, in 491a and 492b, or in a starred departmental fall seminar to the Economics department by April 9, 2007. One-term essays are completed only in the fall term. Students who fail to submit such a paper will not

be considered for Distinction in the Major. (Note that the paper must be written during the senior year and that students may submit a senior essay only if they have an approved prospectus and a senior essay adviser.) Senior essays that are not submitted on time will receive a grade of Incomplete. Senior essays with grades of Incomplete without permission of the residential college dean are subject to grade penalties when submitted. Grade computation for distinction does not include the introductory economics courses or the required mathematics course. It does include, if taken, one course in a related field that is counted toward the major, as well as study abroad courses and transfer courses approved by the director of undergraduate studies. Courses elected on a Credit/D/Fail basis count as non-A grades. Meetings for seniors to discuss the senior essay will be held on Wednesday, September 6, at 4.30 P.M. and Thursday, September 7, at 1.30 P.M. in Room 106, 28 Hillhouse Avenue. Details regarding calculations for Distinction in the Major will be discussed in these meetings, and senior essay guidelines will be distributed. Senior essay prospectus forms are due October 9, 2006.

Graduate courses. Well-qualified students who have acquired the requisite background in undergraduate courses may, with written permission of the instructor, the director of undergraduate studies, and the director of graduate studies, be admitted to graduate courses and seminars. A selective choice of graduate courses will usually meet the needs of undergraduates interested in graduate instruction.

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 and linear algebra. Students are urged to discuss their plans for graduate work with the director of undergraduate studies as early in their college careers as possible.

Combined B.A./M.A. program. Students interested in the B.A./M.A. program in Economics may submit a preliminary application in the fall of their junior year to the directors of undergraduate and graduate studies. Admission to this program is limited to students who have achieved A grades in at least two-thirds of all of their undergraduate courses and have also achieved A grades in at least two-thirds of courses relating to the major. If granted permission, applicants take two of the following three graduate courses: ECON 500a, 510a, and 550a. Only students who earn a grade of at least A- in each course will be considered for candidacy in the B.A./M.A. program. Applications are forwarded to the Yale College Committee on Honors and Academic Standing at the end of the fall term. This committee makes the final decision on admission of students to the program. It is not possible to enter the B.A./M.A. program except in the fall of the junior year. If admitted to the program, a student completes eight term courses of graduate work in the junior and senior years; these eight courses include the two required for candidacy in the program as well as two chosen from the six core courses in the graduate sequence of microeconomics, macroeconomics, and econometrics. In addition, the student must complete the two-term senior departmental essay by enrollment in ECON 491a and 492b. All students in the program must complete an approved one-term undergraduate or graduate course in econometrics. It is recommended that students complete the distributional requirements before the senior year. Appropriate graduate theory courses may be substituted for the core Economics courses 150a or b and 154a or b as well as the one-term econometrics course required of majors.

The eight graduate courses must not be entirely concentrated in the final two terms, and students in the program must take at least six term courses outside the major during their last four terms at Yale and at least two undergraduate courses during their last two terms. Course schedules must be approved each term by both the director of undergraduate studies in Economics and the director of graduate studies in Economics. To receive the M.A. as well as the B.A. at the end of the senior year, the student must receive two terms of A in the graduate courses, an average of B in the remaining graduate courses, and a reader's grade of B or higher on the senior essay.

Students interested in this program should see the director of undergraduate studies before or during registration for the first term of junior year.

Faculty representatives. The Economics department has faculty representatives in the residential colleges. Students majoring in Economics should secure written approval of their course selection from their college representative. Changes in their major program must be approved by the representative. Questions concerning the major or programs of study should be directed to the college representative. For 2006–2007 the college representatives are as follows:

BK, H. Fang	MC, G. Jaynes
BR, F. Lange	PC, D. Bergemann
CC, T. P. Schultz	SY, M. Keane
DC, P. Goldberg	SM, C. Moehling
TD, I. Brambilla	ES, T. Guinnane
JE, G. Hall	TC, D. Gerardi

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses numbered 110 or above including two sems

Distribution of courses: Two term courses of introductory economics: one of microeconomics, one of macroeconomics; one term chosen from MATH 112a or b, 115a or b, 118a or b, 120a or b; two dept sems (ECON 450–491), at least one in senior year

Specific courses required: ECON 150a or b or 152a; 153b or 154a or b; 161a or b or 163b

Substitution permitted: One related course in another dept with written permission of DUS once major is declared

Senior requirement: Senior dept sem or senior essay

INTRODUCTORY COURSES: ECON 110a, 111b, 115a or b, 116a or b, 117a

THEORY, QUANTITATIVE, AND MATHEMATICAL ECONOMICS:
ECON 150a or b, 152a, 153b, 154a or b, 155a, 156b, 161a or b, 162a, 163b,
480b, 488a

MARKET ORGANIZATION: ECON 200b, 453a, 455b

HUMAN RESOURCES: ECON 225b, 467a or b

FINANCE: ECON 251a, 252b, 450a, 451a, 459a, 484b

INTERNATIONAL AND DEVELOPMENT ECONOMICS: ECON 182b,
300a, 301b, 325a, 429a, 460b, 463a, 466a, 476a

PUBLIC SECTOR: ECON 275a, 276b, 280b, 330b, 481a

INTRODUCTORY COURSES

★ECON 110a and 111b, AN INTRODUCTION TO ECONOMIC ANALYSIS.

Donald Brown [F], Yianis Sarafidis [F], Miguel Ramirez [Sp].

110a-1: MW 11.30-12.45 III; Not CR/D/F QR, So (64)

110a-2: MW 1-2.15 III; Not CR/D/F QR, So (64)

110a-3: TTh 9-10.15 III; Not CR/D/F QR, So (64)

110a-4: TTh 11.30-12.45 III; Not CR/D/F QR, So (64)

111b-1: MW 11.30-12.45 III; Not CR/D/F So (64)

111b-2: MW 1-2.15 III; Not CR/D/F So (64)

111b-3: TTh 9-10.15 III; Not CR/D/F So (64)

111b-4: TTh 11.30-12.45 III; Not CR/D/F So (64)

An introduction to economics, taught as a lecture discussion, that is an alternative to ECON 115a or b and 116a or b. ECON 110a is microeconomics; 111b is macroeconomics. *Enrollment limited to freshmen. Preregistration for ECON 110a is required by signing the preregistration sheet posted on the bulletin board at 28 Hillhouse Avenue on Tuesday, September 5, 2006. Thirty students per section will be randomly selected from this list. Preregistration for ECON 111b will be held on Monday, November 27, 2006.*

ECON 115a or b and 116a or b, INTRODUCTORY ECONOMICS.

115a: MW 1-2.15 III QR, So (36) Dean Karlan, Fabian Lange

115b: TTh 1-2.15 III QR, So (26) Dean Karlan, Fabian Lange

116a: TTh 1-2.15 III So (26) Gerald Jaynes, William Nordhaus

116b: MW 1-2.15 III So (36) Ray Fair

An introduction that stresses the basic tools of economics and the problem solving involved in policy issues. ECON 115a or b is microeconomics; 116a or b is macroeconomics. *Prerequisite for ECON 116b: ECON 110a, 115a or b, or 117a.*

ECON 117a/EVST 117a/F&ES 117a, MICROECONOMICS WITH ENVIRONMENTAL APPLICATIONS. Sheila Olmstead.

For description see under Environmental Studies.

ADVANCED COURSES

ECON 150a or b, INTERMEDIATE MICROECONOMICS.

III; Not CR/D/F QR, So Core

150a: TTh 11.30-12.45 (24) Staff

150b: MW 1-2.15 (36) Staff

The theory of resource allocation and its applications. Topics include the theory of consumer behavior, production, firm behavior, and price and wage determination in different market structures. Empirical applications explore strengths and limitations of the theoretical models. *After two terms of introductory economics and completion of the mathematics requirement for the major or its equivalent.*

ECON 152a, MICROECONOMIC THEORY. Dino Gerardi.

MW 1-2.15 III; Not CR/D/F QR, So (36) Core

A game-theoretic treatment of contemporary microeconomic topics with integrated case studies of companies such as Amazon.com. Topics include consumer behavior, perfect competition, market efficiency, externalities, public goods, price discrimination, and insurance markets. *After two terms of introductory economics and MATH 118a or b or 120a or b.*

ECON 153b, MACROECONOMIC THEORY. Giuseppe Moscarini.

MW 1-2.15 III; Not CR/D/F QR, So (36) Core

A mathematical treatment of contemporary theories of employment, money, business fluctuations, and economic growth. *After two terms of introductory economics and MATH 118a or b or 120a or b.*

ECON 154a or b, INTERMEDIATE MACROECONOMICS.

III; Not CR/D/F QR, So Core

154a: MW 11.30-12.45 (34) Bjoern Bruegemann

154b: MW 9-10.15 (32) Tony Smith

Contemporary theories of employment, money, business fluctuations, and economic growth. Their implications for monetary and fiscal policies of the United States and other developed economies. Relevant empirical studies and recent policies and problems of economic stabilization. *After two terms of introductory economics and completion of the mathematics requirement for the major or its equivalent.*

ECON 155a, MATHEMATICAL ECONOMICS: GENERAL EQUILIBRIUM THEORY. Truman Bewley.

TTh 1-2.15 III; Not CR/D/F QR, So (26)

An introduction to the theory of production, illustrated by linear and nonlinear programming. The simplex method and the use of prices to detect optimality. Consumer preferences and demand functions. The general equilibrium model: examples, the question of stability, and proofs of the existence of an equilibrium. Algorithms for computing market clearing prices. The welfare properties of the competitive equilibrium. *After MATH 120a or b, ECON 150a or b or equivalent, or with permission of instructor.*

ECON 156b, MATHEMATICAL ECONOMICS: GAME THEORY.

Dirk Bergemann.

MW 9-10.15 III; Not CR/D/F QR, So (32)

Introduction to game theory and choice under uncertainty. Analysis of the role of information and uncertainty for individual choice behavior, as well as application to the decision theory under uncertainty. Analysis of strategic interaction among economic agents, leading to the theory of auctions and mechanism design. *After MATH 120a or b, ECON 150a or b or equivalent, or with permission of instructor.*

ECON 161a or b, ECONOMETRICS AND DATA ANALYSIS I.

III; Not CR/D/F QR, So Core

161a: TTh 1-2.15 (26) Donald Brown

161b: TTh 11.30-12.45 (24) Yuichi Kitamura

Basic probability theory and statistics, distribution theory, estimation and inference, bivariate regression, introduction to multivariate regression, introduction to statistical computing. *After two terms of introductory economics and completion of the mathematics requirement for the major.*

ECON 162a, INTRODUCTION TO PROBABILITY AND STATISTICS.

Taisuke Otsu.

TTh 9-10.15 III; Not CR/D/F QR, So (22)

Foundation of estimation and hypothesis testing. *After two terms of introductory economics and either MATH 118a or b or MATH 120a or b and 222a or b or 225b.*

ECON 163b, ECONOMETRICS. Staff.

TTh 9-10.15 III; Not CR/D/F QR, So (22) Core

Classical regression and simultaneous equations models. *After ECON 162a or with permission of instructor.*

ECON 166b, ECONOMETRICS AND DATA ANALYSIS II. Joseph Altonji.

MW 9-10.15 III QR, So (32)

Continuation of ECON 161a or b, with a focus on multivariate regression. Topics include statistical inference, choice of functional form, heteroskedasticity, serial correlation, two-stage least squares, qualitative choice models, time series models, and forecasting. Emphasis on statistical computing and the mechanics of how to conduct and present empirical research. *After two terms of introductory*

economics, completion of the mathematics requirement for the major; and ECON 161a or b or ECON 162a or a course in the STAT 101–106 series.

ECON 182b/HIST 135b, AMERICAN ECONOMIC HISTORY. Staff.

TTh 11.30–12.45 II or III; Not CR/D/F Hu, So (24)

An analysis of 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 two terms of introductory economics.*

ECON 187a, EUROPEAN ECONOMIC HISTORY, 1815–1945.

Timothy Guinnane.

TTh 1–2.15 III; Not CR/D/F So (26)

An examination of European economic growth and development from the industrialization of Germany and other Continental countries in the early nineteenth century through World War II. Topics include the role of institutional development, the role of trade and imperialism, agricultural improvements, and industrialization. *After two terms of introductory economics.*

ECON 200b, FIRMS, MARKETS, AND COMPETITION. Luis Cabral.

MW 9–10.15 III; Not CR/D/F QR, So (32)

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 two terms of introductory economics, and ECON 150a or b or 152a or permission of instructor.*

ECON 225b, LABOR ECONOMICS AND WELFARE POLICIES. Staff.

TTh 9–10.15 III So (22)

Labor markets, labor supply and welfare programs, retirement and social security, wage determination, human capital, gender and racial discrimination, inequality, immigration and migration, unions, and unemployment. *After two terms of introductory economics.*

ECON 251a, FINANCIAL THEORY. John Geanakoplos.

TTh 11.30–12.45 III QR, So (24)

Topics include capital asset pricing model, arbitrage pricing theory, option pricing, social security, operation of security exchanges, investment banks, securitization, mortgage derivatives, interest rate derivatives, hedge funds, financial crises, agency theory, and financial incentives. *After two terms of introductory economics.*

ECON 252b, FINANCIAL MARKETS. Robert Shiller.

MW 9–10.15 III So (32)

An overview of the ideas, methods, and institutions that permit human society to manage risks and foster enterprise. A detailed description of practices today as well as an analysis of prospects for the future. An introduction to risk management and behavioral finance principles to provide understanding of the functioning of our securities, insurance, and banking industries. *After two terms of introductory economics.*

ECON 275a, PUBLIC ECONOMICS. Staff.

MW 1–2.15 III So (36)

Analysis of the role that government plays in the economy and the economic lives of its citizens. Consideration of some reasons for government intervention in a market economy, and the impact of government expenditure programs and taxation systems on the welfare and behavior of its citizens. Topics include the

common use of natural resources, environmental externalities, property rights and the legal system, the economics of crime, social security, Medicare, public assistance programs, and federal taxation. *After two terms of introductory economics.*

ECON 276b, LAW AND ECONOMICS. Staff.

MW 11.30-12.45 III; Not CR/D/F So (34)

Economic principles applied to an analysis of legal rules. Examination of the economic rationale behind various areas of law; critique of the law when it falls short of economic efficiency. Legal areas include property, contract, tort, and criminal law, with reference to intellectual property, medical malpractice, and antitrust law. Consideration of the economics of the legal process itself.

ECON 280b/AFAM 282b, POVERTY UNDER POSTINDUSTRIAL CAPITALISM.

Gerald Jaynes.

For description see under African American Studies.

ECON 300a, INTERNATIONAL TRADE THEORY AND POLICY.

T. N. Srinivasan, Ernesto Zedillo.

MW 9-10.15 III QR, So (32)

Theories of comparative advantage, commercial policy, custom unions, and the relationship between trade and economic growth. Historical and contemporary problems of international trade and trade policy of developed and underdeveloped nations. *After two terms of introductory economics and* ECON 150a *or b.*

ECON 301b, INTERNATIONAL MONETARY THEORY AND POLICY.

Koichi Hamada.

MW 11.30-12.45 III So (34)

International monetary theory and its implications for economic policy. Topics include mechanisms of adjustment in the balance of payments; fiscal, monetary, and exchange-rate policy for internal and external balance; and international movements of capital. *After two terms of introductory economics and* ECON 154a *or b.*

ECON 325a/INTS 352a, ECONOMICS OF DEVELOPING COUNTRIES.

Rohini Pande.

MW 11.30-12.45 III; Not CR/D/F So (34)

Analysis of current problems of developing countries. Emphasis on the role of economic theory in devising policies to achieve improvements in the level and distribution of economic welfare. Focus on the development process in South Asia. *After two terms of introductory economics; after or concurrently with* ECON 161a *or b or equivalent.*

ECON 330b^G, ECONOMICS OF NATURAL RESOURCES.

Robert Mendelsohn.

MWF 10.30-11.20 III; Not CR/D/F QR, So (33)

Microeconomic theory brought to bear on current issues in natural resource policy. Topics include regulation of pollution, hazardous waste management, depletion of the world's forests and fisheries, wilderness and wildlife preservation, and energy planning. *After two terms of introductory economics or, for majors in Environmental Studies, after* ECON 110a, 115a *or b, or* 117a.

ECON 429a^G, ECONOMIC DEVELOPMENT OF JAPAN. Koichi Hamada.

TTh 1-2.15 III; Not CR/D/F So (26)

Economic performance and economic institutions of Japan, mainly since World War II. Focus on changes in output, economic structure, labor, capital, technology, standard of living and income distribution, foreign trade and investment, government policy, and United States–Japanese economic relations. *After two terms of introductory economics or with permission of instructor.*

DEPARTMENTAL SEMINARS

The following is a tentative list of specific subject-matter seminars. Prerequisite to these departmental seminars are two Economics core courses. Pre-registration for junior and senior majors, held in Room 101, 28 Hillhouse Avenue, is required during the designated sign-up period.

★ECON 450a, INVESTMENT ANALYSIS. David Swensen, Dean Takahashi.

M 2.30-4.20 III; Not CR/D/F So (o)

Examination of investment management in theory and practice. Discussion of asset allocation, investment strategy, and manager selection from the perspective of an institutional investor. Focus on the degree of market efficiency and opportunity for generating attractive returns.

★ECON 451a, THE THEORY AND HISTORY OF MONEY AND FINANCIAL INSTITUTIONS. Martin Shubik.

M 1.30-3.20 III; Not CR/D/F So (o)

An approach to understanding money and financial institutions through the use of game theory. Historical institutional material combined with economic theory. *Prerequisites:* ECON 150a or b and 154a or b. *No prior knowledge of game theory required.*

★ECON 453a, ANTITRUST LAW AND ECONOMICS. Alvin Klevorick.

W 1.30-3.20 III; Not CR/D/F So (o)

Effects of antitrust laws and their enforcement on the market organization and performance of the U.S. economy. Topics include the treatment of monopoly, oligopoly, mergers, and restraints of trade; the uses and limitations of economic analysis in antitrust litigation; and changes in antitrust law and enforcement policies. Each student prepares an economic analysis and critique of a major antitrust decision. *After* ECON 150a or b or 152a.

★ECON 455b, INFORMATION ECONOMY. Judith Chevalier.

T 3.30-5.20 III; Not CR/D/F So (o)

The economics of information, communication, and electronic commerce. Topics include the communications infrastructure—telephone, broadband, and wireless communications—and the regulation and adoption of these technologies; the basic economics of selected uses of the Internet; the organization of businesses as they are affected by new communications technologies; and intellectual property and antitrust issues in the information economy.

★ECON 456a or b, PRIVATE EQUITY INVESTING. Staff.

M 3.30-5.20 III; Not CR/D/F So (o)

A case-oriented study of principal issues and investment types found in substantial private equity portfolios. Topics include enterprise valuation, value creation, business economics, negotiation, and legal structure, based on primary source materials and original cases. *Prerequisites:* ECON 150a or b or 152a, and ECON 161a or b or 163b.

★ECON 459a, CORPORATE FINANCE. Ward Curran.

W 3.30-5.20 III; Not CR/D/F So (o)

Selected topics in corporate finance including investment banking, initial public offerings, and private debt and equity markets. The financing issues of the “old economy” (real capital assets) are contrasted with the financing issues of the “new economy” (human capital).

★ECON 460b, WORLD TRADING SYSTEM. T. N. Srinivasan.

W 1.30-3.20 III; Not CR/D/F So (o)

The evolution of the global trading system since the end of the Second World War, its institutions (GATT and the WTO), and negotiating processes for reductions in trade barriers. Examination of issues that have confronted trade negotiators, especially those on the negotiating agenda of the ongoing Doha Round of Multilateral Trade Negotiations. Evaluation of globalization and its impact both among and within nations.

★ECON 463a/★EP&E 437a, ECONOMIC PROBLEMS OF LATIN AMERICA.

Eduardo Engel.

W 3.30-5.20 III; Not CR/D/F So (o)

Study of historical and current challenges in economic policy faced by Latin America. Topics include privatizations and regulatory reform, competition and trade policies, exchange rate regimes, and governance. Evaluation of reforms, emphasizing their impact on growth, poverty reduction, and the improvement of the distribution of income. *Prerequisite:* ECON 150a or b and 154a or b.

★ECON 466a, TOPICS IN INTERNATIONAL TRADE. Staff.

T 1.30-3.20 III; Not CR/D/F So (o)

A study of the globalization of trade as it affects workers, consumers, and firms in both developing and developed economies. Topics include effects of the increase in trade and outsourcing by U.S. firms on wages, employment, and inequality, both domestically and abroad; child labor and other labor standards in developing countries; effects of trade and foreign direct investment on productivity; how trade itself is affected by free trade and common currency areas; Internet transactions; and the political economy of trade policy.

★ECON 467a or b/★EP&E 414a or b, ISSUES IN HEALTH ECONOMICS.

Howard Forman.

M 3.30-5.20 III; Not CR/D/F So (o)

An application of microeconomic, finance, and policy tools to the analysis of health care delivery, domestically and internationally. Health economics theory and applications to central issues in the U.S. health system.

★ECON 468b, INSTITUTIONS AND INCENTIVES IN ECONOMIC DEVELOPMENT. Mark Rosenzweig.

W 1.30-3.20 III; Not CR/D/F So (o)

Assessment of alternative policies and programs designed to promote economic development; examination of the fundamental problems of underdeveloped areas and consideration of how and whether such programs resolve them. Topics include the roles of indigenous institutions in low-income countries in alleviating problems of underdevelopment. *Prerequisites:* ECON 150a or b or 152a, and ECON 161a or b or 163b.

★ECON 470a/★EP&E 413a, TOPICS IN AMERICAN ECONOMIC HISTORY.

Staff.

W 1.30-3.20 III; Not CR/D/F (o)

Examination of various topics in the economic history of the United States. Topics include the distribution of wealth and income, changes in the standard of living, immigration, government intervention in markets, and the experiences of women and minorities in the U.S. economy.

★ECON 476a, TOPICS IN INTERNATIONAL ECONOMICS.

Miguel Ramirez.

M 1.30-3.20 III; Not CR/D/F (o)

Important and recent developments in international economics. Topics include trade policy and market structure; the economics of trading blocs such as the EEC and NAFTA; the economic consequences of continued U.S. external deficits;

globalization and inequality; exchange rates, interest rates, and volatility; speculative capital flows and exchange rate policies; and financial crises and the prospects for the EMU.

★ECON 480b, TOPICS IN BEHAVIORAL ECONOMICS. Wojciech Olszewski.
M 1.30-3.20 III; Not CR/D/F So (o)

Introduction to behavioral economics, a study of the psychological underpinnings of economic analysis. Topics include reference dependence and loss aversion, prospect theory, intertemporal preferences, and fairness. Apparent anomalies in economics are addressed using psychological principles. *Prerequisite:* ECON 150a or b or 152a.

★ECON 481a/★EP&E 427a, URBAN ECONOMICS. Staff.
M 3.30-5.20 III; Not CR/D/F So (o)

The historical evolution of cities examined from an economic perspective. Consideration of factors driving urban growth and decline; the evolving organization of economic activity and social living within cities. Topics include the dynamics of suburbanization and inner-city decline; racial and ethnic segregation; urban industrial structure and the spatial distribution of jobs; and the impact of metropolitan political structure on urban sprawl and the provision of public goods.

★ECON 484b, THE UNITED STATES BANKING SYSTEM. Nicholas Perna.
T 1.30-3.20 III; Not CR/D/F So (o)

The structure and functions of the U.S. banking system, with special attention to the role of the Federal Reserve, private sector banks, and other related financial institutions in the overall economy. The appropriate role of monetary policy in promoting economic growth and stability; financial crises, including the Great Depression and more recent episodes; the U.S. banking system as compared with foreign systems; and future evolution of the U.S. banking system, including the role of electronic commerce. *Prerequisite:* ECON 153b or 154a or b.

★ECON 488a, EXPERIMENTAL ECONOMICS. Shyam Sunder.
T 1.30-3.20 III; Not CR/D/F QR, So (o)

The use of economic experiments to investigate the economic behavior of individuals and markets. Students are actively involved in the design, execution, and analysis of experiments. Examples of experiments include auctions, information aggregation, and asset markets and public goods provision. *Prerequisite:* ECON 150a or b or 152a.

★ECON 489b/★EP&E 441b, TOPICS IN ECONOMIC POLICY. Staff.
T 3.30-5.20 III; Not CR/D/F So (o)

Discussion of major economic policy issues from a theoretical and empirical perspective. Topics include monetary policy, tax reform, Social Security privatization, Medicare reform, energy policy, school vouchers, international bailouts, and international trade agreements.

★ECON 491a and 492b, THE SENIOR ESSAY. Robert Evenson.
HTBA III; Not CR/D/F (o)

Students deciding to write one-term senior essays by enrolling in ECON 491a, or two-term senior essays by enrolling in ECON 491a and 492b, must choose their topics and advisers by October 9, 2006. In order to be considered for Distinction in the Major, students must submit three copies of their essay to the Economics department office by April 9, 2007. Advisers will be chosen with the assistance of the director of undergraduate studies.

The format and character of the departmental senior essay may vary to suit the interest of the student and the demands of the topic, but it is expected that the tools and concepts of economic analysis will be employed. Paper lengths may

vary, though the normal expectation is thirty pages. Students may receive up to two credits for the senior essay, though it counts as only one starred departmental seminar whether one or two terms are taken.

The first meeting is on Wednesday, September 6, from 4.30 to 5.20, or on Thursday, September 7, from 1.30 to 3.20, in Room 106, 28 Hillhouse Avenue. Seniors planning to write a senior essay should attend this meeting. Details regarding calculation of distinction will be discussed and senior essay guidelines will be distributed.

★ECON 498a and 499b, DIRECTED READING. Members of the department.
HTBA III; Not CR/D/F (○)

Students desiring a directed reading course in special topics in economics not covered in other graduate or undergraduate courses may elect this course, usually 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. *May be elected for one or two terms. Does not meet the requirement for a starred departmental seminar.*

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate courses in Economics are open to qualified undergraduates. Descriptions of courses are listed in the Graduate School bulletin and are available in the Economics department office. Permission of the instructor and of the director of graduate studies is required.

ECONOMICS AND MATHEMATICS

Adviser (Economics): Herbert Scarf, 30 Hillhouse Ave., 432-3693,
herbert.scarf@yale.edu; director of undergraduate studies (Mathematics):
Gregg Zuckerman, 450 DL, 432-4198, gregg@math.yale.edu

The Economics and Mathematics major is intended for students with a strong intellectual interest in both mathematics and economics.

Prerequisites. The major has prerequisites in both mathematics and economics: MATH 120a or b; one term from ECON 110a or 115a or b; and ECON 111b or 116a or b. With permission of the adviser, upper-level courses may be substituted for prerequisite courses.

Requirements of the major. A total of twelve term courses is required beyond the introductory level in economics and in mathematics, with at least five in mathematics and at least seven in economics. These courses must include:

1. One intermediate microeconomics course chosen from ECON 150a or b or 152a, and one intermediate macroeconomics course chosen from either ECON 153b or 154a or b
2. A year of mathematical economics, ECON 155a and 156b
3. Two term courses of econometrics, ECON 162a and 163b or equivalents with permission of the Economics adviser
4. Senior seminar in mathematics, MATH 480a or b
5. A term course in linear algebra, MATH 222a or b or 225b (or 230, which counts for two courses)
6. An introductory term course in analysis, MATH 300b or 301a

Because optimization is an important theme in mathematics and is particularly relevant for economics, OPRS 235a is recommended for students

majoring in Economics and Mathematics and can be counted toward either the Mathematics or Economics course requirements. Other related courses, such as those in accounting, cannot be used to meet the requirements of the major.

To be considered for Distinction in the Major, students must meet specified grade standards (see chapter I) and submit a senior essay written in either an Economics department starred seminar or in ECON 491a or in 491a and 492b to the Economics department by April 9, 2007. Students who fail to submit such a paper will not be considered for Distinction in the Major. (The paper must be written in a course taken in the senior year.) The senior essay prospectus form, signed by the adviser, is due October 9, 2006. All courses beyond the introductory level in Mathematics and Economics are counted in the computation of grades for distinction.

Students interested in the major should consult the director of undergraduate studies in Mathematics and the Economics adviser for the program.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 120a or b; ECON 110a or 115a or b; and ECON 111b or 116a or b

Number of courses: Twelve term courses beyond prerequisites (including the senior essay)

Distribution of courses: Five courses in math and seven in econ

Specific courses required: ECON 150a or b or 152a; ECON 153b or 154a or b; ECON 155a and 156b; ECON 162a and 163b or equivalents, with Econ adviser's permission; MATH 222a or b or 225b (or 230 for two course credits); MATH 300b or 301a

Senior requirement: Senior sem in math (MATH 480a or b); optional senior essay

EDUCATION

(See under *Teacher Preparation and Education Studies.*)

EGYPTIAN

(See under *Near Eastern Languages and Civilizations.*)

ELECTRICAL ENGINEERING

Director of undergraduate studies: J. Rimas Vaišnys, 311 BECTON, 432-4253, juozas.vaisnys@yale.edu

FACULTY OF THE DEPARTMENT OF ELECTRICAL ENGINEERING

PROFESSORS

Andrew Barron, Richard Chang, James Duncan, Jung Han, Peter Kindlmann (*Adjunct*), Roman Kuc, Tso-Ping Ma, A. Stephen Morse, Kumpati Narendra, Mark Reed, Peter Schultheiss (*Emeritus*), J. Rimas Vaišnys, Jerry Woodall (*Adjunct*), Steven Zucker

ASSOCIATE PROFESSORS

Yiorgos Makris, Janet Pan, Lawrence Staib, Hemant Tagare, Edmund Yeh

ASSISTANT PROFESSORS

Eugenio Culurciello, Hür Köser, Richard Lethin (*Adjunct*), Andreas Savvides, Sekhar Tatikonda

Electrical Engineering broadly encompasses disciplines such as microelectronics, photonics, computer engineering, signal processing, control systems,

and communications, all of which enable and underpin a modern technological society. Three degree programs are offered that allow students to select the level of technical depth appropriate for individual goals. The B.A. in Engineering Sciences (Electrical) is suitable for a career outside technology, in which a student nevertheless benefits from an appreciation of electrical engineering perspectives. The B.S. in Engineering Sciences (Electrical) provides more technical exposure while retaining academic options outside the electrical engineering core area. The B.S. in Electrical Engineering, accredited by the Accreditation Board for Engineering and Technology (ABET), is appropriate for highly motivated students who are interested in learning the scientific fundamentals and the technologies and creative processes of contemporary electrical engineering. In a world deeply dependent on technology, recent ABET graduates have found their degree a particularly effective credential not only for further work in engineering, but also for careers in business, management consulting, investment banking, medicine, and intellectual property law.

Because the introductory courses are common to all three degree programs, the student does not usually need to make a final choice before the junior year. An interdepartmental program with Computer Science is also offered (see under Electrical Engineering and Computer Science) and students can pursue interdisciplinary studies in other areas of engineering and science.

Prerequisites. All three degree programs require MATH 112a or b, 115a or b, 120a or b, and PHYS 180a, 181b or higher (PHYS 150a, 151b is acceptable for the B.A. degree). Acceleration credits awarded on entrance may be used to satisfy some or all of these requirements; consult the director of undergraduate studies.

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, fourteen term courses in topics in engineering, and one term course in professional ethics. In the language of the ABET guidelines, graduates from this program will (1) have gained an in-depth appreciation of electrical engineering technological frontiers through close interaction with faculty; (2) be able to enter highly selective graduate schools, or pursue technical careers in industry or national labs, or bring to their careers as business, national, or global leaders knowledge of technologies that will continue to be the key drivers of social productivity; (3) be able to apply knowledge in science and mathematics to formulate and solve electrical engineering problems qualitatively and quantitatively; (4) be able to communicate ideas effectively to multidisciplinary audiences; and (5) be able to exhibit broad awareness of contemporary social and environmental issues.

Requirements beyond the prerequisites include:

1. Mathematics and basic science (four term courses): ENAS 194a or b; MATH 222a or b or 225b; APHY 322b or equivalent; STAT 241a or equivalent.
2. Electrical engineering and related subjects (fourteen term courses): EENG 201b, 226a, 227a, 228b, 229b, 310a, 320a, 325a, 348a, 481a (the senior project); and four engineering electives, at least three of which should be at the 400 level.
3. Professional ethics: ENAS 335a or equivalent.

Each student's program must be approved by the director of undergraduate studies.

For students who have taken the equivalent of one year of calculus in high school, a typical ABET-accredited B.S. program might include:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 120a	EENG 226a	EENG 310a	EENG 481a
PHYS 180a	EENG 227a	EENG 320a	ENAS 335a
	STAT 241a	EENG 325a	One elective
		EENG 348a	
MATH 222b	EENG 228b	APHY 322b	Two electives
PHYS 181b	EENG 229b	One elective	
EENG 201b	ENAS 194b		

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., economics or cognitive psychology). It requires fourteen technical term courses beyond the prerequisites, specifically: MATH 222a or b or 225b; ENAS 194a or b; EENG 201b, 226a, 227a, 228b, 229b, 471a (the senior project); and six approved electives, at least three of which must be at the 400 level.

For students in this program a typical program might include the courses listed below. The implied flexibility during the junior and senior years is often used to accommodate a second major, such as Economics, or to master a related technical area, such as recent developments in biology or environmental studies.

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 115a	EENG 226a	Two electives	EENG 471a
PHYS 180a	EENG 227a		One elective
	ENAS 194a		
MATH 120b	EENG 228b	One elective	Two electives
PHYS 181b	EENG 229b		
EENG 201b	MATH 222b		

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 222a or b or 225b, or ENAS 194a or b; EENG 201b, 226a, 228b, and 471a (the senior requirement); and three approved electives.

Senior requirement. A research or design project carried out in the fall term of the senior year is required in all three programs. The student must take EENG 471a or 481a, present a written report, and make an oral presentation during the fall term. The written report is due in the departmental office by the last day of reading period. Arrangements to undertake a project in fulfillment of the senior requirement must be made by the end of the reading period of the preceding term, when a registration form (available from the departmental office), signed by the intended faculty adviser and the director of undergraduate studies, must be submitted.

Approval of programs. All Electrical Engineering and Engineering Sciences majors must have their programs approved by the director of undergraduate studies. Arrangements to take EENG 235a, 236b, 471a, 472b, 481a, or 482b must be made during the term preceding enrollment in the course. For the

Class of 2009 and subsequent classes, courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Electrical Engineering or Engineering Sciences (Electrical) may be eligible to apply for a special program that includes industry research experience. See under Engineering.

REQUIREMENTS OF THE MAJOR

ELECTRICAL ENGINEERING, B.S.

Prerequisites: MATH 112a or b, 115a or b, and 120a or b; PHYS 180a, 181b or higher
Number of courses: Nineteen term courses beyond prerequisites, including the senior requirement

Specific courses required: ENAS 194a or b; MATH 222a or b or 225b; APHY 322b; STAT 241a; EENG 201b, 226a, 227a, 228b, 229b, 310a, 320a, 325a, 348a; ENAS 335a or equivalent

Senior requirement: One-term research or design project (EENG 481a)

ENGINEERING SCIENCES (ELECTRICAL), B.S. AND B.A.

Prerequisites: *Both degrees*—MATH 112a or b, 115a or b, and 120a or b; *B.S. degree*—PHYS 180a, 181b or higher; *B.A. degree*—PHYS 150a, 151b or higher

Number of courses: *B.S. degree*—fourteen term courses beyond prerequisites, including the senior requirement; *B.A. degree*—eight term courses beyond prerequisites, including the senior requirement

Specific courses required: *B.S. degree*—ENAS 194a or b; MATH 222a or b or 225b; EENG 201b, 226a, 227a, 228b, 229b; *B.A. degree*—one from ENAS 194a or b, or MATH 222a or b or 225b; EENG 201b, 226a, 228b

Senior requirement: *Both degrees*—One-term research or design project (EENG 471a)

Unless otherwise indicated, courses in Electrical Engineering count toward the natural science requirement for the Class of 2008 and previous classes.

*EENG 001a, INTRODUCTION TO NANOSCIENCE. Mark Reed.

TTh 4-5.15 Sc (27) Fr sem

An introductory survey of the emerging discipline of nanotechnology. Topics include realistic nanosystems, methods used to fabricate and create nanostructures, the physical properties and applications of nanostructures, microelectromechanical systems (MEMS) and biological applications, and system architecture. *Prerequisites: strong background in high school mathematics and science. Enrollment limited to freshmen.*

EENG 201b, INTRODUCTION TO COMPUTER ENGINEERING.

Yiorgos Makris.

TTh 1-2.15; lab HTBA IV; Not CR/D/F QR Meets RP (o)

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.

EENG 226a, INTRODUCTION TO ELECTRICAL ENGINEERING:

ELECTRONIC CIRCUITS AND DEVICES. Tso-Ping Ma.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Introduction to the foundations of analog and digital electronics. Circuit concepts include Kirchhoff's laws and associated node and loop methods, equivalent circuits, phasor techniques, and frequency response. Passive components and semiconductor devices; small-signal amplifiers; operational amplifiers; logic circuits; small digital systems. *Normally followed by or concurrently with* EENG 227a. *Prerequisite: one year of high school calculus or equivalent.*

EENG 227a, CIRCUITS, ELECTRONICS, AND DESIGN. Janet Pan.

Lect. MF 1.30-2.20; *lab* W or Th 1.30-5.30 IV; Not CR/D/F QR

Meets RP (36)

Applications of elementary circuit network theory, nonlinear electronic component analysis, and time domain equations to electromechanical systems. Focus on laboratory problem solving, circuit design, and experimental measurement. Analysis, design, and implementation of linear and nonlinear electronic circuits, simple analog-to-digital and digital-to-analog circuits, feedback systems in the time domain, microcontroller programming, gain control, and speed control. Students design and construct mobile robots as a final project. *After or concurrently with* EENG 226a.

EENG 228b, INTRODUCTION TO ELECTRICAL ENGINEERING: SIGNALS AND SYSTEMS. Kumpati Narendra.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Introduction to the analysis and design of systems. Topics include modeling of electromechanical systems; system components; block diagrams, transfer functions, frequency response, Nyquist and Bode diagrams; stability, the Routh-Hurwitz criterion; design of feedback systems. *Prerequisite: EENG 226a or permission of instructor.*

EENG 229b, CIRCUITS, SYSTEMS, AND DESIGN. Janet Pan,

Peter Schultheiss.

Lect. MF 1.30-2.20, 1 HTBA; *lab* W or Th 1.30-5.30 IV; Not CR/D/F QR

Meets RP (36)

Applications of systems theory to electromechanical systems. Focus on laboratory problem solving, circuit design, and experimental measurement. Analysis, design, and implementation of analog circuits, with emphasis on frequency response and stability. Students design, construct, and optimize a tracking servomechanism and audio circuits. *Prerequisite: EENG 227a. After or concurrently with* EENG 228b.

★EENG 235a and 236b, SPECIAL PROJECTS. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F $\frac{1}{2}$ C Credit per term (0)

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, so as to arrive at the necessary prospectus. 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. *Additional sections offered in Beijing, China, through the Peking University-Yale University Joint Undergraduate Program.*

EENG 310a, SIGNALS AND SYSTEMS. A. Stephen Morse.

MW 9-10.15 IV; Not CR/D/F QR (32)

Fourier and Laplace transforms; transfer functions and frequency response functions of continuous linear systems. Feedback system performance and stability; Z-transforms. Sampled linear systems; impulse and frequency response; orthogonal expansions, Fourier series, and the Sampling Theorem. Discrete Fourier series and the FFT.

***EENG 320a, INTRODUCTION TO SEMICONDUCTOR DEVICES.**

Mark Reed.

TTh 1-2.15; *lab* 3 HTBA IV; Not CR/D/F QR, Sc (26)

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. *Prepares for* EENG 325a and 401b. *Prerequisites:* PHYS 180a and 181b or permission of instructor.

APHY 322b, ELECTROMAGNETIC WAVES AND DEVICES.

Robert Schoelkopf.

EENG 325a, ELECTRONIC CIRCUITS. Jung Han.

TTh 9-10.15; *lab* 3 HTBA IV; Not CR/D/F QR Meets RP (22)

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. *Prerequisite:* EENG 228b.

EENG 348a, DIGITAL SYSTEMS. Eugenio Culurciello.

TTh 10.30-11.20, 1 HTBA; *lab* HTBA IV QR (23)

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 programmable logic devices. *Recommended preparation:* EENG 201b.

[EENG 350b, EMBEDDED SYSTEMS]

EENG 352b/BENG 352b, BIOMEDICAL ENGINEERING II. James Duncan,

Fahmeed Hyder.

For description see under Biomedical Engineering.

EENG 397b/ENAS 397b, MATHEMATICAL METHODS IN ENGINEERING.

J. Rimas Vaišnys.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Exploration of several areas of mathematics useful in engineering. Topics are drawn from complex analysis and differential equations: complex variables, Fourier series, Fourier transforms, Laplace transforms, Z-transforms, boundary value problems, and linear partial differential equations. Application to physical problems. *Prerequisites:* MATH 222a or b, and ENAS 194a or b or MATH 246a or b, or equivalents. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

EENG 401b^G/APHY 321b^G, SEMICONDUCTOR SILICON DEVICES AND TECHNOLOGY. Tso-Ping Ma.

MW 9-10.15; *lab* HTBA IV; Not CR/D/F QR, Sc (32)

Introduction to integrated circuit technology, theory of solid-state devices, and principles of device design and fabrication. Laboratory involves the fabrication

and analysis of semiconductor devices, including Ohmic contacts, Schottky diodes, p-n junctions, MOS capacitors, MOSFETS, and integrated circuits. *Prerequisite:* EENG 320a or equivalent or permission of instructor. (Formerly EENG 421b)

[EENG 408a^G, ELECTRONIC MATERIALS: FUNDAMENTALS AND APPLICATIONS]

EENG 410b^G, PHYSICS AND DEVICES OF OPTICAL COMMUNICATION.
Jung Han.

MW 11.30-12.45 IV QR, Sc (34)

A survey of the enabling components and devices that constitute modern optical communications systems. Focus on the physics and principles of each functional unit, its current technological status, important design issues relevant to the overall performance, and future directions. *Prerequisites:* EENG 320a and APHY 322b, or permission of instructor.

EENG 418a^G/APHY 418a^G, HETEROJUNCTION DEVICES. Mark Reed.

Th 9-10.15; lab HTBA IV; Not CR/D/F QR, Sc (22)

A survey of the physics, technology, and fabrication of semiconductor heterojunction materials and devices. Topics include contemporary compound semiconductor material properties and epitaxial growth techniques, high-speed analog and digital devices, microwave and millimeter wave devices for radar and wireless communications, the physics and device properties of quantum wells and superlattices, HEMTs and modulation-doped structures, resonant tunneling physics and devices, and device modeling using computer simulation tools. Laboratory includes fabrication of GaAs FETS and HBTs, fabrication and measurement of quantum Hall effect standards, LEDs, and resonant tunneling devices. *Prerequisite:* APHY 439a or equivalent.

★EENG 425a^G, INTRODUCTION TO VLSI SYSTEM DESIGN.

Richard Lethin.

Th 1.30-3.20 IV; Not CR/D/F QR (26)

Chip design; integrated devices, circuits, and digital subsystems needed for design and implementation of silicon logic chips. CMOS fabrication overview, complementary logic circuits, design methodology, computer-aided design techniques, timing, and area estimation. Exploration of recent and future chip technologies. A course project is the design, through layout, of a digital CMOS subsystem chip; selected projects are fabricated for students. *Prerequisite:* familiarity with circuits at the level of introductory physics and with computer programming.

EENG 427b^G, ADVANCED INTEGRATED CIRCUITS.

Eugenio Culurciello.

Th 10.30-11.20, I HTBA IV; Not CR/D/F Meets RP (0)

Neuromorphic analog integrated circuit design, fabrication processes, fundamentals of devices, circuits, and basic topologies. Analog and mixed-signal VLSI and SOC for biomedical instrumentation and bio-inspired circuits. System-level design, simulation, layout, and tapeout. Examples of VLSI systems for biomedical applications, including models of biological systems and corresponding circuit implementations. Biomedical sensors, SNR, and electronic circuit noise. Sensor arrays, communication, and analog-digital circuit interaction and co-design. Signal conversion, conditioning, compression, and reconstruction.

[EENG 428b/ENAS 428b^G, SENSORS AND BIOSENSORS]

EENG 436b, SYSTEMS AND CONTROL. Kumpati Narendra.

Th 2.30-3.45 IV; Not CR/D/F QR (27)

Design of feedback control systems with applications to engineering, biological, and economic systems. Topics include state-space representation, stability, controllability, and observability of discrete-time systems; system identification; optimal control of systems with multiple outputs. *Prerequisites:* ENAS 194a or b, MATH 222a or b or 225b, and EENG 310a or permission of instructor.

★EENG 442a^G/★AMTH 342a, LINEAR SYSTEMS. A. Stephen Morse.

MW 1-2.15, 1 HTBA IV; Not CR/D/F QR (36)

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 222a or b or permission of instructor.

EENG 444a^G, DIGITAL COMMUNICATION SYSTEMS. Staff.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Introduction to the fundamental theory underlying the modern digital communication revolution. Quantitative measures of information and data compression: the Huffman and Lempel-Ziv algorithms, scalar and vector quantization. Representations of signal waveforms: sampling, orthonormal expansions, waveforms as vectors in signal space. Transmission of signals through noisy channels; pulse amplitude and quadrature amplitude modulation, orthogonal signaling, signal design, noise processes, optimal detection, and error probability analysis. Applications to practical systems such as CD players, telephone modems, and wireless networks. *Prerequisites:* knowledge of signals and systems at the level of EENG 228b or 310a; knowledge of basic probability at the level of STAT 241a (may be taken concurrently).

EENG 445a^G/BENG 445a^G, BIOMEDICAL IMAGE PROCESSING AND ANALYSIS. James Duncan, Lawrence Staib.

For description see under Biomedical Engineering.

EENG 449b^G/CPSC 439b^G, COMPUTER SYSTEMS. Staff.

TTh 2.30-3.45; lab HTBA IV QR (27)

The organization of computer systems as hardware and software systems. Instruction-set architecture, assembly programming, computer arithmetic, datapath architecture and control, pipelining, memory hierarchy. Concepts illustrated by exploration of an actual RISC microprocessor. Laboratory assignments include programming on an embedded processor and its peripherals. *Prerequisites:* EENG 348a, CPSC 323a, and programming experience in a high-level language.

EENG 450a, APPLIED DIGITAL SIGNAL PROCESSING. Roman Kuc.

TTh 10.30-11.20, 1 HTBA IV; Not CR/D/F QR (23)

An analysis, by computer, of processing measurements. 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 310a or 350b or permission of instructor.

EENG 454b/AMTH 364b^G/STAT 364b^G, INFORMATION THEORY.

Sekhar Tatikonda.

For description see under Statistics. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

★EENG 460a/★CPSC 436a, NETWORKED EMBEDDED SYSTEMS AND SENSOR NETWORKS. Andreas Savvides.

TTh 2.30-3.45, 1 HTBA IV (○)

Introduction to the fundamental concepts of networked embedded systems and wireless sensor networks, presenting a cross-disciplinary approach to the design and implementation of smart wireless embedded systems. Topics include embedded systems programming concepts, low-power and power-aware design, radio technologies, communication protocols for ubiquitous computing systems, and mathematical foundations of sensor behavior. Laboratory work includes programming assignments on low-power wireless devices. *Open to seniors in Electrical Engineering or Computer Science only. Prerequisite: CPSC 223b or equivalent programming experience in a high-level language.*

EENG 462b^G, DIGITAL SYSTEMS TESTING AND DESIGN FOR TESTABILITY.
Yiorgos Makris.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Introduction to the fundamental concepts, algorithms, and design techniques for testing digital systems. Topics include test issues and economics, fault modeling, logic and fault simulation, test generation algorithms for combinational and sequential circuits, testability analysis, and design for testability. Laboratory work consists of projects employing logic and fault simulation, automatic test pattern generation, and design for testability software tools. *Prerequisite: EENG 348a. Understanding of algorithms and data structures desirable but not essential.*

★EENG 471a and 472b, ADVANCED SPECIAL PROJECTS. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (○)

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, so as to arrive at the necessary prospectus. These courses may be taken at any appropriate time during the student's career and may be taken more than once. 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.

EENG 475b^G/CPSC 475b^G, COMPUTATIONAL VISION AND BIOLOGICAL PERCEPTION. Steven Zucker.
For description see under Computer Science.

★EENG 481a and 482b, ADVANCED ABET PROJECTS. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F Meets RP (○)

Faculty-supervised individual or small-group projects that satisfy ABET guidelines for a capstone project. Emphasis on engineering design and application of concepts learned in courses to a realistic engineering problem. The project should demonstrate an ability to apply and synthesize knowledge of mathematics, science, and engineering in the service of articulated goals. The student is expected not only to design a system or a process but also to collect, analyze, and interpret appropriate data. In addition, the student should demonstrate an understanding of the professional and ethical responsibilities associated with the engineering activities. 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. *Enrollment requires permission of the instructor and the director of undergraduate studies.*

ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Directors of undergraduate studies: J. Rimas Vaišnys (Electrical Engineering), 311 BECTON, 432-4253, juozas.vaisnys@yale.edu; Stanley Eisenstat (Computer Science), 208 AKW, 432-1246, stanley.eisenstat@yale.edu

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.

The prerequisites for the major are MATH 112a or b, 115a or b, and 120a or b; CPSC 112a or b; and PHYS 180a and 181b, or 200a and 201b. The first term of MATH 230 may be taken instead of MATH 120a or b. Students who must take MATH 112a or b may take PHYS 150a and 151b instead of PHYS 180a and 181b.

The major requires sixteen term courses beyond the prerequisites: MATH 222a or b; CPSC 201a or b, 202a, 223b, 323a, and 365b; EENG 226a, 227a, 228b, 229b, and 348a; four advanced electives, two in electrical engineering, two in computer science; and a senior project. MATH 225b or the second term of MATH 230 may be taken instead of MATH 222a or b. Electives must be 300- or 400-level courses in the departments of Electrical Engineering and Computer Science, or must be approved by the director of undergraduate studies in each department. Double-titled courses may be counted either way to fulfill this requirement. CPSC 480a or b and 490a or b and EENG 471a and 472b may not be used as electives.

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:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 120a	EENG 226a	EENG 348a	Two electives
PHYS 180a	EENG 227a	CPSC 202a	
	CPSC 201a	CPSC 323a	
MATH 222b	EENG 228b	CPSC 365b	One elective
PHYS 181b	EENG 229b	One elective	Senior project
	CPSC 223b		

For students with only one term of calculus, a typical program would be:

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MATH 115a	EENG 226a	EENG 348a	Two electives
PHYS 180a	EENG 227a	CPSC 202a	
CPSC 112a	CPSC 201a	CPSC 323a	
MATH 120b	EENG 228b	CPSC 365b	One elective
MATH 222b	EENG 229b	One elective	Senior project
PHYS 181b	CPSC 223b		

Senior requirement. The senior project must be completed in CPSC 490a or b or EENG 471a or 472b, depending upon the adviser's department, and must be approved by the director of undergraduate studies in each department.

Approval of programs. The entire program of a student majoring in Electrical Engineering and Computer Science must be approved by the director of undergraduate studies in each department.

Select Program in Engineering. Qualified students may be eligible to apply for a special program that includes industry research experience. See under Engineering.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 112a or b, 115a or b, and 120a or b; CPSC 112a or b; PHYS 180a, 181b, or 200a, 201b

Number of courses: Sixteen term courses beyond the prerequisites (including the senior project)

Specific courses required: MATH 222a or b or 225b; CPSC 201a or b, 202a, 223b, 323a, and 365b; EENG 226a, 227a, 228b, 229b, and 348a

Distribution of courses: Four addtl 300- or 400-level electives, two in electrical engineering, two in computer science

Substitution permitted: Advanced courses in other depts, with permission of DUS in each dept

Senior requirement: Independent project (CPSC 490a or b or EENG 471a or 472b), approved by DUS in each dept

ENGINEERING

(See *Applied Physics, Biomedical Engineering, Chemical Engineering, Electrical Engineering, Engineering and Applied Science, Environmental Engineering, and Mechanical Engineering.*)

At Yale, engineering is taught in a number of programs offered by departments within Yale College rather than in a separate school distinct from the arts and sciences, as in many other universities. Thus, students following one of the degree programs in engineering have ready access to a wide range of courses in the arts and sciences and the opportunity to explore other disciplines in addition to pursuing their specialization. At the same time, those interested in engineering but not intending to specialize in it can become acquainted with various aspects of modern technology.

Engineering programs at Yale are offered in the departments of Applied Physics, Biomedical Engineering, Chemical Engineering, Electrical Engineering, and Mechanical Engineering, and under the interdepartmental major in Environmental Engineering; interdisciplinary courses bearing on these programs are listed under Engineering and Applied Science. The departments are administered by the dean of Engineering. Curricula in the programs range from rigorous ones accredited by the Accreditation Board for Engineering and Technology (ABET) to those with a lesser technical content that allow students considerable freedom to include courses of a non-technical nature in their studies. A related major in Applied Mathematics is also available. For a description of all of the programs above, see the entries in this bulletin in their respective alphabetical positions.

Select Program in Engineering. The Select Program in Engineering is designed to position students upon graduation for advanced entry placement in the corporate world. Students fulfill the requirements of their B.S. major plus the specific requirements of the Select Program. This enhanced bachelor's degree includes industrial research experience. The Select Program in Engineering is open to majors in Applied Physics, Biomedical Engineering, Chemical Engineering, Electrical Engineering, Environmental Engineering, Mechanical Engineering, Computer Science, and Electrical Engineering and Computer Science. Students are normally accepted into the program in their junior year; however, qualified seniors and sophomores

may also be admitted to the program. Students should discuss their interest in the Select Program in Engineering with their director of undergraduate studies and also with the director of the Select Program.

For the Class of 2008 and previous classes, students in the Select Program must achieve a B+ average in Group IV courses and in courses required by the program. For the Class of 2009 and subsequent classes, students in the Select Program must achieve a B+ average in science and quantitative reasoning courses and in courses required by the program.

The following courses are required for the Select Program: ENAS 335a, ACCT 170a or b, ENVE 120a or CPSC 180a or b, ECON 115a or b, and two courses with significant engineering design content. Students in ABET-accredited programs in Chemical, Electrical, and Mechanical Engineering meet the design requirement as part of the accredited program. Students earning a B.S. in Engineering Sciences must take two courses from the following list according to their major:

Biomedical Engineering: BENG 355L, and 471a or 472b

Chemical Engineering: CENG 480a, and 416b or 471a or b

Electrical Engineering: EENG 471a or 472b and 350b

Environmental Engineering: CENG 480a and 416b or 471a or b

Mechanical Engineering: MENG 185b and one from MENG 471a, 472b, or 489a

Applied Physics: APHY 471a and 472b

Computer Science: CPSC 421a and 422b

Students in the Select Program must spend one summer doing research in industry. Most students acquire their industrial research experience during the summer following their junior year. The program assists students with securing appropriate internships.

The deadline for applications is in late September. Application materials should be submitted to the director of the Select Program in Engineering, 226 DL. Students must submit a completed application form for the Select Program and a copy of a recent transcript. Applicants are notified in early October whether they have been admitted to the program.

ENGINEERING AND APPLIED SCIENCE

Director of undergraduate studies: Roman Kuc, 233 DL, 432-0159,
roman.kuc@yale.edu

Courses in Engineering and Applied Science fall into three categories: those intended primarily for students majoring in one of the several engineering disciplines; those designed for students majoring in subjects other than engineering and the natural sciences; and those designed to meet common interests of students majoring in engineering or the natural sciences.

In the first category, the departments of Applied Physics, Biomedical Engineering, Chemical Engineering, Electrical Engineering, Mechanical Engineering, and the program in Environmental Engineering offer courses intended primarily for majors in these fields. These courses are listed under the individual programs. Courses in these majors may also be relevant for students with appropriate backgrounds who are majoring in chemistry, physics, biology, geology and geophysics, mathematics, and computer science.

The Faculty of Engineering is responsible for courses in the other two categories: technology for students majoring in subjects other than engineering

and the natural sciences, and topics common to students majoring in engineering or the natural sciences. Courses for non-science 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.

Unless otherwise indicated, Group IV courses in Engineering and Applied Science count toward the natural science requirement for the Class of 2008 and previous classes.

COURSES WITHOUT PREREQUISITES IN ENGINEERING

ENAS 110b/APHY 110b, THE TECHNOLOGICAL WORLD. Victor Henrich.
TTh 11.30-12.45 IV QR, Sc (24)

An exploration of modern technologies that play a role in our everyday lives, including the underlying science, current applications, and future prospects. Examples include solar cells, light-emitting diodes (LEDs), computer displays, the global positioning system, fiber-optic communication systems, and the application of technological advances to medicine. For students not committed to a major in science or engineering; no college-level science or mathematics required. *Prerequisite: some high school physics or chemistry. Enrollment limited to 80.*

★ENAS 115b, DATA ANALYSIS AND FORECASTING. Roman Kuc.
MW 2.30-3.45 QR (37)

Quantitative reasoning applied to evaluation of physical formulas and to interpretation of actual data. Concepts illustrated with models that simulate random data. Statistical measures predict forecast precision. Analysis ranges from paper-and-pencil and scientific calculator to Excel spreadsheets. Case studies include problems involving technological issues, such as information transmission over the Internet and performance improvement in Olympic sporting events. *No prior knowledge of calculus or statistics required. Enrollment limited to freshmen and sophomores.*

ENAS 120a/CENG 120a/ENVE 120a, INTRODUCTION TO ENVIRONMENTAL ENGINEERING. Jordan Peccia.

For description see under Environmental Engineering.

★ENAS 323a, CREATIVITY AND NEW PRODUCT DEVELOPMENT.
Henry Bolanos.

323a-1: T 1.30-3.20 III; Not CR/D/F So (0)

323a-2: T 3.30-5.20 III; Not CR/D/F So (0)

An overview of the stages of product development in a competitive marketplace by simulating the process in class. A hands-on approach to creativity and the development process.

ENAS 335a/EP&E 204a, PROFESSIONAL ETHICS. Mercedes Carreras.
TTh 11.30-12.45 III So (24)

A theoretical and case-oriented approach to ethical decision making. Provides students with concepts, tools, and methods for constructing and justifying their own solutions to moral problems they may face as professionals.

ENAS 371a/ENVE 371a, INTRODUCTION TO HYDROLOGY AND WATER RESOURCES. James Wallis.

For description see under Environmental Engineering.

ENAS 381a/ARCG 465a^G/G&G 465a^G, ARCHAEOMETALLURGY.

Robert Gordon.

For description see under Geology & Geophysics.

ENAS 460b/APHY 460b, MEASUREMENT AND NOISE. Robert Grober.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Noise is a fundamental part of every measurement. A well-designed experiment seeks to reduce the magnitude of the noise to fundamental limits while preserving the intended signal. The basics of how to quantify noise; use of the Langevin equation to describe Brownian motion, Johnson noise, and financial market data.

APPLIED MATHEMATICS AND COMPUTATION COURSES

ENAS 130b, INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS. Marshall Long.

MWF 1.30-2.20 IV; Not CR/D/F QR Meets RP (36)

An introduction to the use of the Fortran 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. Topics include general problem-solving techniques, object-oriented programming, elementary numerical methods, data analysis, and a brief introduction to numerical simulations. *Prerequisite*: MATH 115a or b; *some computer experience is desirable but not required. For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

ENAS 194a or b, ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS WITH APPLICATIONS. Sohrab Ismail-Beigi [F], Staff [Sp].

MWF 10.30-11.20 IV; Not CR/D/F QR Meets RP (33)

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*: MATH 120a or b and *knowledge of matrix-based operations. For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

ENAS 391a, DYNAMICS OF EVOLVING SYSTEMS. J. Rimas Vaišnys.

TTh 9-10.15 IV; Not CR/D/F QR Meets RP (22)

Use of a computer to investigate the behavior of increasingly complex natural systems; construction of quantitative theories about natural phenomena. Emphasis on systems of biological interest. *After ENAS 194a or b or equivalent.*

ENAS 397b/EENG 397b, MATHEMATICAL METHODS IN ENGINEERING.

J. Rimas Vaišnys.

For description see under Electrical Engineering.

ENAS 440a^G/MENG 440a, APPLIED NUMERICAL METHODS I.

Beth Anne Bennett.

TTh 2.30-3.45 IV; Not CR/D/F QR Meets RP (27)

A variety of numerical methods applied to problems in engineering and applied science. Topics include root-finding methods, numerical solution of systems of linear and nonlinear equations, eigenvalue/eigenvector approximation, polynomial-based interpolation, and numerical integration. *Prerequisites*: MATH 115a or b, and 222a or b or 225b, or equivalents; ENAS 130b or some knowledge of MATLAB, C, or Fortran programming. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

[ENAS 452a^G, MEMS DESIGN]

ENAS 496b^G, PROBABILITY AND STOCHASTIC PROCESSES. Edmund Yeh.
MW 9-10.15 IV; Not CR/D/F QR Meets RP (32)

A study of stochastic processes and estimation, including fundamentals of detection and estimation. Vector space representation of random variables, Bayesian and Neyman-Pearson hypothesis testing, Bayesian and nonrandom parameter estimation, minimum-variance unbiased estimators, and the Cramer-Rao bound. Stochastic processes. Linear prediction and Kalman filtering. Poisson counting process and renewal processes, Markov chains, branching processes, birth-death processes, and semi-Markov processes. Applications from communications, networking, and stochastic control. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

ENGLISH LANGUAGE AND LITERATURE

Director of undergraduate studies: Lawrence Manley; associate director of undergraduate studies: Amy Hungerford; 107 LC, 432-2233, english-dus@yale.edu, www.yale.edu/english/undergraduate

FACULTY OF THE DEPARTMENT OF ENGLISH

PROFESSORS

Elizabeth Alexander, Harold Bloom, Leslie Brisman, David Bromwich, Jill Campbell, Janice Carlisle, Michael Denning, Wai Chee Dimock, Lukas Erne (*Visiting*), Anne Fadiman (*Adjunct*), Roberta Frank, Paul Fry, Louise Glück (*Adjunct*), Sara Suleri Goodyear, Langdon Hammer, Margaret Homans, Traugott Lawler (*Emeritus*), Lawrence Manley, Donald Margulies (*Adjunct*), J. D. McClatchy (*Adjunct*), Lee Patterson, Linda Peterson, Caryl Phillips, David Quint, Claude Rawson, Joseph Roach, Marc Robinson, John Rogers, Robert Stepto, Katie Trumpener, Ruth Yeazell

ASSOCIATE PROFESSORS

Murray Biggs (*Adjunct*), William Deresiewicz, Elizabeth Dillon, Laura Frost, Matthew Giancarlo, Amy Hungerford, David Krasner (*Adjunct*), Pericles Lewis, Christopher R. Miller

ASSISTANT PROFESSORS

Tanya Agathocleous, Ala Alryyes, Shameem Black, Jessica Brantley, Wes Davis, El Mokhtar Ghambou, Hsuan Hsu, Sanda Lwin, Stefanie Markovits, Diana Paulin, Nicole Rice, Caleb Smith, Elliott Visconsi, Brian Walsh

LECTURERS

Amy Bloom, Steven Brill, John Crowley, Jill Cutler, Richard Deming, Andrew Ehrgood, George Fayen, Joseph Gordon, Karin Gosselink, Alfred Guy, Michael Johnson, Rosemary Jones, Penelope Laurans, John Loge, Ray Lurie, Micah Mattix, Richard Maxwell, Noelle Morrisette, Paul Pasquaretta, Allyson Polsky McCabe, Paula Resch, Timothy Robinson, Catherine Rockwood, Arnold Sabatelli, Kim Shirkhani, Catherine Shufto, Joel Silverman, Margaret Spillane, Michele Stepto, Fred Strebeigh, Barbara Stuart, Deborah Tenney, Deborah Thomas, Suzanne Young

Courses offered by the Department of English are designed to develop students' understanding of important works of English, American, and other literatures in English; to provide historical perspectives from which to read and analyze these works; and to deepen students' insight into their own experience. Courses also aim to develop students' abilities to express their ideas orally and in writing.

Introductory courses. Courses numbered from 114 to 149 are introductory. Students planning to elect an introductory course in English should refer to the *Freshman Handbook*, which contains an explanation of the levels of placement and of the guidelines according to which courses should be chosen. The listings below contain a detailed description of each course.

Prerequisite. 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 European and American literature. The prerequisite for the major is ENGL 125. It is strongly recommended that prospective English majors take at least one term of ENGL 125 by the end of the sophomore year. If a student takes two terms of ENGL 125, then any two terms of ENGL 115–117, 127, 129, 131b, 132b, or DRST 001 in the Directed Studies Program, or THST 110a and 111b, or ENGL 114a in combination with 115b, 116b, or 117b, may count toward the twelve remaining terms in the major. If ENGL 125 is not taken, two terms of ENGL 127 or 129 or DRST 001 may count as the prerequisite so long as the student also takes, as part of the major, four advanced courses that deal substantially and intensively with poets included in ENGL 125. Two of these courses should substitute for two of the three units in the first term of ENGL 125 (Chaucer, Spenser, and a Renaissance lyric poet), and two should substitute for two of the four units in the second term of ENGL 125 (Milton, Pope, a major Romantic poet, and a major modern poet). Courses that deal with more than one poet are acceptable for this purpose. Such courses may also count toward the requirement of three term courses in English literature before 1800 and one term course in English literature before 1900.

Regardless of how the prerequisite is fulfilled, the total number of term courses toward the major may not be fewer than fourteen, of which no more than four may be introductory (below the level of 150).

Advanced courses. Courses numbered 150 and above are open to upperclassmen after two terms of English or with permission of the instructor. Starred (★) courses, limited in enrollment, are seminars intended primarily for junior and senior English majors. Sophomores and nonmajors may be admitted where openings are available. Seminar preregistration dates for some seminars will be posted in the office of the director of undergraduate studies, 107 LC, and on the English department Web site at www.yale.edu/english/undergraduate. During the first weeks of November and April, the department issues a booklet containing fuller course descriptions than those given below and information about how to register for certain courses; it is available in 107 LC and on the departmental Web site. Students are strongly encouraged to consult the director of undergraduate studies, the departmental representative in their residential college, and their departmental adviser for advice.

When choosing courses, students should bear in mind that the English department's lecture courses and seminars play different roles in the curriculum. Lecture courses cover major periods and genres of English and American literature. They serve as general surveys of their subjects, and are typically offered every year or every other year. Seminars, by contrast, offer more specialized or intensive treatment of their topics, or engage topics not addressed in the lecture courses (for example, topics that span periods and genres). While seminars are often offered more than once, students should not expect the same seminars to be offered from one year to the next. Sophomores and juniors are encouraged to enroll in lecture courses in order to gain broad perspectives in preparation for more specialized study.

The major. Each student, in consultation with a departmental faculty adviser, bears the responsibility for designing a coherent program, which must include the following: (1) three term courses in literature written in English before 1800, and one term course in literature written in English

before 1900, all representing a variety of figures and periods (courses satisfying this requirement are indicated by the phrase “Pre-1800” or “Pre-1900” in the data line); (2) at least one starred seminar in both the junior and the senior years. The nature of senior seminars (400-level literature seminars) is discussed below. Certain residential college seminars, with permission of the director of undergraduate studies, may be substituted for a starred seminar; courses in creative writing may not. ENGL 120a or b, LITR 120a, LITR 480a, and THST 110a and 111b may be among the four introductory courses allowed. Courses taken on a Credit/D/Fail basis may be counted toward the major.

A student whose program meets these requirements may count two upper-level literature courses in other departments, whether in English translation or in another language; such courses may not be counted toward the pre-1800 or the pre-1900 requirement. Two courses in creative writing may be counted toward the major. A student may petition the director of undergraduate studies for permission to include a third writing course.

In exceptional cases, a student whose interests and aims are well defined may, in consultation with the director of undergraduate studies, work out a program of study departing from the usual requirements of the major. Such a program must, however, meet the stated general criteria of range and coherence. For interdepartmental programs that include courses in English, see the comparative literature and literature tracks under The Literature Major; Directed Studies; American Studies; African American Studies; Theater Studies; Renaissance Studies; Women’s, Gender, and Sexuality Studies; and Teacher Preparation and Education Studies.

Students considering graduate work in English should be aware that a reading knowledge of certain classical and modern European languages is ordinarily required for admission to graduate study.

Library requirement. The English department requires all majors either to complete a ninety-minute research session for English majors or to take a seminar that has a significant research component. Such courses are indicated by the designation “Libr” in the data line. Students who elect to take the library research session must do so no later than the second term of their junior year, and they are strongly encouraged to take it during their sophomore year. Students should register on the Web at www.library.yale.edu/humanities/english/englishform.html. For questions, students should contact the director of undergraduate studies.

Senior requirement. All English majors must satisfy the senior requirement in one of two ways: by taking in their senior year a senior seminar, as described below; or by writing a senior essay (ENGL 490a or b).

Senior seminar. Senior seminars are open to interested juniors as well, but one must be taken in the senior year to fulfill the senior requirement. These courses, usually numbered 400–449 and 480–488, are listed in the section “Senior Seminars.” Seniors, with the permission of the director of undergraduate studies and the instructor, may arrange to take a junior seminar for senior seminar credit. The final essay written for a senior seminar should provide an appropriate culmination to the student’s work in the major and in Yale College. It should rest on substantial independent work and should be approximately twenty double-spaced pages in 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.

The 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. It should ordinarily be written on a topic in an area on which the student has focused in previous studies. See ENGL 490a or b for the procedure. Students who choose to write a senior essay must take a seminar during their senior year, but it need not be a 400-level seminar.

Writing courses. Besides introductory courses that concentrate on the writing of expository prose (ENGL 114a or b, 115a or b, 116b, 117b, 120a or b), the English department offers several introductory, intermediate, and advanced creative writing courses (ENGL 140–141 and 450–469). These courses are open to all students on the basis of the instructor’s judgment of their work. Instructions for the submission of writing samples for admission to creative writing seminars and workshops are available in 107 LC. Students may in some cases arrange a tutorial in writing (ENGL 470a or b), 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.

The writing concentration. The writing concentration is a special course of study open to students in the English major with demonstrated interest and achievement in writing. Admission is competitive. Interested English majors normally apply for admission to the concentration during the second term of their junior year. Application can also be made during the first term of the senior year. Every student admitted to the concentration must complete at least eleven literature courses as well as the other requirements of the major. Upon admission, students will count up to four 400-level courses in writing toward completion of the B.A. degree in English; the four courses must include at least two courses in one genre and at least one course in another genre. As one of these four courses, each student must complete ENGL 489a or b, The Writing Concentration Senior Project, a tutorial in which students produce a single sustained piece of writing or a portfolio of shorter works. The senior project does not replace the senior requirement in the major (a senior seminar or senior essay). Residential college seminars are not acceptable for credit toward the writing concentration, unless the director of undergraduate studies gives permission.

Applications to the writing concentration are due by noon on November 17, 2006, for spring 2007; by noon on April 13, 2007, for fall 2007. Students are admitted selectively on the overall strength of their performance in the major and on the quality of their writing samples.

Advising. The student planning a program of study in English should consult as early as possible with the appropriate residential college departmental representative:

BK, M. Giancarlo	MC, L. Brisman
BR, R. Frank	PC, J. Gordon
CC, W. Davis	SY, E. Visconsi
DC, A. Hungerford	SM, L. Manley [F]; C. Miller [Sp]
TD, E. Dillon	ES, P. Fry
JE, D. Bromwich [F]; L. Manley [Sp]	TC, S. Black

Schedules for all majors must be discussed with, and approved by, a faculty adviser from the English department, the director of undergraduate studies, or the associate director of undergraduate studies. Only then can they be submitted to the residential college dean’s office.

Applications and prospectuses for ENGL 490a or b and writing samples for admission to writing courses are received in the office of the English major in 107 LC. Prospectuses and applications for senior essays should be submitted during the designated sign-up period in the term before

enrollment is intended. Enrollment lists for seminars with preregistration and lists of approved senior essays and individual writing projects are posted in 107 LC.

REQUIREMENTS OF THE MAJOR

Prerequisite: ENGL 125 or, with four addtl courses in major English poets, DRST 001, ENGL 127, or ENGL 129

Number of courses: Fourteen term courses (including the prerequisite and the senior requirement)

Specific courses required: None

Distribution of courses: Three courses in English lit before 1800, and one course in English lit before 1900, all representing a variety of figures and periods; two starred sems, one in junior, one in senior year; no more than four courses at intro level

Substitutions permitted: Two upper-level lit courses in other depts and two creative writing courses (ENGL 140-141, 450-469) may count toward the major; college sems designated by the DUS for starred sem

Other: Library research session or Libr seminar

Senior requirement: One senior sem (ENGL 400-449 and 480-488) taken in senior year, or senior essay (ENGL 490a or b)

INTRODUCTORY COURSES

Freshmen who wish to take a fall-term introductory course in English must register for a specific section during the electronic registration process on Tuesday, September 5. Details about electronic registration will be available in the *Calendar for the Opening Days* and on the English Department Web site at www.yale.edu/english/undergraduate. Syllabi listing the different topics taught in ENGL 114a will be posted on this site approximately two weeks before the beginning of classes. For further information about the levels of introductory courses and the guidelines for placement, see the *Freshman Handbook*. Students uncertain about which course to take or with questions about enrollment in introductory courses should consult with a faculty member during English Department Placement on September 5 from 9 to 11.30 A.M. in LC 102. Those who miss the initial registration may petition to enter an introductory course or to change sections by completing and submitting a form in LC 107 after classes begin.

Upperclassmen should register for introductory courses during the same electronic registration period on September 5.

English for Freshmen

★ENGL 114a or b, WRITING SEMINARS I. Janice Carlisle and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR (○)

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 vision, word games, science and education, experts and expertise, the good life, and dissent in American culture.

★ENGL 115a or b, WRITING ABOUT LITERATURE I. Lee Patterson and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR, Hu (○)

A writing-intensive introduction to interpretive skills and philosophic questions basic to the study of literature. Readings in drama, poetry, and fiction range from Shakespeare to Frost to Jhumpa Lahiri.

★ENGL 116b, WRITING SEMINARS II. Janice Carlisle and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR (o)

Continues the work of ENGL 114a or b by refining the tools of rhetorical analysis and argument through study of writing related to specific fields of endeavor or inquiry. Typical topics of individual sections are the environment, the arts, the law, documentary film, politics, and medicine. Varied writing assignments, with frequent review and revision, culminate with the development of a longer research essay. *Prerequisite:* ENGL 114a or b.

★ENGL 117b, WRITING ABOUT LITERATURE II. Stefanie Markovits and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR, Hu (o)

Continues the work of ENGL 115a or b, developing interpretive and writing skills through extended exploration of the kinds and narrative techniques of fiction. Readings include classic and contemporary novels by writers such as Austen, Conrad, Woolf, and Achebe. *Prerequisite:* ENGL 115a or b.

English for Freshmen and Sophomores

ENGL 120a or b, 125, 127, and 129 are open to freshmen whose SAT and English Advanced Placement test scores fall within the range specified for these courses (see the *Freshman Handbook*), and to upperclassmen, normally after one or two terms of English for Freshmen.

ENGL 120a or b, READING AND WRITING THE MODERN ESSAY.

Fred Strebeigh and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR (o)

Close study of selected works of nonfiction prepares students to become critical readers and to apply professionals' strategies to their own writing. Readings from such authors as Joan Didion, Malcolm Gladwell, Maxine Hong Kingston, N. Scott Momaday, George Orwell, Brent Staples, Jonathan Swift, Henry David Thoreau, Tom Wolfe, and Alice Walker. Written assignments, involving frequent revision, include autobiography, portraiture, nature writing, cultural critique, and formal argument.

ENGL 125, MAJOR ENGLISH POETS. Elliott Visconsi and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR, Hu (63)

A study of the diversity and the continuity of the English literary tradition through close study of the work of its major poets. Emphasis on developing skills of interpretation and critical writing. In the fall term, Chaucer, Spenser, and a Renaissance lyric poet. In the spring term, Milton, Pope, Wordsworth, and a modern poet.

ENGL 127, INTRODUCTION TO THE STUDY OF AMERICAN LITERATURE.

Elizabeth Dillon and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR, Hu (63)

An exploration of American literature from the seventeenth century to the present. Ranging across historical periods and literary genres (from works of early discovery and slave narratives to contemporary poetry and the modern novel), examination of the ways authors contribute to a national literary tradition by reworking ideas of literature and nationhood. Authors in the fall include Hawthorne, Bradstreet, Rowlandson, Equiano, Franklin, Stowe, Emerson,

Melville, Whitman, Poe, Baldwin, and Reed; authors in the spring include Twain, Hemingway, Dickinson, Williams, Frost, Faulkner, Morrison, Americo Paredes, Simon Ortiz, August Wilson, Suzan Lori Parks, and Chang-Rae Lee.

ENGL 129, THE EUROPEAN LITERARY TRADITION. Laura Frost and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F WR, Hu (63)

In the fall term, Homer (the *Iliad*) and study of representative dramatists including Aeschylus, Sophocles, Euripides, and Aristophanes; Shakespeare, Racine, Molière, and Goethe; and a selection of modern and contemporary dramatists. In the spring term, the epic and novel traditions: Homer (the *Odyssey*), Vergil, Dante, Cervantes, Joyce, and one other novelist.

FRESHMAN SEMINARS

★ENGL 131b, VERSIFICATION. Penelope Laurans.

TTh 1-2.15 Hu (26) Fr sem

A historical study of the evolving technical aspects of English verse from Anglo-Saxon through modern times. Regular exercises in writing meters and stanza forms and regular readings in poetry. Intended principally for aspiring poets who wish to learn the history of their craft, but open also to students of poetry who wish to have a firmer command of historical and technical poetic matters. *Enrollment limited to freshmen.*

★ENGL 132b, AUSTEN AND DICKENS. Traugott Lawler.

MW 1-2.15 WR, Hu (o) Fr sem

An early, a middle, and a late novel from each author: *Northanger Abbey* and *Pickwick Papers*; *Pride and Prejudice* and *Bleak House*; *Persuasion* and *Great Expectations*. *Enrollment limited to freshmen.*

ADVANCED COURSES

The courses listed below 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.

★ENGL 155b^G/★LING 183b, READINGS IN OLD NORSE POETRY AND PROSE: CHRONICLES OF THE VIKINGS. Roberta Frank.

MW 2.30-3.45 I Hu (o) Pre-1800

An introduction to the language and literature of earliest Norway and Iceland. Texts (to be read in the original) include runic inscriptions left behind by the Vikings, verse of their official skalds, the sometimes irreverent mythological poetry of the Edda, and the sagas telling of the Norse discovery of America.

ENGL 170b, CHAUCER: *THE CANTERBURY TALES*. Lee Patterson.

MW 10.30-11.20, I HTBA I; Not CR/D/F Hu (33) Pre-1800

A careful reading of the entire work, considering the interrelationships among the tales and the significance of *The Canterbury Tales* as a complete, if unfinished, work. Other issues include Chaucer's interest in psychology and his lack of interest in moral judgments, the social and political contexts of his writing, the reasons for his status as "the father of English poetry," and the modernity of the Middle Ages.

★ENGL 174a, READINGS IN THE ARTHURIAN TRADITION.

Matthew Giancarlo.

TTh 2.30-3.45 I WR, Hu (27) Libr

A selective survey of several major works in the Arthurian tradition. Works read in their entirety include Chrétien de Troyes's *Arthurian Romances*, Malory's *Le Morte d'Arthur*, Tennyson's *Idylls of the King*, and T. H. White's *The Once and Future King*. Other readings focus on the medieval English tradition of Arthurian romance (*Sir Gawain and the Green Knight*, *The Alliterative Morte Arthure*, *The Wedding of Sir Gawain*, and *Dame Ragnell*), as well as early chronicle accounts. Pre-1800 with permission of instructor and director of undergraduate studies.

ENGL 189a/FREN 241a/HUMS 231a, WORD AND IMAGE IN THE MIDDLE AGES. R. Howard Bloch, Lee Patterson.
For description see under Humanities.

★ENGL 190a^G, SPENSER. Leslie Brisman.

MW 11.30-12.45 I; Not CR/D/F WR, Hu Meets RP (○) Pre-1800
A reading of most of *The Faerie Queene*, together with a selection of the minor poems. Emphasis on Spenser's preoccupation with his precursors and on the difficulties of fitting recalcitrant ethical problems into the limits of allegory.

ENGL 200b, SHAKESPEARE: COMEDIES AND ROMANCES.
Lawrence Manley.

TTh 1.30-2.20, I HTBA I Hu (26) Pre-1800
A study of love, sex, gender, society, and theater practice in Shakespeare's comic genres, from the early farces and romantic comedies to the problem plays and late romances.

ENGL 201a, SHAKESPEARE: HISTORIES AND TRAGEDIES.
Lawrence Manley.

TTh 1.30-2.20, I HTBA I Hu (26) Pre-1800
Shakespeare on the stage and on the page. The histories and tragedies as public theater and as studies in politics and psychology.

★ENGL 204a, MARLOWE AND SHAKESPEARE. Lukas Erne.

MW 11.30-12.45 I; Not CR/D/F WR, Hu (○) Pre-1800
An exploration of the major dramatic works of Christopher Marlowe (*Edward II*, the two parts of *Tamburlaine*, *The Jew of Malta*, and *Doctor Faustus*) and their relationship to selected plays by Shakespeare (*Richard II*, the two parts of *Henry IV*, *The Merchant of Venice*, and *Macbeth*).

★ENGL 206b, SHAKESPEARE AND HIS DRAMATIC CONTEMPORARIES.
Brian Walsh.

TTh 2.30-3.45 I; Not CR/D/F WR, Hu (○) Pre-1800
A study of selected plays of Shakespeare in relation to works by his major contemporaries, including Kyd, Marlowe, Jonson, Middleton, and Ford.

★ENGL 220b, MILTON. Leslie Brisman.

MW 11.30-12.45, I HTBA I; Not CR/D/F Hu (34) Pre-1800
A study of Milton's poetry, with some attention to his literary sources, his contemporaries, his controversial prose, and his decisive influence on the course of English poetry.

★ENGL 234b, DRAMA AND FICTION FROM SHAKESPEARE TO FIELDING.
Elliott Visconsi.

MW 2.30-3.45 I; Not CR/D/F WR, Hu (○) Pre-1800 Libr
A survey of drama and fiction from Shakespeare to Henry Fielding, with emphasis on the ways literary texts reflect and shape the rise of modernity. Topics include the relationships between drama and prose fiction and the representation of violence, incest, treason, martyrdom, doomed love, criminality, and slavery.

Works by Shakespeare, Marlowe, Nashe, Beaumont and Fletcher, Dryden, Behn, Addison, Rowe, Defoe, Richardson, Voltaire, Lillo, and Fielding.

ENGL 240b, THE EIGHTEENTH-CENTURY ENGLISH NOVEL.

Jill Campbell.

MW 1.30-2.20, 1 HTBA I Hu (36) Pre-1800

Studies in the origin and development of the English novel as seen in Behn, Defoe, Richardson, Fielding, Sterne, Radcliffe, and Austen. Special attention to private life and subjectivity; national and racial identity; and relations between the sexes.

★ENGL 249a/★LITR 202a, ENGLISH LITERATURE AND THE FRENCH REVOLUTION. David Bromwich.

T 1.30-3.20 I; Not CR/D/F WR, Hu (0) Pre-1800

A survey of political, moral, and literary works evoked by the revolution controversy, including those by Burke, Wordsworth, and Wollstonecraft.

ENGL 250a, ROMANTIC POETRY. Paul Fry.

TTh 11.30-12.20, 1 HTBA I Hu (24) Pre-1900

Major works of Wordsworth, Coleridge, Byron, P. B. Shelley, and Keats, as well as some Blake and Mary Shelley's *Frankenstein*.

★ENGL 263b, VICTORIAN FICTION AND BRITISH ART. Janice Carlisle.

TTh 11.30-12.45 I; Not CR/D/F WR, Hu (0) Pre-1900

A study of the visuality of Victorian fiction in the context of Victorian visual arts, particularly drawing and painting. Texts include *A Christmas Carol*, *Jane Eyre*, *Vanity Fair*, *The Lifted Veil*, *Great Expectations*, and *Lady Audley's Secret*. (Formerly ENGL 428b)

★ENGL 272a/★LITR 308a, GENRE AND GEOGRAPHY IN NINETEENTH-CENTURY U.S. LITERATURE. Hsuan Hsu.

MW 2.30-3.45 I WR, Hu (0) Pre-1900

Study of the relationship between literature and place in nineteenth-century American literature, with attention to national allegories, domestic novels, urban detective fiction, and international adventure novels as they engage with regionalism, foreign relations, distinctions of race, class, and gender, and the nation's expanding boundaries. Authors include Charles Brockden Brown, Emily Dickinson, Kate Chopin, Edward Everett Hale, and Richard Harding Davis.

★ENGL 283a/★AMST 265a, TRANSATLANTIC DRAMA. Elizabeth Dillon.

TTh 2.30-3.45 I; Not CR/D/F WR, Hu (0) Pre-1900

Early American drama in a transatlantic context from the prerevolutionary period through the Astor Place riots of 1849. Relation of British drama to early national U.S. culture, anti-theatricalism, representations of race and national identity, and works by early U.S. playwrights. Authors include Shakespeare, Southerne, Addison, Cumberland, Rowson, Farquhar, and Tyler. *Pre-1800 with permission of instructor and director of undergraduate studies.*

★ENGL 288a/★LITR 307a, AMERICAN LITERATURE AND THE HISTORY OF PUNISHMENT. Caleb Smith.

TTh 11.30-12.45 I; Not CR/D/F WR, Hu (0)

A study of the relations between the literary imagination and the history of criminal justice in the nineteenth- and twentieth-century United States. Exploration of how the penitentiary, the death penalty, and prison riots have interacted with ideas about liberty, democracy, and the soul. Authors include Poe, Emerson, Tocqueville, Dickinson, Melville, Angela Davis, Norman Mailer, George Jackson, and John Cheever.

***ENGL 289a/*AMST 246a, HEMINGWAY, FITZGERALD, FAULKNER.**

Wai Chee Dimock.

TTh 1-2.15 I; Not CR/D/F WR, Hu (0)

An in-depth study of the major novels and short stories. Exploration of the relation between linguistic usage and political and ethnic identities, with close attention to words and the speech communities revolving around them.

ENGL 291b/AMST 261b, THE AMERICAN NOVEL SINCE 1945.

Amy Hungerford.

TTh 1.30-2.20, I HTBA I Hu (26)

American fiction, including works by Richard Wright, Flannery O'Connor, Jack Kerouac, Vladimir Nabokov, Philip Roth, Thomas Pynchon, John Barth, Maxine Hong Kingston, Louise Erdrich, Cormac McCarthy, and Edward P. Jones.

***ENGL 292a/*HUMS 238a, DREAMING NEW ORLEANS.** Joseph Roach.

MW 2.30-3.45 I WR, Hu (0)

An exploration of the mythic life of New Orleans and the capacity for reinvention and survival. Readings in fiction, nonfiction, and drama include works by Frances Trollope, George Washington Cable, Charles Chesnut, Kate Chopin, John Kennedy Toole, Ishmael Reed, Michael Ondaatje, Dion Boucicault, Tennessee Williams, Lafcadio Hearne, and Andrei Codrescu.

ENGL 294a/AFAM 294a, AFRICAN AMERICAN LITERATURE I: 1740–1900.

Noelle Morrisette.

For description see under African American Studies.

***ENGL 295b/*AFAM 295b, AFRICAN AMERICAN LITERATURE II:**

1900–1970. Noelle Morrisette.

For description see under African American Studies.

***ENGL 296b/*AFAM 407b^G, AUGUST WILSON AND HIS CONTEXTS.**

Elizabeth Alexander.

For description see under African American Studies.

ENGL 299a/AMST 251a/ER&M 290a, ASIAN AMERICAN LITERATURE AND CULTURE. Sanda Lwin.

TTh 11.30-12.20, I HTBA I Hu (24)

A broad introduction to Asian American literature, literary criticism, and culture. Readings draw from a range of genres—novels, essays, poetry, drama, short stories, and films—by writers of Burmese, Chinese, Filipino, Indian, Japanese, Korean, Pakistani, and Sri Lankan descent. Topics include citizenship, cultural nationalism, diaspora, exile, immigration, memory, and national belonging.

ENGL 300b/LITR 300b^G, INTRODUCTION TO THEORY OF LITERATURE.

Paul Fry.

For description see under Literature.

ENGL 301a/HUMS 285a, THE MODERN BRITISH NOVEL.

William Deresiewicz.

MW 11.30-12.20, I HTBA I Hu (34)

A survey of British fiction from 1890 to 1939. Questions of imperialism, exile, mass culture, bureaucracy, and war; experimentalist techniques including impressionism, perspectivalism, stream of consciousness, and unreliable narration. Authors include James, Conrad, Wells, Lawrence, Joyce, Woolf, Forster, and Nabokov.

***ENGL 307b/*THST 396b, FIVE BRITISH PLAYWRIGHTS.** David Krasner.

For description see under Theater Studies.

ENGL 310b, MODERN POETRY. Langdon Hammer.

MW 11.30-12.20, 1 HTBA I Hu (34)

An introduction to major twentieth-century poets, including Yeats, Frost, Pound, Eliot, Moore, Stevens, and Auden.

★ENGL 315b, BRITISH FICTION, 1890-1914. Joseph Gordon.

MW 1-2.15 I; Not CR/D/F WR, Hu (0)

Close reading of individual works by Stevenson, Wilde, Kipling, James, Shaw, Hardy, Conrad, and Lawrence, with attention to new narrative techniques and to developments in contemporary drama and nonfiction.

★ENGL 328a/★ER&M 310a/★LITR 270a, FICTION WITHOUT BORDERS.

Shameem Black.

MW 1-2.15 I; Not CR/D/F WR, Hu (0)

Contemporary fiction from the United States, South Asia, South Africa, China, Britain, and the Middle East that explores the changing relationships between literature and globalization. Readings include works by Aleksandar Hemon, J. M. Coetzee, Salman Rushdie, Chu T'ien-wen, Ruth Ozeki, Amitav Ghosh, Amitava Kumar, Theresa Hak Kyung Cha, Julian Barnes, Orhan Pamuk, and Gish Jen.

★ENGL 330b, RELIGION AND VIOLENCE. Sara Suleri Goodyear.

M 1.30-3.20 I; Not CR/D/F WR, Hu (0)

A study of works dealing with twentieth-century modernity, the idiom of nationalism, and the concomitant growth of violence attached to religion. Selected works by writers from Ireland, India, the Middle East, and Africa.

ENGL 343a/AFST 343a/LITR 269a, INTRODUCTION TO POSTCOLONIAL LITERATURES. Sara Suleri Goodyear.

TTh 11.30-12.20, 1 HTBA I WR, Hu (24)

An introduction to the literatures and theories of postcolonialism. Focus on issues of language and nationalism, migrancy, cultural geographics, and questions of race, ethnicity, and gender. Caribbean, African, and South Asian literature in the anglophone tradition, including works by Ngugi, Rushdie, George Lamming, Derek Walcott, Assia Djebar, and Edward Said.

★ENGL 351b/★HUMS 384b, SATIRE. Claude Rawson.

MW 2.30-3.45 I WR, Hu (0)

A study of satire from primitive origins (including ritual curses) to the twentieth century. Authors include Horace, Juvenal, Donne, Dryden, Rochester, Swift, Pope, Shelley, Byron, T. S. Eliot, and W. H. Auden. *Pre-1800 with permission of instructor and director of undergraduate studies.*

★ENGL 358b, LITERATURE FOR YOUNG PEOPLE. Michele Stepto.

M 1.30-3.20 I; Not CR/D/F Hu Meets RP (0)

An eclectic approach to stories and storytelling for and by children. Texts include Nathaniel Hawthorne's *A Wonder Book*, Louisa May Alcott's *Little Women*, J. K. Rowling's *Harry Potter and the Sorcerer's Stone*, and works by Leo Lionni, Laurent de Brunhoff, Dr. Seuss, and Maurice Sendak, as well as stories written by children themselves.

★ENGL 359a/★WGSS 352a, FEMINIST PERSPECTIVES ON LITERATURE.

Margaret Homans.

For description see under Women's, Gender, & Sexuality Studies.

ENGL 361a/THST 360a, MODERN AMERICAN DRAMA. Murray Biggs.

For description see under Theater Studies.

★ENGL 369b/★ER&M 367b/★WGSS 369b, ADOPTION NARRATIVES.

Margaret Homans.

TTh 11.30-12.45 I; Not CR/D/F WR, Hu (o)

A survey of nineteenth- and twentieth-century U.S. and British representations of adoption in fiction, memoir, poetry, drama, film, and social science writing. Special attention to the implications for adoption narratives of recent theories of race, gender, identity, and trauma.

★ENGL 383a/★LITR 275a/★THST 348a, THE COMMON WEALTH OF DRAMA.

Murray Biggs.

For description see under Theater Studies.

★ENGL 384a/★FILM 461a^G, BRITISH CINEMA. Katie Trumpener.

For description see under Film Studies.

★ENGL 386a/★AMST 440a, LEGAL FICTIONS: RACE AND LAW IN TWENTIETH-CENTURY AMERICAN CULTURE. Sanda Lwin.

M 2.30-4.20 I; Not CR/D/F WR, Hu (o)

An examination of the aesthetics and politics of race in twentieth-century American culture through readings of literary and legal narratives. Topics include the color line, citizenship, exclusion, internment, miscegenation, naturalization, passing, and segregation. Literary and legal texts, supplemented by essays from the field of critical race theory.

★ENGL 395b/★LITR 154b, THE BIBLE AS LITERATURE. Leslie Brisman.

MW 2.30-3.45, 1 HTBA I; Not CR/D/F WR, Hu Meets RP

(37) Libr

Study of the Bible as a collection of works exhibiting a variety of attitudes toward the conflicting claims of tradition and originality, historicity and literariness. *Pre-1800 with permission of instructor and completion of supplementary assignments in the language of the King James Bible.*

COURSES IN OTHER DEPARTMENTS THAT COUNT TOWARD THE MAJOR

★HUMS 258a, SHAKESPEARE AND THE CANON: HISTORIES, COMEDIES, AND POEMS. Harold Bloom. Pre-1800

★HUMS 259b, SHAKESPEARE AND THE CANON: TRAGEDIES AND ROMANCES. Harold Bloom. Pre-1800

★HUMS 364a, ART OF READING A POEM. Harold Bloom.

★HUMS 366b, FOUR TWENTIETH-CENTURY POETS: W. B. YEATS, WALLACE STEVENS, D. H. LAWRENCE, HART CRANE. Harold Bloom.

★TPRP 290a^G, THE TEACHING OF ENGLISH. Marilyn Szwed.

★WGSS 449b, FICTIONS OF INDIAN WOMEN. Geetanjali Singh Chanda.

SENIOR SEMINARS

The seminars below are for seniors who intend to fulfill the senior requirement by enrolling in a senior seminar. They are open to interested juniors and seniors outside the major when space is available.

★ENGL 406b, RENAISSANCE LYRIC. Christopher R. Miller.

MW 2.30-3.45 I; Not CR/D/F WR, Hu (o) Pre-1800

A survey of English lyric poetry from the early sixteenth through the mid-seventeenth century, focusing on poetic forms and traditions and the place of poetry in the social, political, and religious life of the time. Authors include Wyatt, Surrey, Sir Philip Sidney, Mary Sidney, Spenser, Shakespeare, Aemylia Lanyer, Lady Mary Wroth, Donne, Jonson, Herbert, Herrick, Milton, Lovelace, and Marvell.

★ENGL 416a, CONTEMPORARY BRITISH FICTION. Caryl Phillips.

M 3.30-5.20 I; Not CR/D/F WR, Hu (o)

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 Jeanette Winterson, Angela Carter, Alan Hollinghurst, William Trevor, Bernard McClaerty, Kazuo Ishiguro, Salman Rushdie, V. S. Naipaul, Colin McInnes, and Samuel Selvon.

★ENGL 424a/★HUMS 378a, SHAKESPEARE’S POLITICAL PLAYS.

Elliott Visconti.

MW 2.30-3.45 I; Not CR/D/F WR, Hu (o) Pre-1800

Reading and interpretation of selected histories and tragedies from *Richard II* to *Coriolanus*. *Prerequisite: a previous course in Shakespeare.*

★ENGL 429a, JANE AUSTEN. Ruth Yeazell.

M 1.30-3.20 I; Not CR/D/F WR, Hu (o) Pre-1900

Close study of Austen’s novels, with special attention to the critique of social and literary convention. (Formerly ENGL 259b)

★ENGL 430b, EMILY DICKINSON. Jennifer Baker.

TTh 1-2.15 I; Not CR/D/F WR, Hu Meets RP (o) Pre-1900

A study of Emily Dickinson as both unruly eccentric and representative nineteenth-century American writer. Readings include Dickinson’s poems and letters, as well as works by her American contemporaries, including Hawthorne, Whitman, Emerson, Longfellow, and Helen Hunt Jackson.

★ENGL 432b/★LITR 438b, THE MODERN EUROPEAN NOVEL.

Pericles Lewis.

For description see under Literature.

★ENGL 433a, JAMES JOYCE. Laura Frost.

TTh 2.30-3.45 I; Not CR/D/F WR, Hu (27)

An examination of Joyce’s major works (*Dubliners*, *Portrait of the Artist*, *Ulysses*, and excerpts from *Finnegans Wake*) through close reading and discussion of modernist politics and culture.

★ENGL 442b/★AFAM 444b/★AMST 433b/★ER&M 414b, REPRESENTATIONS OF MISCEGENATION IN U.S. LITERATURE AND CULTURE. Diana Paulin.

For description see under American Studies.

★ENGL 443a^G/★AFAM 408a^G/★AMST 460a^G, TWENTIETH-CENTURY AFRICAN AMERICAN POETRY. Robert Stepto.

For description see under African American Studies.

★ENGL 445b^G/★AFAM 437b^G/★AMST 420b^G, RALPH ELLISON IN CONTEXT.

Robert Stepto.

W 1.30-3.20 I; Not CR/D/F WR, Hu (o)

The complete works of Ralph Ellison and the related works (in various art forms) of some of his contemporaries, including Wright, Baldwin, Bearden, and Louis Armstrong.

★ENGL 446a, VIRGINIA WOOLF. Margaret Homans.

Th 1.30-3.20 I; Not CR/D/F WR, Hu (o) Libr

A study of the major novels and other writings by Virginia Woolf, with additional readings in twentieth-century culture and politics and in Woolf biography and criticism. Focus on Woolf's responses and contributions to literary and political movements of her day and on the contemporary and recent reception and adaptation of her work.

★ENGL 447b, CONTEMPORARY IRISH LITERATURE. Wes Davis.

TTh 2.30-3.45 I WR, Hu (o)

Writers confronting divisions in politics, gender, and religion during the past fifty years. Authors include William Trevor, Seamus Heaney, Brian Friel, Edna O'Brien, Marina Carr, Derek Mahon, John Banville, and Nuala Ni Dhomhnaill. (Formerly ENGL 316b)

★ENGL 448b/★ER&M 412b, GLOBALIZATION AND POSTCOLONIAL WRITING. Shameem Black.

MW 1-2.15 I; Not CR/D/F WR, Hu (o)

Changing representations of globalization in modern postcolonial literature, focusing on the work of Nobel laureates V. S. Naipaul, Derek Walcott, and J. M. Coetzee. Exploration of the aesthetic and ethical visions that emerge in their portraits of the Indian diaspora, the hybrid Caribbean, and the legacy of South African apartheid. Investigation of ways that postcolonial writing circulates in a transnational context.

★ENGL 449a, T. S. ELIOT: TRADITION AND MODERNITY.

Claude Rawson.

M 1.30-3.20 I; Not CR/D/F WR, Hu (o) Libr

A study of Eliot's work as poet, critic, playwright, and man of letters.

COURSES IN WRITING

Introductory and Intermediate Courses

These courses are designed to provide students who already have some ability in writing with an opportunity to explore more fully the demands and possibilities of specific literary forms. Admission is by application, based chiefly on work submitted by the student. For all application deadlines, consult the English department Web site or visit 107 LC. Application forms are available on the Web at www.yale.edu/english/undergraduate.

★ENGL 141a, INTRODUCTION TO VERSE WRITING. Louise Glück.

T 1.30-3.20 I; Not CR/D/F Meets RP (o)

A seminar workshop for freshmen and sophomores who are beginning to write poetry. Interested students should have a solid grasp of nonfiction prose writing.

★ENGL 450b, DAILY THEMES. William Deresiewicz.

M 2.30-4.20, I HTBA I; Not CR/D/F WR (o)

Writing of prose at the intermediate level. Daily assignments of 250–300 words, a weekly lecture, and a weekly 30-minute tutorial. Application forms available on the Web by mid-November. Application deadline: noon on Monday, December 11, 2006. *Enrollment limited to sophomores, juniors, and seniors.*

ENGL 451-456, WORKSHOPS IN POETRY, PROSE, AND DRAMA.

Workshops in the writing of drama, fiction, nonfiction, or poetry. Assignment to a specific course is made at the time of admission. Open only to upperclassmen on the basis of their work, a sample of which should be submitted to 107 LC. Consult www.yale.edu/english/undergraduate for applications and due dates.

★ENGL 451b, THE WRITING OF VERSE. J. D. McClatchy.

M 1.30-3.20 I; Not CR/D/F Meets RP (o)

A study of the writing of verse through a consideration of its use in a range of poems and through weekly assignments.

★ENGL 452a or b, INTERMEDIATE FICTION WRITING.

452a: M 1.30-3.20 I; Not CR/D/F (o) John Crowley

452b: Th 1.30-3.20 I; Not CR/D/F (o) Amy Bloom

Emphasis on the writing of short fiction. Criticism of student work; rhetorical and technical exercises in narrative form, genre, and style; readings in classical and contemporary fiction. Classes conducted in workshop style with frequent conferences.

★ENGL 453a/★THST 320a, PLAYWRITING. Donald Margulies.

T 2.30-5 I; Not CR/D/F (o)

A seminar and workshop in writing for the stage. Readings emphasize contemporary plays, with some theory. Writing assignments include weekly exercises and the execution of a one-act play.

★ENGL 454a, NONFICTION WRITING: VOICE AND STRUCTURE.

Fred Strebeigh.

Th 1.30-4 I; Not CR/D/F WR Meets RP (o)

A nonfiction workshop, confronting the challenges of journalism as an art. Emphasis on voice and structure. Study and discussion of texts that may suggest modes, voices, forms, and styles for nonfiction pieces. Frequent writing projects and revisions.

★ENGL 455b, WRITING ABOUT ONESELF. Anne Fadiman.

Th 2.30-5 I WR (o)

A seminar and workshop in first-person writing. Students explore a series of themes (e.g., family, love, loss, joy) both by writing about their own lives and by reading British and American memoirs, autobiographies, and personal essays. An older work, usually from the nineteenth or early twentieth century, is paired each week with a more recent one on the same theme.

★ENGL 456b, TRANSLATION. J. D. McClatchy.

T 1.30-3.20 I; Not CR/D/F Hu (o)

A survey and workshop on the translation of poetry. Study of translations from Chaucer onward and of theories of translation from Dryden to Pound and Paz. Workshop on the translation of poets from Homer and Sappho to Goethe, Leopardi, Baudelaire, and Neruda. A term-long translation project is required of each student. *Prerequisite: reading knowledge of at least one European language.*

Advanced Courses

These courses are primarily for juniors and seniors. Admission is by application, based chiefly on work submitted by the student. Students who have taken an intermediate writing course will normally be given special consideration in their applications for entrance into the corresponding advanced course. For all application deadlines, consult the English department Web site

or visit 107 LC. Application forms are available on the Web at www.yale.edu/english/undergraduate.

★ENGL 460a, ADVANCED VERSE WRITING. Louise Glück.

M 3.30-5.20 I; Not CR/D/F (○)

An advanced seminar and workshop in the writing of verse.

★ENGL 462b, WRITING FOR TELEVISION. Amy Bloom.

Th 9.30-11.20 I; Not CR/D/F (○)

Workshop on the reading and critiquing of great television scripts and adaptations (Paddy Chayefsky, Robert Altman, David Mamet, Agnes Nixon, Sarah Waters, *As Time Goes By*, Chris Rock) and on learning to write well for television. The final project is a complete television script with accompanying commentary.

★ENGL 463b, FANTASY WRITING, SCIENCE FICTION, AND RELATED GENRES. John Crowley.

T 1.30-3.20 I; Not CR/D/F Meets RP (○)

A writing workshop that addresses aspects of the craft of fiction that the genres of romance share with all fiction, including tactics and strategy of narrative, point of view and voice, and reader expectations.

★ENGL 465a or b, ADVANCED FICTION WRITING.

465a: T 2.30-4.20 I; Not CR/D/F (○) Caryl Phillips

465b: M 1.30-3.20 I; Not CR/D/F (○) John Crowley

A workshop in the craft of writing fiction.

★ENGL 467a, JOURNALISM. Steven Brill.

M 10.30-12.20 I; Not CR/D/F WR (○)

An intensive workshop in the art and changing role of journalism. Topics include definitions of journalism and the role of journalism in a democracy and a free market; differences among information, news, vicarious news, and entertainment; how different media work; knowing and telling a good story; the structure of newspaper articles, magazine features, television reports, and nonfiction books; interviewing; fairness; sourcing; the economics of journalism; and the importance of audience. *Fulfills the core seminar requirement for Yale Journalism Scholars.*

★ENGL 468b/★THST 327b, ADVANCED PLAYWRITING WORKSHOP.

Donald Margulies.

T 2.30-5 I Meets RP (○)

A playwriting workshop for students who have taken courses in intermediate playwriting or screenwriting.

★ENGL 469a, ADVANCED NONFICTION WRITING. Anne Fadiman.

Th 2.30-5 I WR, Hu (○)

A seminar/workshop with the theme “At Home in America.” Students consider the varied ways in which modern American literary journalists write about place and address the theme themselves in both reportorial and first-person work.

★ENGL 470a or b, TUTORIAL IN WRITING. Staff.

HTBA I; Not CR/D/F (○)

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. *Prerequisites: two courses in writing.*

SPECIAL PROJECTS

★ENGL 471a or b, SPECIAL PROJECTS FOR JUNIORS OR SENIORS. Staff.

HTBA I; Not CR/D/F (○)

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. To apply for admission, a student must submit an application and prospectus signed by the faculty adviser to the office of the director of undergraduate studies by Thursday of the last week of classes in the term before the project is to be done. Application forms are available on the Web at www.yale.edu/english/undergraduate.

★ENGL 489a or b, THE WRITING CONCENTRATION SENIOR PROJECT.

Staff.

HTBA I; Not CR/D/F (○)

A term-long project in writing, under tutorial supervision, aimed at producing a single longer work (or a collection of related shorter works). An application and prospectus signed by the student's adviser must be submitted to the office of the director of undergraduate studies by Thursday of the last week of classes in the term before the project is to be done. The project is due by the end of the last week of classes (fall term), or end of the next-to-last week of classes (spring term). Application forms are available on the Web at www.yale.edu/english/undergraduate.

THE SENIOR ESSAY COURSE

★ENGL 490a or b, THE SENIOR ESSAY. Staff.

HTBA I; Not CR/D/F (○)

An application and prospectus signed by the student's adviser must be submitted to the office of the director of undergraduate studies by Thursday of the last week of classes in the term before the project is to be done. Application forms are available on the Web at www.yale.edu/english/undergraduate.

The senior 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.

ENVIRONMENT

At Yale, the environment is studied from a variety of perspectives. Majors are offered in Architecture, Biology, Chemical Engineering, Environmental Engineering, Environmental Studies, and Geology and Geophysics. Forestry & 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, History of Art, International Studies, Philosophy, Political Science, Sociology, and Study of the City. Some professional schools and programs offer relevant courses that may admit undergraduates, including Epidemiology and Public Health, Forestry & Environmental Studies, the Law School, and the School of Management.

ENVIRONMENTAL ENGINEERING

Director of undergraduate studies: Jordan Peccia, 313C ML, 432-4385,
 jordan.peccia@yale.edu [F]; William Mitch, 313B ML, 432-4386,
 william.mitch@yale.edu [Sp]

FACULTY ASSOCIATED WITH THE PROGRAM IN ENVIRONMENTAL
ENGINEERING

PROFESSORS

Gaboury Benoit (*Forestry & Environmental Studies*), Menachem Elimelech (*Chemical Engineering*), Thomas Graedel (*Chemical Engineering, Forestry & Environmental Studies*), Edward Kaplan (*School of Management*), Lisa Pfefferle (*Chemical Engineering*), Joseph Pignatello (*Adjunct*) (*Chemical Engineering*), James Saiers (*Forestry & Environmental Studies*)

ASSOCIATE PROFESSOR

Yehia Khalil (*Adjunct*) (*Chemical Engineering*)

ASSISTANT PROFESSORS

Michelle Bell (*Chemical Engineering, Forestry & Environmental Studies*), Ruth Blake (*Geology & Geophysics*), William Mitch (*Chemical Engineering*), Jordan Peccia (*Chemical Engineering*)

LECTURERS

James Wallis (*Chemical Engineering*), L. Lee Wikstrom (*Chemical Engineering*)

Environmental engineering is involved with many aspects of society's interaction with the environment. It encompasses the scientific assessment and development of engineering solutions to environmental problems affecting land, water, and air quality (the biosphere). The field embraces broad environmental concerns, including the safety of drinking water, groundwater protection and remediation, wastewater treatment, indoor and outdoor air pollution, solid and hazardous waste disposal, cleanup of contaminated sites, preservation of sensitive wetlands, and the prevention of pollution through product and process design.

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, economics, and management. Accordingly, the program allows students in the major to select an emphasis on technology, on chemical, biological, and geological systems, or on environmental economics and management.

The program prepares students for leadership positions in industry and government agencies or for further studies in engineering, science, business, law, and medicine.

Three degree programs are offered: the B.S. in Environmental Engineering, the B.S. in Engineering Sciences (Environmental), and the B.A. in Engineering Sciences (Environmental). The B.S. degree program in Environmental Engineering is for students mainly interested in a career as a practicing environmental engineer. The B.S. degree program in Engineering Sciences (Environmental) is for students who desire a strong background in environmental engineering and more flexibility for course work in other, sometimes indirectly related, fields. 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.

Prerequisites. The B.S. degree programs in Environmental Engineering and in Engineering Sciences (Environmental) both have the following prerequisites in mathematics and basic sciences: MATH 112a or b, 115a or b, 120a or b; CHEM 113 or 114 and 116L, or 118a and 119La by Advanced Placement test only, or one from CHEM 328a, 332a, or 333b with one term of 331L by Advanced Placement test only; and PHYS 180a, 181b. The B.A. degree program in Engineering Sciences (Environmental) requires MATH 112a or b and 115a or b; CHEM 113 or 114; and PHYS 150a, 151b.

B.S. degree program in Environmental Engineering. This program requires the following courses, or their equivalents, totaling at least eighteen term courses beyond the prerequisites, including the senior requirement (seventeen courses are required if CHEM 118a, 328a, 332a, or 333b is used to satisfy the chemistry prerequisite):

1. Engineering science: CENG 300a or one from CHEM 328a, 332a, or 333b (not required after CHEM 118a); ENAS 130b, 194a or b; MENG 361a or ENVE 315b
2. Environmental engineering: ENVE 120a, 210a, 371a, 372a, 373a, 377b, 441b; EVST 344b
3. Electives: at least five courses must be chosen in consultation with the director of undergraduate studies, with at least one from each of the following elective categories: statistics, earth sciences, biological sciences, sustainable engineering

B.S. degree program in Engineering Sciences (Environmental). This program offers four specialization tracks: the environmental engineering technology track for students desiring an environmental technology emphasis; the environmental engineering science track for students desiring an environmental and earth science emphasis; the environmental chemical and biological science track for students desiring a chemical, biological, and public health emphasis; and the environmental resource management track for students desiring an emphasis on environmental policy and management. The following courses or their equivalents are required, totaling at least fifteen term courses beyond the prerequisites, including the senior requirement:

1. Engineering science: ENAS 130b, 194a or b
2. Environmental engineering: ENVE 120a, 371a, 372a
3. Electives: Students may choose to follow an environmental engineering technology track, an environmental engineering science track, an environmental chemical and biological science track, or an environmental resource management track. All four tracks require nine term courses, three of which must be selected from the following: CENG 300a, CHEM 328a or 332a, MENG 361a or ENVE 315b, ENVE 373a, 377b, 441b, EVST 344b

For the *environmental engineering technology track*, two electives must be technical and one must be selected from each of the following categories: earth sciences, biological sciences, and sustainable engineering.

For the *environmental engineering science track*, one elective must be selected from each of the following categories: earth sciences, biological sciences, and sustainable engineering.

For the *environmental chemical and biological science track*, two electives must be ENVE 441a and EVST 344b. Two electives must be chemical and one must be selected from each of the following categories: biological sciences, public health or toxicology, and earth sciences.

For the *environmental resource management track*, one elective must be selected from each of the following categories: economics, management, and sustainable engineering.

B.A. degree program in Engineering Sciences (Environmental). This program includes the following required courses or their equivalents, totaling nine term courses beyond prerequisites, including the senior requirement:

1. Environmental engineering: ENVE 120a, 371a

2. Electives: six courses must be chosen in consultation with the director of undergraduate studies. One of these electives must be selected from the following: CENG 300a, CHEM 328a, 332a, MENG 361a, ENVE 315b, 373a, 377b, 441b, or EVST 344b

Senior requirement. Students in all three programs must pass ENVE 490a or b in their senior year.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Environmental Engineering or Engineering Sciences (Environmental) may be eligible to apply for a special program that includes industry research experience. See under Engineering.

REQUIREMENTS OF THE MAJOR

ENVIRONMENTAL ENGINEERING, B.S.

Prerequisites: MATH 112a or b, 115a or b, 120a or b; CHEM 113 or 114 and 116L, or 118a and 119La by Advanced Placement test only, or one from CHEM 328a, 332a, or 333b with one term of 331L by Advanced Placement test only; PHYS 180a, 181b

Number of courses: At least eighteen term courses beyond prerequisites, including the senior requirement (seventeen if CHEM 118a, 328a, 332a, or 333b is used to satisfy the chemistry prerequisite)

Specific courses required: ENVE 120a, 210a, 371a, 372a, 373a, 377b, 441b; CENG 300a or one from CHEM 328a, 332a, or 333b (not required after CHEM 118a); ENAS 130b, 194a or b; EVST 344b; MENG 361a or ENVE 315b

Distribution of courses: five electives as specified

Senior requirement: ENVE 490a or b

ENGINEERING SCIENCES (ENVIRONMENTAL), B.S.

Prerequisites: MATH 112a or b, 115a or b, 120a or b; CHEM 113 or 114 and 116L, or 118a and 119La by Advanced Placement test only, or one from CHEM 328a, 332a, or 333b with one term of 331L by Advanced Placement test only; PHYS 180a, 181b

Number of courses: At least fifteen term courses beyond prerequisites (including the senior requirement)

Specific courses required: ENVE 120a, 371a, 372a; ENAS 130b, 194a or b

Distribution of courses: nine electives as specified

Senior requirement: ENVE 490a or b

ENGINEERING SCIENCES (ENVIRONMENTAL), B.A.

Prerequisites: MATH 112a or b, 115a or b, CHEM 113 or 114, PHYS 150a, 151b

Number of courses: Nine term courses beyond prerequisites (including the senior requirement)

Specific courses required: ENVE 120a, 371a

Distribution of courses: six electives approved by DUS

Senior requirement: ENVE 490a or b

Unless otherwise indicated, courses in Environmental Engineering count toward the natural science requirement for the Class of 2008 and previous classes.

ENVE 120a/CENG 120a/ENAS 120a, INTRODUCTION TO ENVIRONMENTAL ENGINEERING. Jordan Peccia.

TTh 1-2.15 IV; Not CR/D/F Sc (26)

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 radioactive wastes, and green technology. *Prerequisites: high school calculus and chemistry or CHEM 114 (may be taken concurrently) or permission of instructor.*

ENVE 210a/CENG 210a, PRINCIPLES OF CHEMICAL ENGINEERING AND PROCESS MODELING. Lisa Pfefferle.

For description see under Chemical Engineering.

ENVE 315b/CENG 315b, TRANSPORT PHENOMENA. Michael Loewenberg.

For description see under Chemical Engineering.

ENVE 371a/ENAS 371a, INTRODUCTION TO HYDROLOGY AND WATER RESOURCES. James Wallis.

TTh 11.30-12.45 IV; Not CR/D/F QR, Sc Meets RP (24)

Permanent human settlements are constrained by the availability of a reliable source of water. Environmental problems arise when either the quality of naturally occurring water is deficient, or its quantity is excessive (floods) or insufficient (droughts). Hydrology is the scientific study of water, which must be considered when designing modifications to supplement the natural hydrologic cycle at a specific location (water resource development).

ENVE 372a, ENVIRONMENTAL TRANSPORT PROCESSES.

Menachem Elimelech.

MW 2.30-3.45 IV; Not CR/D/F QR, Sc (37)

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 120a or permission of instructor.*

ENVE 373a/CENG 373a, AIR POLLUTION CONTROL. Yehia Khalil.

TTh 4-5.15 IV; Not CR/D/F QR, Sc Meets RP (27)

Kinetics, thermodynamics, and transport of chemical reactions of common air pollutants including suspended particulate matter. The role of surface chemistry and transport phenomena in air pollution. Pollutant dispersion modeling. Technology available to prevent or control air pollutants. *Prerequisite: ENVE 210a or permission of instructor.*

★ENVE 377b/★CENG 377b, WATER QUALITY CONTROL. William Mitch.

TTh 2.30-3.45 IV; Not CR/D/F Sc Meets RP (27)

Study of the preparation of water for domestic and other uses and treatment of waste water for recycling or discharge to the environment. Topics include processes for removal of organics and inorganics, regulation of dissolved oxygen, and techniques such as ion exchange, electrodialysis, reverse osmosis, activated carbon adsorption, and biological methods. *Prerequisite: ENVE 120a or permission of instructor.*

ENVE 416b/CENG 416b, CHEMICAL ENGINEERING PROCESS DESIGN.

Yehia Khalil.

For description see under Chemical Engineering.

ENVE 441b^G, BIOLOGICAL PROCESSES IN ENVIRONMENTAL ENGINEERING. Jordan Peccia.

MW 2.30-3.45 IV; Not CR/D/F Sc (37)

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. *Prerequisite: CHEM 113, 114, or 118a (may be taken concurrently), or permission of instructor.*

*ENVE 471a and 472b, SPECIAL PROJECTS. Staff.

HTBA IV; Not CR/D/F (0)

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. *Permission of both instructor and director of undergraduate studies required.*

*ENVE 490a or b, SENIOR PROJECT. Staff.

HTBA IV; Not CR/D/F (0)

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

Director of undergraduate studies: John Wargo, 301 Prospect St., 432-5123, john.wargo@yale.edu; program office, 136 ESC, 432-9868, studies.environment@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF ENVIRONMENTAL STUDIES

PROFESSORS

Mark Ashton (*Forestry & Environmental Studies*), Gaboury Benoit (*Forestry & Environmental Studies*), Graeme Berlyn (*Forestry & Environmental Studies*), Michael Donoghue (*Ecology & Evolutionary Biology, Forestry & Environmental Studies*), Menachem Elimelech (*Chemical Engineering, Environmental Engineering*), Robert Evenson (*Economics*), John Mack Faragher (*History*), Mary Helen Goldsmith (*Molecular, Cellular, & Developmental Biology*), Robert Gordon (*Geology & Geophysics*), Thomas Graedel (*Forestry & Environmental Studies*), Leo Hickey (*Geology & Geophysics*), Stephen Kellert (*Forestry & Environmental Studies*), Daniel Kevles (*History, History of Science*), Robert Mendelsohn (*Forestry & Environmental Studies, Economics*), Jeffrey Park (*Geology & Geophysics*), Jeffrey Powell (*Ecology & Evolutionary Biology*), James Saiers (*Forestry & Environmental Studies*), Oswald Schmitz (*Forestry & Environmental Studies, Ecology & Evolutionary Biology*), Thomas Siccama (*Forestry & Environmental Studies*), David Skelly (*Forestry & Environmental Studies, Ecology & Evolutionary Biology*), Brian Skinner (*Geology & Geophysics*), Ronald Smith (*Geology & Geophysics*), J. Gustave Speth (*Forestry & Environmental Studies*), Stephen Stearns (*Ecology & Evolutionary Biology*), Karl Turekian (*Geology & Geophysics*), John Wargo (*Forestry & Environmental Studies, Political Science*), Harvey Weiss (*Near Eastern Languages & Civilizations, Anthropology*), Robert Wyman (*Molecular, Cellular, & Developmental Biology*)

ASSOCIATE PROFESSORS

Benjamin Cashore (*Forestry & Environmental Studies*), Steven Stoll (*History*)

ASSISTANT PROFESSORS

Sheila Olmstead (*Forestry & Environmental Studies*), David Post (*Biology*),
Peter Raymond (*Forestry & Environmental Studies*)

LECTURERS

Shimon Anisfeld (*Forestry & Environmental Studies*), Gordon Geballe (*Forestry & Environmental Studies*), Catherine Skinner (*Geology & Geophysics*)

Environmental Studies provides an interdisciplinary approach to understanding and responding to environmental problems. From the natural sciences, students learn experimental techniques and methods of analysis needed to make accurate observations, to document change, to distinguish those changes resulting from human activity, and to understand what comprises healthy landscapes and functioning ecosystems. Students look to the humanities and social sciences for explanations of the ways people behave and for analyses of our institutions and their social, political, and economic activities. The Environmental Studies major prepares students for graduate study in a range of disciplines including law, medicine, and public health, and for careers in business, environmental management and conservation, teaching, and writing.

Introductory course. ENVE 120a may be taken without prerequisites and covers subjects important to the Environmental Studies major. This course, however, does not count toward the major.

Prerequisites. Required for the major are: CHEM 113 or 114; MCDB 120a or E&EB 122b; CHEM 116L or MCDB 121La or E&EB 123Lb; MATH 112a or b or above (except MATH 190a) or PHYS 150a or above. Students are advised to take chemistry and biology during the freshman year before enrolling in the core courses in natural sciences. Students should finish the prerequisites before the end of the sophomore year. Where relevant, students may employ acceleration credit to fulfill the prerequisites. Students entering Yale with advanced placement in both biology and chemistry must complete one term of introductory laboratory science. Students with advanced placement in only one of these subjects must take the remaining science prerequisite and the laboratory accompanying this course. Students should take a course in statistical methods of data analysis and probability (STAT 101–106 or 230b) prior to undertaking research in the natural and social sciences.

Requirements of the major. In addition to the prerequisites, thirteen or fourteen course credits are required for the major, including four core courses, two core laboratories, a concentration of six courses, a junior seminar (EVST 466b), and a one- or two-credit senior project and colloquium (EVST 496a or b). All courses in the major must be taken for a letter grade.

Core courses. Students are required to take at least two core courses from Group A (humanities and social sciences), and two from Group B (environmental sciences) with their associated labs. At least one course in each group should be completed before the end of the sophomore year.

Group A, humanities and social sciences: EVST 117a, 120b, 225b, 255b

Group B, environmental sciences: EVST 201a, 202La, 262a, 263La

Application to the Environmental Studies major. Students must apply to enter the major during the second term of the sophomore year. Admission requires successful completion of the prerequisites and one core course from each group, and a preliminary written plan for an area of concentration. Students considering a major in Environmental Studies should consult the director of undergraduate studies as soon as possible in the freshman year.

Area of concentration. Prior to the end of the sophomore year students plan an area of concentration. They should consult with their adviser and the director of undergraduate studies in developing a coherent interdisciplinary program of six courses for their third and fourth years. Students may select up to four electives at the intermediate and upper level from the same department and at least two additional electives from relevant disciplines outside the immediate area of concentration. Students may also use core courses to fulfill the requirement for interdisciplinary electives during the third and fourth years. Students interested in history should include at least one junior seminar in history (HIST 400–493) in their program. Students must have taken the core course in environmental history (EVST 120b) and one other course in history before enrolling in a junior seminar in history.

Study in the area of concentration prepares students to select and undertake a research project in the senior year. Possible areas of concentration include: environmental issues in technologically advanced societies; the environment and the developing world; problems of continuing growth of human population; pollution, environmental medicine, and public health; sustainable environmental management; the impact of globalization and multinational corporations on development and natural resources; conservation of biodiversity; energy supplies for the future; ecological restoration of urban landscapes; remediation of polluted sites and restoration of degraded landscapes; assessment of the extent of environmental change; ethical and religious beliefs of different cultures regarding the natural world.

Junior seminar. In the second term of the third year all majors enroll in the junior seminar, EVST 466b. Students also consult with their advisers on the design of a senior research project and submit a preliminary plan for approval.

Summer environmental internship. During the summer between the junior and senior years, many students gain practical experience in the field through courses, research positions, or internships in an area pertinent to their senior research project. Internships may be arranged with nonprofit organizations, government agencies, or corporations. Although the summer program is optional, many students take advantage of this opportunity with some financial support from the program.

Senior requirement. Seniors must complete an independent research project, taken as EVST 496a or b. Students may undertake a one- or two-credit senior project.

REQUIREMENTS OF THE MAJOR

Prerequisites: CHEM 113 or 114; MCDB 120a or E&EB 122b; CHEM 116L or MCDB 121La or E&EB 123Lb; MATH 112a or b or above (except MATH 190a) or PHYS 150a or above

Number of courses: Fourteen or fifteen courses beyond prerequisites, including a one- or two-credit senior project, totaling thirteen or fourteen course credits

Specific course required: EVST 466b

Distribution of courses: Two core courses from Group A, two core courses from Group B with associated labs, six courses in area of concentration

Senior requirement: One- or two-term research project and colloquium (EVST 496a or b)

Unless otherwise indicated, Group IV courses in Environmental Studies count toward the natural science requirement for the Class of 2008 and previous classes.

INTRODUCTORY COURSE

ENVE 120a/CENG 120a/ENAS 120a, INTRODUCTION TO ENVIRONMENTAL ENGINEERING. Jordan Peccia.

For description see under Environmental Engineering.

CORE COURSES

Group A

EVST 117a/ECON 117a/F&ES 117a, MICROECONOMICS WITH ENVIRONMENTAL APPLICATIONS. Sheila Olmstead.

MW 9-10.15 III; Not CR/D/F QR, So (32)

The most important areas of introductory microeconomics. Emphasis on topics most relevant to the study of the environment, including externalities, regulation, public goods, and consumer surplus analysis. *May be substituted for ECON 110a or 115a or b as a prerequisite for other Economics courses.*

EVST 120b/HIST 120b, INTRODUCTION TO ENVIRONMENTAL HISTORY.

Steven Stoll.

TTh 10.30-11.20, I HTBA II; Not CR/D/F Hu (23)

Examination of the changes in natural environments and human societies beginning in the late fifteenth century with the European invasion of the New World. Consideration of colonialism as it brought political control of African, North American, and Latin American societies and bridged long-isolated regions. A view of the modern world as a series of events with environmental consequences.

[EVST 225b/ANTH 281b/ARCG 281b, HUMAN CREATION AND DESTRUCTION OF ENVIRONMENTS]

EVST 255b/F&ES 255b/PLSC 215b, ENVIRONMENTAL POLITICS AND LAW.

John Wargo.

TTh 10.30-11.20, I HTBA III; Not CR/D/F So (23)

Exploration of the politics, policy, and law associated with attempts to manage environmental quality and natural resources. Themes of democracy, liberty, power, property, equality, causation, and risk. Case histories include air quality, water quality and quantity, pesticides and toxic substances, land use, agriculture and food, parks and protected areas, and energy.

Group B

★EVST 201a/★G&G 140a, ATMOSPHERE, OCEAN, AND ENVIRONMENTAL CHANGE. Ronald Smith.

MWF 9.30-10.20 IV; Not CR/D/F QR, Sc (32)

Physical and chemical processes that control the Earth's surface, atmosphere, ocean, and climate, and that influence human activities. Development of quantitative methods for constructing energy, water, soil, and chemical budgets. Topics include chemical composition of the Earth's crust, atmosphere, and ocean; climate and the circulation of the atmosphere and ocean; the history of the Earth's climate; global warming; energy and water resources; rivers and soil erosion; and mineral resources. *Enrollment limited to 30. Must be taken concurrently with EVST 202La.*

★EVST 202La/★G&G 141La, LABORATORY FOR ATMOSPHERE, OCEAN, AND ENVIRONMENTAL CHANGE. Ronald Smith.

3 HTBA IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

Laboratory and field exercises to accompany EVST 201a. *Must be taken concurrently with EVST 201a.*

EVST 262a/F&ES 262a, ECOLOGY AND ENVIRONMENTAL PROBLEM SOLVING. Oswald Schmitz.

MWF 10.30-11.20 IV; Not CR/D/F Sc (33)

Ecological principles and their potential application to problems in conserving biodiversity. Topics include the biosphere; organizational hierarchies and time scales; individual behavior in an evolutionary context; ecology of species interactions; ecological complexity; and links among species and ecosystem functions. Some laboratory and field exercises. Basic ecological sampling methods.

***EVST 263La/*F&ES 263La, LABORATORY FOR ECOLOGY AND ENVIRONMENTAL PROBLEM SOLVING.** Oswald Schmitz.

3 HTBA IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

A grounding in the principles of sampling and quantifying biodiversity and defining landscape-level patterns. Experiments and computer simulations clarify the relationship between biodiversity and ecosystem function. Emphasis on quantitative aspects of sampling, analysis and modeling, and scientific communication through report writing.

INTERMEDIATE AND ADVANCED COURSES

The following courses have been approved for developing areas of concentration. Other courses may be suitable for designing an area of concentration with permission of the director of undergraduate studies.

Humanities

***AMST 258b, WILDERNESS IN THE NORTH AMERICAN IMAGINATION.** Rebecca McKenna.

***ARCH 343b, CONSTRUCTED ENVIRONMENTS.** Hilary Sample.

***ARCH 344a, URBAN LIFE AND LANDSCAPE.** Elihu Rubin.

CHNS 200a^G/LITR 172a^G, MAN AND NATURE IN CHINESE LITERATURE.

Kang-i Sun Chang.

For description see under East Asian Languages & Literatures.

***ENGL 116b, WRITING SEMINARS II.** Janice Carlisle and staff.

ENGL 120a *or* b, READING AND WRITING THE MODERN ESSAY.

Fred Strebeigh and staff.

ENGL 250a, ROMANTIC POETRY. Paul Fry.

***HIST 176a^G/*HSHM 320a^G, THE ENGINEERING AND OWNERSHIP OF LIFE.** Daniel Kevles.

For description see under History.

HIST 234b/HSHM 235b, EPIDEMICS AND SOCIETY IN THE WEST SINCE 1600. Frank Snowden.

For description see under History.

HIST 361b, HISTORY OF BRAZIL. Stuart Schwartz.

***HIST 492a, MAHATMA GANDHI AND THE TWENTIETH CENTURY.** Ramachandra Guha.

PHIL 269b, PHILOSOPHY OF SCIENCE. Jill North.

PHIL 331b, ENVIRONMENTAL ETHICS. Michael Weber.

★PHIL 403a^G, CAUSATION IN EARLY MODERN PHILOSOPHY.
Michael Della Rocca, Kenneth Winkler.

Social Sciences

EVST 190b/DEVN 190b/PLSC 360b, MODERN CAPITALISM AND ENVIRONMENT: PATHWAYS TO SUSTAINABILITY OR END OF THE ROAD? James Gustave Speth.
For description see under DeVane Lecture Course.

EVST 245b/F&ES 245b/PLSC 146b, INTERNATIONAL ENVIRONMENTAL POLICY AND GOVERNANCE. Benjamin Cashore.

MW 11.30-12.45, 1 HTBA III; Not CR/D/F So (34)

An examination of the emergence of global-scale environmental challenges, environmental diplomacy, and global environmental governance. Particular attention to the linked issues of climate change, deforestation, biodiversity loss, and desertification, and to the interplay of science and politics in framing policy responses to these issues.

EVST 440a/F&ES 440a^G, ENVIRONMENTAL HYDROLOGY. James Saiers.

MW 10.30-11.20, 1 HTBA IV So (33)

An overview of the principles that govern the distribution and flows of water and waterborne constituents between the land, atmosphere, and oceans.

★ANTH 206b^G/★ARCG 206b^G, MESOPOTAMIA FROM SUMER TO SADDAM.
Harvey Weiss.

For description see under Anthropology.

★ANTH 473b^G/★ARCG 473b^G/★NELC 188b^G, CIVILIZATIONS AND COLLAPSE.
Harvey Weiss.

For description see under Anthropology.

★INTS 401a *and* 402b, INTERNATIONAL COOPERATION. James Vreeland.

★INTS 413a *and* 414b, OCEANS, SECURITY, AND GLOBALIZATION IN HISTORY. Gaddis Smith.

PLSC 156a/INTS 252a, INTERNATIONAL ORGANIZATIONS. Susan Hyde.
For description see under Political Science.

PLSC 262a, PUBLIC OPINION. Adam Simon.

PSYC 123a/PLSC 231a, THE PSYCHOLOGY, BIOLOGY, AND POLITICS OF FOOD. Kelly Brownell.
For description see under Psychology.

Natural Sciences

★EVST 220b/★F&ES 220b^G, LOCAL FLORA. Thomas Siccama.
For description see under Forestry & Environmental Studies.

★EVST 221a/★E&EB 230a^G/★F&ES 221a, FIELD ECOLOGY. David Post.
For description see under Biology.

EVST 260a^G/F&ES 260a^G, STRUCTURE, FUNCTION, AND DEVELOPMENT OF TREES. Graeme Berlyn.

TTh 2.30-3.45 IV; Not CR/D/F Sc (27)

Morphogenesis and adaptation of trees considered from seed formation and germination to maturity. Physiological and developmental processes associated with structural changes in response to environment are discussed from both a phylogenetic and an adaptive point of view. *After* MCDB 120a.

EVST 261Lb/F&ES 261LbG, LABORATORY FOR STRUCTURE, FUNCTION, AND DEVELOPMENT OF VASCULAR PLANTS. Graeme Berlyn.

HTBA IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (50)

Independent projects in plant structure, function, and development under the guidance of the instructor. Oral presentations and written reports.

*EVST 275a/★F&ES 275aG, ECOSYSTEMS PATTERNS AND PROCESSES.

Thomas Siccama, Peter Raymond, Oswald Schmitz.

TTh 8.30-9.45 IV; Not CR/D/F Sc Meets RP (22)

Introduction to the ecosystem concept. Topics include the structure and functioning of ecological systems, the response of systems to changing environmental conditions, and preservation and management issues. Discussion of both terrestrial and marine/aquatic systems. *Undergraduate enrollment limited to 15.*

*EVST 276La/★F&ES 276LaG, LABORATORY FOR ECOSYSTEMS PATTERNS AND PROCESSES. Peter Raymond, Thomas Siccama.

WTh or F 12.30-5.30 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit Meets RP (0)

Field trips to interpret the ecosystem-level functions of a wide variety of natural landscapes. *Must be taken concurrently with* EVST 275a.

EVST 307b/F&ES 307bG, ORGANIC POLLUTANTS IN THE ENVIRONMENT.

Shimon Anisfeld.

TTh 11.30-12.45 IV; Not CR/D/F (24)

An overview of the pollution problems posed by synthetic organic chemicals (e.g., pesticides, PCBs, PAHs) and petroleum products. Topics include processes governing the environmental fate of organic pollutants (e.g., evaporation, bioconcentration, biodegradation); how those processes apply to specific groups of chemicals; technologies for prevention and remediation of organic pollution; and issues related to specific classes of chemicals (e.g., oil spill response, pesticide choices). Intended both for students with no background in organic chemistry and for those who have taken an organic chemistry course.

*EVST 344b/★F&ES 344bG, AQUATIC CHEMISTRY. Gaboury Benoit.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

A detailed examination of the principles governing chemical reactions in water. Emphasis on developing the ability to predict the aqueous chemistry of natural and perturbed systems based on a knowledge of their biogeochemical setting. Calculation of quantitative solutions to chemical equilibria. Focus on inorganic chemistry. Topics include elementary thermodynamics, acid-base equilibria, alkalinity, speciation, solubility, mineral stability, redox chemistry, and surface complexation reactions.

EVST 360b/E&EB 360b/F&ES 360bG, WILDLIFE CONSERVATION ECOLOGY.

Oswald Schmitz.

3 HTBA; *disc.* 2 HTBA IV; Not CR/D/F QR, Sc (0)

An exploration of the evolutionary ecological basis for animal behavior and life history. Topics include how behavior evolves and what factors ultimately shape animal decision making and life histories; the link between animal behavior and population dynamics (demographic models that translate behavior into life-history strategies are used); and how environmental perturbations influence animal life histories to alter population structure and dynamics. *After* E&EB 220a.

EVST 365a/E&EB 365a/F&ES 365a^G, LANDSCAPE ECOLOGY. David Skelly.
3 HTBA IV; Not CR/D/F Sc (50)

An introduction to the study of large-scale ecological patterns and processes. Topics include species viability, ecosystem management, and the design of nature reserves. Focus on when and how to integrate a spatial perspective into consideration of major ecological questions. *After* E&EB 220a.

★EVST 370a/★E&EB 370a^G/★F&ES 370a^G, AQUATIC ECOLOGY. David Skelly.
T 1-2.15; lab Th 1-5 IV; Not CR/D/F (26)

An intensive introduction to the ecology of populations and communities in freshwater systems. Concepts, patterns, and organisms important in lakes and streams; techniques of information collection and analysis. Weekly field trips to gather data. *Familiarity with ecological concepts and terminology is presumed. After* E&EB 220a.

★EVST 404a/★G&G 304a^G, MINERALS AND HUMAN HEALTH.

Catherine Skinner.

For description see under Geology & Geophysics.

E&EB 160b, DIVERSITY OF LIFE. Marta Martínez Wells.

For description see under Biology.

E&EB 220a^G, GENERAL ECOLOGY. David Post.

For description see under Biology.

E&EB 225b^G, EVOLUTIONARY BIOLOGY. Jeffrey Powell, Richard Prum.

For description see under Biology.

G&G 205a, NATURAL RESOURCES AND THEIR SUSTAINABILITY.

Robert Gordon, Brian Skinner.

G&G 322a^G, PHYSICS OF WEATHER AND CLIMATE. Steven Sherwood.

★G&G 362b^G/★ARCG 362b, OBSERVING THE EARTH FROM SPACE.

Ronald Smith and staff.

For description see under Geology & Geophysics.

MCDB 150b^G, GLOBAL PROBLEMS OF POPULATION GROWTH.

Robert Wyman.

For description see under Biology.

STAT 230b^G/MATH 235b, INTRODUCTORY DATA ANALYSIS. Joseph Chang.

For description see under Statistics.

Environmental Engineering

[EVST 300b/F&ES 300b, TECHNOLOGY AND THE ENVIRONMENT]

ENVE 373a/CENG 373a, AIR POLLUTION CONTROL. Yehia Khalil.

For description see under Environmental Engineering.

★ENVE 377b/★CENG 377b, WATER QUALITY CONTROL. William Mitch.

For description see under Environmental Engineering.

JUNIOR SEMINAR AND SENIOR PROJECT COURSE

★EVST 466b, RESEARCH METHODS FOR ENVIRONMENTAL STUDIES.

John Wargo.

W 1.30-3.20 II, III, or IV; Not CR/D/F (0) Junior sem

Critical evaluation of research methods as they are used to explore significant environmental problems. Exploration of interdisciplinary research strategies. Each student develops an independent research prospectus to plan and guide the senior essay.

★EVST 496a or b, SENIOR RESEARCH PROJECT AND COLLOQUIUM.

John Wargo.

496a: W 1.30–3.20 II, III, or IV; Not CR/D/F (○)

496b: W 7–8.50 P.M. II, III, or IV; Not CR/D/F (○)

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. Students may choose to do either a one- or a two-term senior project.

ETHICS, POLITICS, AND ECONOMICS

Director of undergraduate studies: Jennifer Bair, 31 Hillhouse Ave.,
jennifer.bair@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHICS, POLITICS, AND ECONOMICS

PROFESSORS

Jeffrey Alexander (*Sociology*), David Apter (*Emeritus*) (*Sociology*), Seyla Benhabib (*Director*) (*Political Science, Philosophy*), David Cameron (*Political Science*), Alan Gerber (*Political Science*), William Goetzmann (*School of Management*), Philip Gorski (*Sociology*), Donald Green (*Political Science*), Shelly Kagan (*Philosophy*), Stathis Kalyvas (*Political Science*), Boris Kapustin (*Political Science*) (*Visiting*), Thomas McCarthy (*Philosophy*) (*Visiting*), Benjamin Polak (*Economics*), Douglas Rae (*Political Science*), John Roemer (*Political Science*), Susan Rose-Ackerman (*Political Science, Law School*), Bruce Russett (*Political Science*), James Scott (*Political Science*), Ian Shapiro (*Political Science*), Steven Smith (*Political Science*), Peter Swenson (*Political Science*), Ivan Szelenyi (*Sociology*), Elisabeth Wood (*Political Science*)

ASSOCIATE PROFESSORS

Patrick Bayer (*Economics*), Howard Forman (*School of Management*), Jacob Hacker (*Political Science*), Elizabeth Kassab (*International Affairs*) (*Visiting*), Philip Levy (*Economics*), Ellen Lust-Okar (*Political Science*), James Vreeland (*Political Science*)

ASSISTANT PROFESSORS

Jennifer Bair (*Sociology*), Seok-ju Cho (*Political Science*), Bryan Garsten (*Political Science*), Ange-Marie Hancock (*Political Science*), Pierre Landry (*Political Science*), Karuna Mantena (*Political Science*), Vivek Sharma (*Political Science*), Matthew Smith (*Philosophy*), Michael Weber (*Philosophy*)

LECTURERS

Eyal Chowers (*Political Science*), Cynthia Farrar (*Political Science*), Adam Simon (*Political Science*), James Sleeper (*Political Science*), Peter Stamatov (*Sociology*), Roy Tsao (*Political Science*), Frederic Vandenberghe (*Sociology*)

The problems confronting us now and in the future require an analytical and practical capacity to bring together expertise from several disciplines. In an era of global interdependence and rapid technological change, we need to think practically about the institutional dynamics of power and governance. We have to understand the technical complexities of economic and statistical analysis at the same time that we think critically about basic moral and political choices. Constructive responses to such problems as coping with natural and social hazards, allocation of limited social resources (e.g., medical care), or morally sensitive political issues (e.g., affirmative action and war crimes)

require close knowledge of their political, economic, and social dimensions, and a capacity to think rigorously about the basic questions they raise.

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.

Requirements of the major. Fourteen term courses are required for the major, including four introductory courses, four core courses, one intermediate microeconomics course, and one statistics course. In addition, each student, in consultation with the director of undergraduate studies, is expected to define an area of concentration and write a senior essay.

Introductory courses. These courses provide a basic familiarity with contemporary economic analysis and survey central issues in ethics and political philosophy. Such a background is necessary to understand theories that combine different approaches to the three areas of inquiry and to assess policies with complex social, economic, and moral implications.

The four introductory courses include two in economics (microeconomics and macroeconomics), one in political philosophy, and one in ethics.

Core courses. Four core courses comprise the center of the Ethics, Politics, and Economics major; three of them must be taken before the senior year. Each of the four core courses must be selected from a different one of the following five groups:

Classics of ethics, politics, and economics: EP&E 341a or b

Rationality and social choice: EP&E 326b, 328a, 329b, 345a, 349b

Political systems: EP&E 315b, 316a, 317a, 318b, 322a, 337a, 339a

Advanced topics in ethics and the human sciences: EP&E 332b, 334a, 336b,

338a, 339a, 340b, 350b, 354b, 357a, 363b, 366a, 446a

Social theory and cultural analysis: EP&E 301b, 303a, 304a, 337a, 355a

Area of concentration. Each student defines an area of concentration in consultation with the director of undergraduate studies. The concentration is intended to enable students to frame an important problem and shape a systematic course of inquiry, employing analytical methods and substantive theories drawn from the three fields. Students should not only recognize the accomplishments of varied interdisciplinary efforts, but also attempt to represent and in some cases further develop those accomplishments in their own work.

For most students the concentration will treat a contemporary problem with a substantial policy dimension (domestic or international), but some students may wish to emphasize philosophical and methodological issues. Areas of concentration must consist of at least four courses appropriate to the theme including a senior seminar. For many students the concentration may expand to include five or more courses. In designing the area of concentration, students are advised to include general intermediate courses related to their interests. The director of undergraduate studies will also require students to show adequate competence in data analysis when the themes of the area of concentration require it.

The following are examples of possible areas of concentration: distributive justice; government regulation of market economies; environmental policy; philosophy of law; gender relations; 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; civil society and its normative implications.

Senior seminar. Each year the program offers several senior seminars. Students are expected to enroll in one seminar in their senior year. In addition to Ethics, Politics, and Economics seminars, a seminar in another related department may be taken to meet this requirement.

Senior essay. A senior essay is required for the major. The essay, which should constitute an intellectual culmination of the student's work in Ethics, Politics, and Economics, should fall within the student's area of concentration and should, if possible, be written within a senior seminar. Students who wish to undertake a more substantial essay may enroll in EP&E 492 or may combine a seminar and one term of EP&E 491a or b in their senior year. A seminar in another related department, relevant to the student's area of concentration, may be taken to meet this requirement.

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.

Senior essays written in the fall term are due December 4, 2006. Senior essays written in the spring term and yearlong essays are due April 16, 2007. One-term essays are normally expected to be forty to fifty pages in length; yearlong essays are normally expected to be eighty to one hundred pages in length.

Credit/D/Fail option. Students admitted to the major may take any one of their Ethics, Politics, and Economics courses Credit/D/Fail. Such courses do not count toward distinction in the major.

Application to the Ethics, Politics, and Economics major. Students must apply to enter the major at the end of the fall term of their sophomore year. Application must be made in writing to the director of undergraduate studies no later than Monday, December 4, 2006, in the program registrar's office, 31 Hillhouse Avenue. Applications must include the following information: name, address, phone number, e-mail address, a transcript of work at Yale that indicates fall term 2006 courses, and a brief statement of purpose. There is no application form. The statement should indicate academic interests and expected area of individual concentration within the Ethics, Politics, and Economics major. If possible, applicants should include a copy of a paper written for a course related to the subject matter of Ethics, Politics, and Economics. A list of accepted applicants will be posted on the departmental Web site (www.yale.edu/epe) by December 31, 2006.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Fourteen (including the senior requirement)

Distribution of courses: One introductory course each in microeconomics, macroeconomics, political philosophy, and ethics; four core courses, as specified; one intermediate microeconomics course; one statistics course; four courses, including a senior sem, in area of concentration defined by the student in consultation with the DUS

Senior requirement: Senior sem and senior essay in student's area of concentration (either in senior sem or in EP&E 491a or b or 492)

- EP&E 203a/PLSC 452a/STAT 102a^G, INTRODUCTION TO STATISTICS: POLITICAL SCIENCE. Jonathan Reuning-Scherer, Alan Gerber.
For description see under Statistics.
- EP&E 204a/ENAS 335a, PROFESSIONAL ETHICS. Mercedes Carreras.
For description see under Engineering & Applied Science.
- EP&E 209a/PLSC 453a/STAT 103a^G, INTRODUCTION TO STATISTICS: SOCIAL SCIENCES. Jonathan Reuning-Scherer.
For description see under Statistics.
- ★EP&E 301b/★SOCY 219b, ECONOMIC SOCIOLOGY. Jennifer Bair.
For description see under Sociology. Core
- ★EP&E 303a/★SOCY 330a, CIVIL SOCIETY AND DEMOCRACY.
Jeffrey Alexander.
For description see under Sociology. Core
- ★EP&E 304a/★SOCY 340a, SOCIAL STUDIES OF SCIENCE AND TECHNOLOGY. Frederic Vandenberghe.
Th 3.30-5.30 III; Not CR/D/F So (o) Core
Comparison of philosophical/normative and sociological/descriptive approaches to science and technology. Examination of philosophy of science (from Popper to Bhaskar), social studies of science (from Mannheim to Latour), philosophy of technology (from Heidegger to Habermas) and sociology of technology (from Beck to Woolgar). Topics include rationalism vs. relativism, internalism vs. externalism, constructivism vs. realism, “science wars,” ethnography of science, techno-science, and risk society.
- ★EP&E 315b/★INTS 315b/★PLSC 177b, EMERGENCE OF THE MODERN STATE.
Vivek Sharma.
For description see under Political Science. Core
- ★EP&E 316a/★INTS 316a/★PLSC 178a, WAR AND PEACE IN THEORY AND HISTORY. Vivek Sharma.
For description see under Political Science. Core
- ★EP&E 317a/★PLSC 384a^G, POWER AND AUTHORITY IN CHINA’S LOCALITIES. Pierre Landry.
For description see under Political Science. Core
- EP&E 318b/PLSC 372b, POLITICS AND MARKETS. Peter Swenson.
For description see under Political Science. Core
- ★EP&E 322a, INSTITUTIONALISM AND ITS COMPONENTS: HISTORY, LAW, AND CONSTITUTIONALISM. David Apter.
W 3.30-5.20 III; Not CR/D/F So (o) Core
Examination of the development of the modern state in terms of institutional networks, processes, and systems of power. Focus on the applicability of democracy in settings where it is not indigenous.
- ★EP&E 324b/★PLSC 383b^G, AUTHORITARIAN REGIMES. Pierre Landry.
For description see under Political Science. Core
- ★EP&E 326b/★PLSC 206b, ELECTIONS AND REPRESENTATION.
Justin Fox.
For description see under Political Science. Core

*EP&E 328a/*PLSC 341a, POSITIVE POLITICAL THEORY. Seok-ju Cho.
For description see under Political Science. Core

*EP&E 329b/*PLSC 237b, POLITICAL COMMUNICATION AND THE MEDIA.
Adam Simon.
For description see under Political Science. Core

*EP&E 332b/*PHIL 450b/*PLSC 320b, LIBERALISM, GENDER, AND
MULTICULTURALISM. Seyla Benhabib.
W 1.30-3.20 III; Not CR/D/F So (o) Core

Analysis of whether multiculturalism is bad for women; whether the recognition of group-specific rights is compatible with gender equality. Conflicts and convergences between cultural recognition claims and claims to gender equality. Readings include Will Kymlicka, Joe Carens, Susan Okin, Martha Nussbaum, and Ayelet Schachar.

EP&E 333b/PHIL 330b, ETHICS AND THE EMOTIONS. Michael Weber.
For description see under Philosophy. Core

*EP&E 334a/*PHIL 455a^G, NORMATIVE ETHICS. Shelly Kagan.
T 1.30-3.20 II; Not CR/D/F Hu (o) Core

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).

*EP&E 336b/*PHIL 456b^G, ETHICS OF TRUST. Matthew Smith.
For description see under Philosophy. Core

*EP&E 337a/*SOCY 306a^G, EMPIRES AND IMPERIALISM. Peter Stamatov.
For description see under Sociology. Core

*EP&E 338a/*HUMS 373a/*PLSC 288a^G, POSTCOLONIAL POLITICAL
THOUGHT. Karuna Mantena.
For description see under Political Science. Core

*EP&E 339a/*HUMS 380a/*PLSC 324a^G, REPRESENTATION.
Bryan Garsten.
For description see under Political Science. Core

*EP&E 340b/*PHIL 458b^G, PHILOSOPHY OF SOCIAL SCIENCE.
Thomas McCarthy.
W 3.30-5.20 II; Not CR/D/F Hu (o) Core

Examination of philosophical issues raised in debates concerning the methodology of the human sciences: explanation and understanding, objectivity and value-neutrality, the linguistic, cultural, and hermeneutic turns; the logic of functional and of rational explanation; social science as social criticism. Consideration of current discussions about rational choice theory, participant and observer perspectives, and the interplay of normative and empirical considerations. *Prerequisites: Two courses in political philosophy.*

*EP&E 341a or b, CLASSICS OF ETHICS, POLITICS, AND ECONOMICS.
II or III; Not CR/D/F Hu, So (o) Core
341a: M 3.30-5.20 Roy Tsao
341b-1: T 3.30-5.20 Cynthia Farrar
341b-2: Th 1.30-3.20 Boris Kapustin

A critical examination of classic and contemporary works that treat problems of ethics, politics, and economics as unities. Topics include changing conceptions of private and public spheres, the content and domain of individual freedom, and ethical and political limits to the market. Readings from the works of Aristotle, Hobbes, Locke, Smith, Bentham, Mill, Hegel, Marx, Hayek, Rawls, and others.

***EP&E 345a, WELFARE ECONOMICS, SOCIAL CHOICE, AND POLITICAL PHILOSOPHY.** Susan Rose-Ackerman.

M 1.30-3.20 III; Not CR/D/F So (o) Core

An evaluation of models of political-economic systems derived from work in economic theory and liberal political thought. Topics include equity, efficiency, collective action, prisoners' dilemmas, voting, agenda control, utilitarianism, rationality, and justice. Readings drawn from works by Arrow, Axelrod, Barry, Downs, Fiorina, Gauthier, Hirschman, Olson, Rawls, Sen, and others.

***EP&E 349b/*PLSC 282b, CAPITALISM VS. SOCIALISM: THE DEBATE.**

John Roemer.

T 1.30-3.20 III; Not CR/D/F So (o) Core

Analysis of the principal economic arguments for and against capitalism, and for and against socialism, in light of twentieth-century experience. Evaluation of economic systems from the viewpoint of distributive justice as well as efficiency.

***EP&E 350b, THE IDEA OF PROGRESS RECONSIDERED.**

Thomas McCarthy.

T 1.30-3.20 II; Not CR/D/F Hu, So (o) Core

Examination of the classical theories of progress set forth by Kant, Hegel, and Marx, as well as the critiques of these theories by Nietzsche, Weber, Horkheimer, and Adorno. Consideration of the attempt by Habermas to rethink the idea of progress. Some attention to contemporary debates in which the idea of progress figures.

***EP&E 354b/*HUMS 374b/*PLSC 322b^G, EMPIRE AND MODERN POLITICAL THOUGHT.** Karuna Mantena.

For description see under Political Science. Core

***EP&E 355a/*SOCY 216a/*WGSS 314a, SOCIAL MOVEMENTS.** Ron Eyerman.

For description see under Sociology. Core

***EP&E 357a/*SOCY 350a, MODERNITY AND BEYOND.**

Frederic Vandenberghe.

T 3.30-5.20 III; Not CR/D/F Hu (o) Core

Analysis of transformations that societies worldwide have undergone since the 1970s through critical examination of the debates on modernity and modernization, postmodernism, and globalization.

***EP&E 360a/*PLSC 185a^G, SECESSION AND POLITICAL BOUNDARIES.**

Nicholas Sambanis.

For description see under Political Science. Core

***EP&E 363b, ETHICS OF PUBLIC OFFICE.** Roy Tsao.

W 1.30-3.20 III; Not CR/D/F So (o) Core

Examination of ethical questions pertaining to the nature of political leadership and public accountability. Readings from classic texts and contemporary writings in political theory, including works by Plato, Machiavelli, Burke, Mill, and Weber.

***EP&E 366a/*HUMS 292a/*PHIL 452a^G, FREEDOM OF EXPRESSION.**

Jonathan Gilmore.

For description see under Philosophy. Core

SENIOR SEMINARS

- ★EP&E 401a, REFLECTIONS ON ZIONIST POLITICAL PHILOSOPHY: TIME, SPACE, AND LANGUAGE. Eyal Chowers.
W 1.30-3.20 III; Not CR/D/F So (o)
Examination of ways that concepts of time, space, and language shaped the Zionist political philosophy. Exploration of these concepts as a response both to modernity and to the Jewish predicament in the diaspora. Discussion of the importance of this philosophy for understanding the practice of the Israeli state. *Prerequisite: at least one course in political philosophy.*
- ★EP&E 402b, GENDER ISSUES IN THE MODERN MIDDLE EAST. Elizabeth Kassab.
W 3.30-5.20 III; Not CR/D/F So (o)
Discussion of contemporary issues of gender in the modern Middle East related to colonialism, nationalism, postcolonialism, globalization, Islam, culture, and decolonization.
- ★EP&E 407b, THE HISTORY OF FINANCE. William Goetzmann.
W 1.30-3.20 III; Not CR/D/F So (o)
Exploration of the history of finance and capital markets from antiquity to modern times. Analysis of major innovations in finance and some of the significant social issues, including the role of the corporation and the globalization of markets. Documentary sources are used from the Beinecke Library and from Yale's Babylonian collection.
- ★EP&E 408b/★PLSC 167b^G, WAR AND PUBLIC HEALTH. Bruce Russett.
For description see under Political Science.
- ★EP&E 412a/★INTS 328a/★PLSC 158a^G, NATIONALISM AND IDENTITY. Keith Darden.
For description see under Political Science.
- ★EP&E 413a/★ECON 470a, TOPICS IN AMERICAN ECONOMIC HISTORY. Staff.
For description see under Economics.
- ★EP&E 414a *or* b/★ECON 467a *or* b, ISSUES IN HEALTH ECONOMICS. Howard Forman.
For description see under Economics.
- ★EP&E 416a/★INTS 294a/★PLSC 305a, CRITIQUE OF POLITICAL VIOLENCE. Boris Kapustin.
Th 1.30-3.20 III; Not CR/D/F So (o)
A study of methods of conceptualizing political violence that are prevalent in contemporary political philosophical discourse. Use of theoretical-analytical tools to examine the modes violence assumes and the functions it performs in modern political life as well as the meanings and possibilities of nonviolence in politics.
- ★EP&E 424b/★PLSC 247b^G, POLITICAL PARTICIPATION AND REPRESENTATION. Alan Gerber.
For description see under Political Science.
- ★EP&E 427a/★ECON 481a, URBAN ECONOMICS. Staff.
For description see under Economics.

★EP&E 437a/★ECON 463a, ECONOMIC PROBLEMS OF LATIN AMERICA.
Eduardo Engel.
For description see under Economics.

★EP&E 441b/★ECON 489b, TOPICS IN ECONOMIC POLICY. Staff.
For description see under Economics.

★EP&E 445b/★PLSC 242b, NEW CONCEPTIONS OF AMERICAN IDENTITY.
James Sleeper.
For description see under Political Science.

★EP&E 446a, MORAL CHOICES IN POLITICS. Boris Kapustin.
T 1.30-3.20 III; Not CR/D/F So (o) Core
A study of how and why people make costly moral choices in politics. Figures studied include Thomas More, Abraham Lincoln, Nelson Mandela, Václav Havel, and Aung San Suu Kyi.

★EP&E 449a/★PLSC 152a, GLOBAL FIRMS AND NATIONAL GOVERNMENTS.
Joseph LaPalombara.
For description see under Political Science.

★EP&E 457a/★PLSC 398a, THE INTERNATIONAL MONETARY FUND AT A
CROSSROADS. James Vreeland.
For description see under Political Science.

INDIVIDUAL RESEARCH AND SENIOR ESSAY COURSES

★EP&E 471a *or* b, DIRECTED READING AND RESEARCH. Jennifer Bair.
HTBA II or III; Not CR/D/F (o)

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 491a *or* b, THE SENIOR ESSAY. Jennifer Bair.
HTBA II or III; Not CR/D/F (o)

A one-term senior essay. One term of EP&E 491a or b may also be combined with a seminar for a two-term senior essay. The senior essay should fall within the student's area of concentration. If no appropriate senior 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 492, THE YEARLONG SENIOR ESSAY. Jennifer Bair.
HTBA II or III; Not CR/D/F (o)

A two-term senior essay. The senior essay should fall within the student's area of concentration. If no appropriate senior 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.

GRADUATE AND PROFESSIONAL SCHOOL COURSES OF INTEREST TO UNDERGRADUATES

Some graduate and professional school courses are open to qualified undergraduates and may be of interest to EP&E majors (e.g., courses in the Schools of Nursing, Forestry & Environmental Studies, and Management, and the graduate program in Epidemiology and Public Health). Permission to enroll is required from the instructor as well as the appropriate representative of the graduate or professional program. Note that not all professional school courses yield a full course credit in Yale College. (See "Courses in the Yale Graduate and Professional Schools" in chapter III, section K.)

ETHNICITY, RACE, AND MIGRATION

Director of undergraduate studies: Patricia Pessar, 213 LUCE, 432-9344,
patricia.pessar@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHNICITY, RACE, AND MIGRATION

PROFESSORS

Rolena Adorno (*Spanish & Portuguese*), Hazel Carby (*African American Studies, American Studies*), Michael Denning (*American Studies, English*), Kathryn Dudley (*American Studies, Anthropology*), John Mack Faragher (*History, American Studies*), Donald Green (*Political Science*), Dolores Hayden (*Architecture, American Studies*), Jonathan Holloway (*History, African American Studies*), Paula Hyman (*History, Religious Studies*), Matthew Jacobson (*American Studies, African American Studies, History*), Gilbert Joseph (*History*), Kenneth Kidd (*School of Medicine*), Benedict Kiernan (*History*), Marianne LaFrance (*Psychology, Women's, Gender, & Sexuality Studies*), Enrique Mayer (*Anthropology*), Patricia Pessar (*Adjunct, American Studies, Anthropology*), Stephen Pitti (*History, American Studies*), Helen Siu (*Anthropology*), John Szwed (*African American Studies, Anthropology*), Laura Wexler (*American Studies, Women's, Gender, & Sexuality Studies*)

ASSOCIATE PROFESSORS

Mary Lui (*American Studies, History*), Christopher Rhomberg (*Sociology*)

ASSISTANT PROFESSORS

Jennifer Bair (*Sociology*), Jennifer Baszile (*History, African American Studies*), Bernard Bate (*Anthropology*), Shameem Black (*English*), Khalilah Brown-Dean (*Political Science, African American Studies*), Alicia Schmidt Camacho (*American Studies*), Jason Cortés (*Spanish*), Seth Fein (*History, American Studies*), Terri Francis (*Film Studies, African American Studies*), Lillian Guerra (*History*), Ange-Marie Hancock (*Political Science, African American Studies*), Kellie Jones (*History of Art, African American Studies*), Jennifer Klein (*History*), Sanda Lwin (*English, American Studies*), Alondra Nelson (*Sociology, African American Studies*), Naomi Pabst (*African American Studies*), Diana Paulin (*English, American Studies*), Mridu Rai (*History*), Rachel Sherman (*Sociology*)

LECTURERS

Jasmina Beširević-Regan (*Sociology*), Zareena Grewal (*American Studies*), Dhooleka Raj (*Anthropology*), Alexandra Vázquez (*American Studies*)

The program in Ethnicity, Race, and Migration enables students to combine a disciplinary requirement of a first major with 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 ethnicity, nationality, and race; grounding in both the history of migration and its contemporary manifestations; and knowledge of the cultures, structures, and peoples formed by these migrations.

Second major. Ethnicity, Race, and Migration can be taken only as a second major. Students combine Ethnicity, Race, and Migration with a major that coordinates with research into ethnicity and migration. They should consult the director of undergraduate studies early in their academic careers about other departments that meet this criterion. Departments or programs that already have concentrations of courses dealing with ethnic issues—African American Studies, African Studies, American Studies, Anthropology, English, History, Literature, Political Science, Sociology, and Women's, Gender, and Sexuality Studies—are particularly appropriate, but a student may choose any traditional discipline that provides the tools for a rigorous senior project in Ethnicity, Race, and Migration. Course selections and choices of linked majors must be approved by the appropriate directors of undergraduate studies.

In working out programs for their two majors, students should note that, in accordance with the academic regulations concerning two majors (see "Two Majors" in chapter III, section K), each major must be completed independently, with no more than two term courses overlapping. This overlap must not be in 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.

Permission to complete two majors must be secured from the Committee on Honors and Academic Standing; forms are available from the residential college deans. Assistance in completing the form is available from the director of undergraduate studies in Ethnicity, Race, and Migration.

Requirements of the major. In addition to fulfilling the requirements of the other major, a student must complete twelve term courses, including the senior seminar and the senior essay or project. There are no prerequisites, but students are expected to have competence in the foreign language related to their area of concentration.

Introductory course. ER&M 200a offers an introduction to the issues and disciplines involved in the study of ethnicity, race, and migration, and should be taken early in the student's major, preferably during the sophomore year.

Area of concentration. In consultation with the director of undergraduate studies, each student defines an area of concentration consisting of six term courses including the one-term senior essay or project.

Distributional requirements. In order to acquire a comparative sense of ethnicity, race, and migration, each student is expected to take at least two courses in each of two distinct geographic areas. To gain familiarity with different perspectives on these issues, each student must also take at least one course from each of the following four fields: theoretical perspectives; structures of international migration; the politics and economics of ethnicity; and the history and cultures of peoples.

As a multidisciplinary program, Ethnicity, Race, and Migration draws on the resources of other departments and programs in the University. The following listing of courses is meant to be suggestive only; 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.

Senior requirement. Students must take the senior colloquium (ER&M 491a) on theoretical and methodological issues and complete a one-term senior essay or project (ER&M 492b).

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses (including the senior requirement)

Specific course required: ER&M 200a

Distribution of courses: Six term courses in area of concentration (one term of the senior requirement may be counted); at least two term courses in each of two distinct geographic areas; at least one term course in each of four specified fields

Senior requirement: Senior sem (ER&M 491a) and senior essay or project (ER&M 492b)

ER&M 200a, INTRODUCTION TO ETHNICITY, RACE, AND MIGRATION.

Alicia Schmidt Camacho.

MW 11.30-12.45 II or III; Not CR/D/F Hu, So (o)

Exploration of the historical roots of contemporary ethnic and racial formations and competing theories of ethnicity, race, and migration. Examination of the cultural constructions and social practices of race, ethnicity, and migration in the United States and around the world.

THEORETICAL PERSPECTIVES

*ER&M 229a/*AMST 369a, SOCIALISM AND MARXISM IN THE TWENTIETH CENTURY. Michael Denning.

For description see under American Studies.

ER&M 230b/ANTH 210b, TWENTIETH-CENTURY ANTHROPOLOGICAL THEORY. Bernard Bate.

For description see under Anthropology.

*ER&M 288a/*AMST 349a/*WGSS 434a, BORDER FEMINISM.

Alicia Schmidt Camacho.

For description see under American Studies.

*ER&M 292a/*AMST 327a, WORKERS IN THE TWENTIETH CENTURY.

Michael Denning.

TTh 1-2.15 II or III; Not CR/D/F Hu Meets RP (o)

An exploration of working-class history in the twentieth century and the emergence of a global labor force. Topics include patterns of migration, changes in work and working-class culture, representations of work and workers in fiction and film, and forms of labor unrest and struggle.

*ER&M 310a/*ENGL 328a/*LITR 270a, FICTION WITHOUT BORDERS.

Shameem Black.

For description see under English Language & Literature.

*ER&M 320a, GLOBALIZATION AND RESISTANCE IN THE AMERICAS.

Tucker Foehl.

M 1.30-3.20 III; Not CR/D/F So (o)

An interdisciplinary study of the changing global economy, its impact on distinct regions, and ways that people are responding to rapid globalization and economic change. Examination of resistance movements that seek both to challenge and to transform neoliberal globalization throughout the Americas. Topics range from the Zapatista rebellion in Chiapas and the Landless Movement in Brazil to the WTO protests in Seattle and the role of the IMF in Jamaica.

*ER&M 344b/*AFAM 367b/*AMST 431b/*WGSS 455b, REPRESENTATION AND THE BLACK FEMALE. Hazel Carby.
For description see under African American Studies.

*ER&M 412b/*ENGL 448b, GLOBALIZATION AND POSTCOLONIAL WRITING. Shameem Black.
For description see under English Language & Literature.

*ER&M 413a/*AFAM 411a/*AMST 426a/*WGSS 411a, THE FICTION OF IMAGINARY OR IMMINENT FUTURES. Hazel Carby.
For description see under African American Studies.

STRUCTURES OF INTERNATIONAL MIGRATION

*ER&M 452a/*AMST 434a/*INTS 494a, INTERNATIONAL MIGRATION AND REFUGEE MOVEMENTS I. Patricia Pessar.
For description see under International Studies.

*PLSC 221a, U.S. IMMIGRATION LAW AND POLICY.
Alexandra Dufresne.

*PLSC 227b, REFUGEE LAW AND POLICY. Alexandra Dufresne.

WGSS 295b, GLOBALIZING GENDER. Geetanjali Singh Chanda.

THE POLITICS AND ECONOMICS OF ETHNICITY

*ER&M 362a/*SOCY 363a, GENOCIDE AND ETHNIC CONFLICT.
Jasmina Beširević-Regan.
For description see under Sociology.

ECON 225b, LABOR ECONOMICS AND WELFARE POLICIES. Staff.

*PLSC 180b, NATIONALISM, ETHNICITY, AND WAR. Nicholas Sambanis.

*PLSC 268a/*AFAM 280a/*JDST 290a, BLACK AND JEWISH COMMUNITY POLITICS. Khalilah Brown-Dean.
For description see under Political Science.

THE HISTORY AND CULTURES OF PEOPLES

North America

ER&M 187a/AMST 133a/HIST 107a, THE NATIVE AMERICAN EXPERIENCE IN NORTH AMERICA. Alyssa Mt. Pleasant.
For description see under History.

ER&M 223b/AMST 230b/HIST 137b, INTERNATIONAL HISTORY OF THE UNITED STATES IN THE TWENTIETH CENTURY. Seth Fein.
For description see under History.

ER&M 286b/AMST 213b/HIST 128b, HISTORY OF MEXICAN AMERICANS SINCE 1848. Stephen Pitti.
For description see under History.

ER&M 290a/AMST 251a/ENGL 299a, ASIAN AMERICAN LITERATURE AND CULTURE. Sanda Lwin.
For description see under English Language & Literature.

★ER&M 298a/★ANTH 298a/★WGSS 298a, THE ANTHROPOLOGY OF ORATORY AND RHETORIC. Bernard Bate.
For description see under Anthropology.

★ER&M 322b/★AMST 325b/★HIST 443b, INDIAN-COLONIAL RELATIONS IN COMPARATIVE PERSPECTIVE. Alyssa Mt. Pleasant.
For description see under American Studies.

★ER&M 346a/★AMST 367a/★THST 367a, LATINO THEATER AND PERFORMANCE. Alexandra Vázquez.
th 1.30-3.20 II; Not CR/D/F Hu (o)

Reflections on the relationship between Latino and Latin American performance and music, the strategic use of music in dramatic settings, alternative modes of reception to the visual, the choreography of sound and gesture, the necessity of improvisation, and the effects of migration on language and theatrical spaces. Examination of plays, performance videos, sound tracks, and theoretical readings.

★ER&M 367b/★ENGL 369b/★WGSS 369b, ADOPTION NARRATIVES. Margaret Homans.
For description see under English Language & Literature.

★ER&M 414b/★AFAM 444b/★AMST 433b/★ENGL 442b, REPRESENTATIONS OF MISCEGENATION IN U.S. LITERATURE AND CULTURE. Diana Paulin.
For description see under American Studies.

★ER&M 428a/★AMST 436a/★HIST 473a, LATINOS IN THE TWENTIETH CENTURY. Stephen Pitti.
w 1.30-3.20 II; Not CR/D/F Hu (o)

A survey of social, political, and cultural dynamics defining Puerto Rican, Dominican, ethnic Mexican, Cuban American, and other U.S. residents of Latin American descent in the twentieth century. Themes include migration, urbanization, gendered hierarchies, radical politics, transnational networks, and race relations.

★ER&M 447b/★AMST 409b/★HIST 463b, NORTHEASTERN NATIVE AMERICA, 1850 TO TODAY. Alyssa Mt. Pleasant.
For description see under American Studies.

★ER&M 450a/★AMST 419a/★HIST 460a, LAND, HOMELANDS, AND AMERICAN INDIAN HISTORIES. Alyssa Mt. Pleasant.
For description see under American Studies.

AFAM 161a/HIST 186a, AFRICAN AMERICAN HISTORY: FROM THE BEGINNING TO EMANCIPATION. Jennifer Baszile.
For description see under African American Studies.

AFAM 162b/AMST 162b/HIST 187b, AFRICAN AMERICAN HISTORY: FROM EMANCIPATION TO THE PRESENT. Jonathan Holloway.
For description see under African American Studies.

AMST 322a/WGSS 371a, GENDER, FAMILY, AND CULTURAL IDENTITY IN ASIA AND THE UNITED STATES: A DIALOGUE. Geetanjali Singh Chanda.
For description see under American Studies.

AMST 429b^G/^{}ANTH 404b^G, AMERICAN COMMUNITIES. Kathryn Dudley.
For description see under American Studies.

HIST 132b/AMST 132b, AMERICAN POLITICS AND SOCIETY, 1945 TO THE PRESENT. Jennifer Klein.
For description see under History.

HIST 471a/^{}AMST 411a, THE IDEA OF THE WESTERN HEMISPHERE. Seth Fein.
For description see under History.

Asia and the Pacific

ANTH 254a, JAPAN: CULTURE, SOCIETY, MODERNITY. Karen Nakamura.

ANTH 256b/WGSS 366b, MINORITIES AND SEXUALITIES IN MODERN JAPAN. Karen Nakamura.
For description see under Anthropology.

ANTH 348b^G/^{}WGSS 378b, GENDER AND MEDIA IN INDIA. Bernard Bate.
For description see under Anthropology.

*ANTH 370b^G, LANGUAGE, POLITICS, AND SOCIETY IN COLONIAL INDIA. E. Annamalai.

HIST 310a, HISTORY OF MODERN SOUTH ASIA. Mridu Rai.

HIST 316b, HISTORY OF MODERN CHINA, 1600–2007. Jonathan Spence.

*HIST 490b, POSTCOLONIAL SOUTH ASIA, 1947 TO THE PRESENT. Mridu Rai.

*HIST 491b, ISLAM IN THE INDIAN SUBCONTINENT. Mridu Rai.

Latin America and the Caribbean

ER&M 340a/ANTH 207a, PEOPLES AND CULTURES OF LATIN AMERICA. Renzo Taddei.
For description see under Anthropology.

ER&M 341b/HIST 358b, MEXICO IN THE NINETEENTH AND TWENTIETH CENTURIES. Gilbert Joseph.
For description see under History.

ER&M 342a/^{}HIST 472a, REVOLUTIONARY CHANGE IN TWENTIETH-CENTURY LATIN AMERICA. Gilbert Joseph.
For description see under History.

HIST 355a, COLONIAL LATIN AMERICA. Stuart Schwartz.

HIST 361b, HISTORY OF BRAZIL. Stuart Schwartz.

*HIST 470a/*WGSS 470a, GENDER, NATION, AND SEXUALITY IN MODERN LATIN AMERICA. Lillian Guerra.
For description see under History.

SPAN 247a, CULTURAL STUDIES: LATIN AMERICA. Jason Cortés.

Africa

AFST 161b, INTRODUCTION TO AFRICA. Ann Biersteker.

*AFST 464a^G/*AFAM 441a^G/*ANTH 422a^G, AFRICA AND THE DISCIPLINES. Kamari Clarke, Christopher L. Miller.
For description see under African Studies.

*HIST 486a/*AFST 486a, SLAVERY AND THE SLAVE TRADE IN AFRICA. Robert Harms.
For description see under History.

Europe

HIST 202b, EUROPEAN CIVILIZATION, 1648–1945. John Merriman.

HIST 224a/FILM 460a/ITAL 323a, MODERN ITALY: HISTORY AND FILM. Millicent Marcus, Frank Snowden.
For description see under History.

HIST 232b, TWENTIETH-CENTURY BRITAIN. Jay Winter.

HIST 264b, EASTERN EUROPE SINCE 1914. Ivo Banac, Timothy Snyder.

HIST 265a, GERMANY, 1871–1990. Ute Frevert.

HIST 269a^G/JDST 286a^G/RLST 230a^G, HOLOCAUST IN HISTORICAL PERSPECTIVE. Paula Hyman.
For description see under History.

HIST 273a, EUROPE IN THE AGE OF TOTAL WAR, 1914–1945. Jay Winter.

HIST 290a, RUSSIA FROM THE NINTH CENTURY TO 1801. Paul Bushkovitch.

Middle East

*ER&M 430a/*AMST 450a, ISLAM IN THE AMERICAN IMAGINATION. Zareena Grewal.

M 1.30-3.20 III; Not CR/D/F So Meets RP (o)
An examination of the representation of Muslims in the U.S. and abroad throughout the twentieth century. Review of the place of Islam in the American imagination; intersections between concerns of race and citizenship in the U.S. and foreign policies directed toward the Middle East.

HIST 348a, STATE, SOCIETY, AND CULTURE IN THE MIDDLE EAST. Abbas Amanat.

*HIST 464a, IDENTITY FORMATION IN THE MODERN MIDDLE EAST. Michael Gasper.

*HIST 484b/*NELC 403b, THE MIDDLE EAST BETWEEN CRUSADERS AND MONGOLS. Adel Allouche.
For description see under History.

INDIVIDUAL RESEARCH AND SENIOR ESSAY COURSES

*ER&M 471a and 472b, INDIVIDUAL READING AND RESEARCH FOR JUNIORS AND SENIORS. Director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F (o)

For students who wish to cover material not otherwise offered by the program. The course may be used for research or for directed reading. In either case a term paper or its equivalent is required. Students meet regularly with a faculty adviser. To apply for admission, students submit a prospectus signed by the faculty adviser to the director of undergraduate studies.

*ER&M 491a, THE SENIOR COLLOQUIUM: THEORETICAL AND METHODOLOGICAL ISSUES. Patricia Pessar.

M I.30-3.20 I, II, or III; Not CR/D/F (o)

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.

*ER&M 492b, THE SENIOR ESSAY OR PROJECT. Patricia Pessar.

M I.30-3.20 I, II, or III; Not CR/D/F (o)

Independent research on a one-term senior essay or project.

FILM STUDIES

Director of undergraduate studies: Terri Francis, Room 218, 53 Wall St., 432-7193, terri.francis@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF FILM STUDIES

PROFESSORS

*Dudley Andrew (*Co-chair*) (*Comparative Literature, Film Studies*), Ora Avni (*French*), Hazel Carby (*African American Studies, American Studies*), *Katerina Clark (*Comparative Literature, Slavic Languages & Literatures*), Michael Denning (*American Studies, English*), Thomas Elsaesser (*Film Studies*) (*Visiting*), *John Mack Faragher (*History*), Benjamin Harshav (*Comparative Literature*), *David Joselit (*History of Art*), Stathis Kalyvas (*Political Science*), *Thomas Kavanagh (*French*), *Millicent Marcus (*Italian*), Donald Margulies (*Adjunct*) (*English, Theater Studies*), Giuseppe Mazzotta (*Adjunct*), Christopher L. Miller (*African American Studies, French*), *Charles Musser (*Co-chair*) (*American Studies, Film Studies*), Alexander Nemerov (*History of Art*), *Brigitte Peucker (*German, Film Studies*), *Joseph Roach (*English, Theater Studies*), *Michael Roemer (*Adjunct*) (*Art, American Studies*), *John Szwed (*Anthropology, African American Studies, American Studies*), Alan Trachtenberg (*Emeritus*) (*English, American Studies*), *Katie Trumpener (*Comparative Literature, English*), Laura Wexler (*American Studies, Women's, Gender, & Sexuality Studies*)

ASSOCIATE PROFESSORS

*Murray Biggs (*Adjunct*) (*English, Theater Studies*), *John MacKay (*Slavic Languages & Literatures*), Lidia Santos (*Spanish & Portuguese*), *Noa Steimatsky (*Film Studies, History of Art*)

ASSISTANT PROFESSORS

*Seth Fein (*American Studies, History*), *Terri Francis (*African American Studies, Film Studies*), *Aaron Gerow (*East Asian Languages & Literatures, Film Studies*), Karen Nakamura (*Anthropology*), *Kristin Phillips-Court (*Italian*)

SENIOR LECTURER

Ron Gregg (*Film Studies*)

LECTURERS

James Charney (*School of Medicine*), Jinhee Choi (*East Asian Studies*), *John Crowley (*English*), *Chris Hegedus (*Film Studies*), *Michael Kerbel (*American Studies*), *Marc Lapadula (*Film Studies*), *Richard Maxwell (*Comparative Literature, English*), *D. A. Pennebaker (*Film Studies*)

CRITICS

*Jonathan Andrews (*Art, Film Studies*), *Sandra Luckow (*Art*), *Carol Scully (*Art*)

SENIOR LECTORS

Risa Sodi (*Italian*), Karen von Kunes (*Slavic Languages & Literatures*)

*Member of the Film Studies Committee.

Film Studies is an interdisciplinary major that focuses on the history, theory, and criticism of film. Courses examine cinema's role as a unique modern art form and the contributions of moving image media as cultural practices of enduring social significance. Film Studies offers students latitude in defining their course of study within the framework established by the Film Studies Committee. With this freedom comes the responsibility of carefully planning a coherent and well-focused program. Because of the special demands of Film Studies and the diversity of its offerings, potential majors are encouraged to consult with the director of undergraduate studies early in their academic careers.

The major in Film Studies consists of fourteen term courses, including the prerequisite. For the Class of 2009 and subsequent classes, a maximum of one course taken on a Credit/D/Fail basis may be counted toward the requirements of the major with permission of the director of undergraduate studies.

Prerequisite. Students normally take FILM 150a, Introduction to Film Studies, in their freshman or sophomore year. It is a prerequisite for many other courses in the major.

Required courses. Students are required to take FILM 320a or b, Close Analysis of Film, preferably during their sophomore year. They must also take either FILM 330b, Film Theory and Aesthetics, or FILM 340b, Issues in Contemporary Film Theory, preferably by the end of their junior year. Students are encouraged to take both. In addition, students must devote two term courses, preferably upper-level courses, to the study of representative films from at least two different nations or cultures (for example, German expressionist cinema, Italian cinema, American comedy).

Students must take one term course on the creative process in film. Appropriate courses are listed under "Production Seminars," but other courses in art, theater studies, or creative writing may be substituted with the permission of the director of undergraduate studies.

Area of concentration. With the help of the director of undergraduate studies in Film Studies, each student defines an area of concentration comprising six courses. The six courses should form a coherent program in which the study of film is integrated with a particular discipline (history of art, literature, philosophy, the social sciences) or area of investigation (film theory, production, race and gender, photography, national or regional cultures and their cinemas). The focus of the concentration might also be a given historical or theoretical problem drawn from two areas, such as German expressionism in film and in art or narrative theory in film and in the novel. Students choosing a production-related concentration must take at least seven critical studies courses in the major. FILM 150a, 320a or b, 330b, 340b, and the two required courses on national cinemas may be counted among the seven. Critical studies courses are defined as those not listed under "Production Seminars."

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. 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 491a, 492b). This option is intended for students with clearly defined topics that do not relate closely to a senior-level seminar. During the first two weeks of the first term of senior year, a petition for permission to do independent research should be submitted to the director of undergraduate studies in the form of a brief prospectus, approved by the proposed faculty adviser to the essay. 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 491a or 492b), 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 area of concentration. In researching and writing the essay, the student should consult regularly with the seminar instructor, supplying preliminary drafts as appropriate, and may consult with other faculty members as well.

Students who wish to complete a senior project as an alternative to an essay petition the Film Studies Committee for approval of their project at the end of the junior year. Alternative projects might include writing a screenplay in Advanced Screenwriting (FILM 487) or producing a videotape. 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 videotapes are admitted to either the Fiction Film Workshop (FILM 483) or the Documentary Film Workshop (FILM 455), and receive three credits for their projects (two credits for FILM 483 or 455, and one for FILM 493a or 494b). Such a choice effectively commits students to one extra course in addition to the fourteen courses required for the major, because FILM 493a or 494b does not count toward the fourteen required courses when taken in conjunction with FILM 483 or 455. Students may undertake a production project outside the workshops if (1) the Film 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 493a and 494b toward the fourteen courses required for the major.

Majors graduating in December must submit their senior seminar essays or senior projects to the director of undergraduate studies by December 1; those graduating in May, by April 24. A second reader assigned by the director of undergraduate studies will participate in evaluating the essay or project. In order to graduate from Yale College, a student majoring in Film Studies must achieve a passing grade on the senior seminar essay or senior project.

Admission to senior-level seminars is at the instructor's discretion, but the Film Studies program will ensure that every senior major gains admission to the required number of seminars.

The intensive major. Students of substantial accomplishment and commitment to film studies may wish to pursue the intensive major. Students in the intensive major complete a senior project in production and also write a senior essay on an unrelated topic. The intensive major in Film Studies is intended for students who are not pursuing two majors. Students must request approval from the Film Studies Committee at the end of their junior year by submitting a proposal that outlines their objectives and general area of study.

All majors. Study of relevant foreign languages is urged for all Film 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.

Film Studies draws on the resources of many 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 concentration for each student normally determines the relevance and acceptability of other courses.

REQUIREMENTS OF THE MAJOR

Prerequisite: FILM 150a

Number of courses: Fourteen term courses, including the prerequisite and senior requirement

Distribution of courses: Six courses in area of concentration; two courses in different national cinemas; one course in production; if concentration is production-related, minimum of seven critical studies courses

Specific courses required: FILM 320a or b, and either 330b or 340b

Senior requirement: Two terms of senior-level sems, or two terms of senior essay (FILM 491a, 492b), or one term of each; or two terms of senior project (FILM 455 or 483 or 487)

Intensive major: Senior essay and senior project

REQUIRED COURSES

FILM 150a, INTRODUCTION TO FILM STUDIES. Terri Francis.

MWF 11.30-12.20; *screenings* T 7 or 9.30 P.M. II WR, Hu (34)

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.*

*FILM 320a or b/*HSAR 490a or b, CLOSE ANALYSIS OF FILM.

II; Not CR/D/F Hu

320a: T 1.30-3.20; *screenings* M 9 P.M. (26) Noa Steimatsky

320b: W 1.30-3.20; *screenings* T 7 P.M. (36) Staff

Exploration of ways in which traditional genres and alternative film forms establish or subvert convention in expectation, thematic and ideological concerns, narrative containment and excess, the representation of the body, the use of music and voice, and the construction of space in the cinema. Close analysis of expressive techniques of cinematic image and sound in a selection of Hollywood and European films. *Prerequisite:* FILM 150a.

[FILM 330b, FILM THEORY AND AESTHETICS]

FILM 340b/LITR 352b, ISSUES IN CONTEMPORARY FILM THEORY.

Thomas Elsaesser.

MWF 12.30-1.20; *screenings* HTBA I or II; Not CR/D/F Hu (35)

A survey of contemporary theoretical issues in the study of film. Topics include problems of narrative, film genre, self-reflexivity, spectatorship, psychic dynamics of viewing, sound and voice in cinema, avant-gardism, and films as commodity and utopian fantasy. Readings with weekly film viewings, including films from Malick, Buñuel, Clouzot, Lyne, Wenders, the Coen brothers, von Sternberg, Cronenberg, Scorsese, Renais, Godard, and Fellini. *After* FILM 150a or LITR 300b or with permission of instructor.

NATIONAL CINEMAS

FILM 315b/KREN 251b, KOREAN CINEMA AFTER 1961. Seungja Choi.

For description see under East Asian Languages & Literatures.

FILM 321b, HOLLYWOOD IN THE TWENTY-FIRST CENTURY. Ron Gregg.

TTh 11.30-12.45; *screenings* SU 7 P.M. II; Not CR/D/F Hu (o)

Examination of how globalization and the global success of American films have affected Hollywood film production, stardom, distribution, and exhibition, as well as the aesthetics of film image, sound, and narration. Topics also include the effects of new digital technologies on film aesthetics, spectacle, spectatorship, and exhibition, and the responses of independent and other national cinemas to Hollywood's hegemony.

[FILM 323a, AMERICAN AVANT-GARDE CINEMA]

FILM 328b/HSAR 342b/ITAL 305b, ITALIAN FILM, 1960-1975.

Noa Steimatsky.

For description see under History of Art.

★FILM 370a/★AFAM 242a, AFRICAN AMERICAN CINEMA. Terri Francis.

Th 1.30-3.20; *screenings* W 9.30 P.M. II; Not CR/D/F Hu (o)

A survey of African American cinema from Oscar Micheaux's *Within Our Gates* (1919) to Julie Dash's *Daughters of the Dust* (1991) and beyond. Topics include the concept of a black aesthetic, the relationship between commercial and independent filmmaking practices, and the question of genre.

★FILM 414b/★THST 354b, IRISH CINEMA. Murray Biggs.

TTh 9-10.15; *screenings* HTBA I or II; Not CR/D/F Hu

Meets RP (o)

Examination of social, political, and aesthetic issues in films from or about Ireland. Topics include the Irish diaspora and Ireland's connections with Britain and the United States. Works studied include the films *Man of Aran*, *The Quiet Man*, *My Left Foot*, and *The Miracle*; plays and fiction by Joyce, O'Casey, Behan, Friel, and Doyle, and the corresponding films.

★FILM 420a/★AMST 341a/★HSAR 413a, THE VISUAL CULTURE OF THE AMERICAN HOME FRONT, 1941-1945. Alexander Nemerov.

For description see under History of Art.

★FILM 425b^G/★AFAM 419b^G/★WGSS 341b, BLACK WOMEN'S FILM AND VIDEO. Terri Francis.

For description see under Women's, Gender, & Sexuality Studies.

★FILM 426a^G/★AMST 430a^G, CONTEMPORARY DOCUMENTARY FILM AND VIDEO. Charles Musser.

For description see under American Studies.

★FILM 427a/★AMST 319a, AMERICAN DOCUMENTARY FILMS.

Michael Roemer.

For description see under American Studies.

★FILM 437b/★AMST 428b/★ANTH 428b, FILM NOIR AND AMERICAN CULTURE OF THE 1940S AND 1950S. John Szwed.

For description see under American Studies.

FILM 456b/ITAL 308b, COMEDY IN ITALIAN CINEMA. Francesco Casetti.

For description see under Italian.

FILM 460a/HIST 224a/ITAL 323a, MODERN ITALY: HISTORY AND FILM.
Millicent Marcus, Frank Snowden.
For description see under History.

★FILM 461aG/★ENGL 384a, BRITISH CINEMA. Katie Trumpener.
M 1.30-3.20; *screenings* SU 7 P.M. I or II Hu (o)

Survey of the British film tradition, emphasizing overlaps 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.

★FILM 466bG/★GMST 370b/★LITR 379b, THE FILMS OF FASSBINDER,
HERZOG, AND WENDERS. Brigitte Peucker.
T 3.30-5.20; *screenings* M 7 P.M. II; Not CR/D/F Hu (o)

The three major directors of the New German Cinema. Topics include cultural politics, specifically questions of gender, race, and national identity, with special attention to Weimar and Nazi cinematic models; intermediality; the influence of Hollywood; and postmodernism. *Readings in English; conducted in English.*

★FILM 467a/★AMST 308a, THE FILMS OF WOODY ALLEN, SPIKE LEE, AND
MARTIN SCORSESE. Michael Kerbel.
For description see under American Studies.

[FILM 468aG/GMAN 405aG/GMST 405aG/LITR 394a, WEIMAR CINEMA]

FILM THEORY, AUTHORSHIP, AND SPECIAL TOPICS

[FILM 099a/LITR 099a, FILM AND THE ARTS]

FILM 240b/LITR 143b, WORLD CINEMA. Dudley Andrew.
For description see under Literature.

FILM 318b/PLSC 352b, POLITICS AND FILM. Stathis Kalyvas.
For description see under Political Science.

★FILM 319a/★EALL 215a/★EAST 403a, EAST ASIAN CINEMA AND
TRANSNATIONAL TROPES. Jinhee Choi.
For description see under East Asian Studies.

★FILM 336a/★AFAM 323a/★ANTH 304a, JAZZ AND FILM. John Szwed.
For description see under Anthropology.

★FILM 364a/★CZEC 246a/★RSEE 240a, MILOS FORMAN AND HIS FILMS.
Karen von Kunes.
For description see under Slavic Languages & Literatures.

★FILM 375a/★WGSS 375a, INTRODUCTION TO QUEER CINEMA.
Ron Gregg.

MW 11.30-12.45; *screenings* SU 7 P.M. II; Not CR/D/F Hu (o)
An introduction to queer film theory and history. Focus on queer representation in Hollywood film from its beginning to the present, with some attention to European and alternative cinemas. Topics include the impact of censorship, the shifting codes used to connote queerness when it was prohibited, and ways that different audiences read these codes.

★FILM 405b/★AMST 412b/★HIST 456b, FILM AND HISTORY. Seth Fein.
For description see under History. (Formerly FILM 367b)

[FILM 411a/LITR 380a, THE FILMS OF ALFRED HITCHCOCK]

★FILM 434a/★HSAR 496a/★LITR 370a, SURREALISM AND CINEMA.
Noa Steimatsky.
For description see under History of Art.

★FILM 442a/★LITR 403a, THE CITY IN LITERATURE AND FILM.
Katerina Clark.
For description see under Literature.

[FILM 444a^G, ETHNOGRAPHIC DOCUMENTARY]

[FILM 447b/LITR 447b, SPATIAL DIMENSIONS IN CINEMA]

★FILM 451b/★AMST 442b, DOCUMENTARY AND WAR. Charles Musser.
W 1.30-3.20 II; Not CR/D/F Hu Meets RP (○)
Examination of the ways that armed conflict has been represented in nonfiction film from the Spanish American War to the present. Emphasis on the Vietnam War and the current war in Iraq. Films include *Let There Be Light, Why Vietnam? Year of the Pig, Fog of War, Fahrenheit 9/11*, and *Off to War*.

★FILM 473a/★FREN 448a/★HUMS 388a/★LITR 448a, FRENCH-AMERICAN FILM RELATIONS. Dudley Andrew, David Bromwich.
W 1.30-3.20 II; Not CR/D/F Hu (○)
An exploration of cultural interchange between France and the United States during the middle of the twentieth century. Focus on film, fiction, and criticism, with some attention to jazz. Discussion of how the arts of each culture were received by the other and what effects this had on cultural politics and artistic style.

★ANTH 402a^G, VISUAL ANTHROPOLOGY AND ETHNOGRAPHIC FILM.
Karen Nakamura.

★THST 240b, MELODRAMA. Paul McKinley.

PRODUCTION SEMINARS

★FILM 350a *or* b, SCREENWRITING. Marc Lapadula.
350a-1: Th 3.30-5.20 II; Not CR/D/F (○)
350a-2: Th 11.30-1.20 II; Not CR/D/F (○)
350b: Th 3.30-5.20 II; Not CR/D/F (○)

A seminar and workshop in screenplay writing. Students learn the basics of the craft by reading existing scripts, looking at films from a writer's perspective, and writing a short screenplay. *Enrollment in FILM 350a, section 1, and 350b limited to junior Film Studies majors. Prerequisite: FILM 150a.*

★FILM 455, DOCUMENTARY FILM WORKSHOP. Chris Hegedus [F],
D. A. Pennebaker [Sp].
W 11.30-2.20 II; Not CR/D/F Meets RP (○)

A workshop designed primarily for Film Studies majors making documentaries as senior projects. *Seniors in majors other than Film Studies admitted as space permits.*

★FILM 483/★ART 442, FICTION FILM WORKSHOP. Jonathan Andrews.
For description see under Art.

★FILM 487, ADVANCED SCREENWRITING. Marc Lapadula.
Th 1.30-3.20 II; Not CR/D/F (○)

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 Studies majors working on senior projects. Prerequisite: FILM 350a or b.*

- ★ART 136a or b, SMALL-CAMERA FILM PHOTOGRAPHY. Lisa Kereszi.
- ★ART 141a or b, THE LANGUAGE OF FILM WORKSHOP.
Michael Roemer [F], Sandra Luckow [Sp].
- ★ART 341a or b, INTERMEDIATE FILM WORKSHOP. Michael Roemer [F],
Sandra Luckow [Sp].
- ★ENGL 453a/★THST 320a, PLAYWRITING. Donald Margulies.
For description see under English Language & Literature.
- ★ENGL 462b, WRITING FOR TELEVISION. Amy Bloom.
- ★MUSI 295a, PRACTICAL APPLICATIONS IN MUSIC, MULTIMEDIA ART,
VIDEO, AND TECHNOLOGY I. Staff.
- THST 111b, SURVEY OF THEATER AND DRAMA. Joseph Roach.
- ★THST 321a, PRODUCTION SEMINAR: PLAYWRITING. Deb Margolin.
- ★THST 322b, PRODUCTION SEMINAR: ADVANCED PLAYWRITING.
Deb Margolin.
- ★THST 324a, PRODUCTION SEMINAR: PLAYWRIGHT-DIRECTOR
LABORATORY. Toni Dorfman.

INDIVIDUAL RESEARCH AND SENIOR ESSAY COURSE OR PROJECT

- ★FILM 471a or b, INDEPENDENT DIRECTED STUDY. Director of
undergraduate studies.
HTBA II; Not CR/D/F (○)
For students who wish to explore an aspect of film studies not covered by exist-
ing 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 under-
graduate 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 491a and 492b, THE SENIOR ESSAY. Director of undergraduate
studies.
HTBA II; Not CR/D/F (○)
An independent writing and research project. A prospectus signed by the stu-
dent'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 undergradu-
ate studies approximately one month before the final draft is due. Essays are nor-
mally thirty-five pages long (one term) or fifty pages (two terms).
- ★FILM 493a and 494b, THE SENIOR PROJECT. Director of undergraduate
studies.
HTBA II; Not CR/D/F (○)

For students making a film or videotape, either fiction or nonfiction, as their senior project. Senior projects require the approval of the Film 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 or 483.*

OTHER COURSES PERTINENT TO FILM

LITR 300b^G/ENGL 300b, INTRODUCTION TO THEORY OF LITERATURE.

Paul Fry.

For description see under Literature.

★PLSC 204a, ETHICS AND THE MEDIA. Stanley Flink.

PORT 246a/SPAN 245a, LATIN AMERICAN FILM: BRAZIL, MEXICO, AND ARGENTINA. Paulo Moreira.

For description see under Portuguese.

★SPAN 223b, SPANISH IN FILM: AN INTRODUCTION TO THE NEW LATIN AMERICAN CINEMA. Margherita Tórtora.

FORESTRY & ENVIRONMENTAL STUDIES

Program adviser: John Wargo, 301 Prospect St., 432-5123, john.wargo@yale.edu

The School of Forestry & Environmental Studies is primarily a graduate and professional program designed to train leaders to solve worldwide environmental problems and to provide new understanding of local and global environments through interdisciplinary research in the natural and social sciences. The School offers numerous courses to undergraduates in Environmental Studies, and undergraduates from any major can take courses in the School. Those undergraduates with significant interest should contact the School's undergraduate program adviser to discuss a five-year program of study that leads to the simultaneous award of the bachelor's and master's degrees. Courses listed below are specifically for undergraduates. Most graduate-level courses are open to qualified undergraduates. These courses are listed in the bulletin of the School of Forestry & Environmental Studies and most also appear in the bulletin of the Graduate School of Arts and Sciences.

Information about the programs of the School of Forestry & Environmental Studies may be found on the Web at www.yale.edu/environment. Most lectures and symposia are open to undergraduates.

Unless otherwise indicated, Group IV courses in Forestry & Environmental Studies count toward the natural science requirement for the Class of 2008 and previous classes.

★F&ES 011a, CHINA'S ENVIRONMENTAL ISSUES. Gordon Geballe.

TTh 9-10.15 Sc (○) Fr sem

Investigation of issues concerning water, air, and agriculture in China today. A rapidly expanding economy contrasted with a deteriorating environment in a country containing one-sixth of the world's human population. *Enrollment limited to freshmen.*

F&ES 117a/ECON 117a/EVST 117a, MICROECONOMICS WITH ENVIRONMENTAL APPLICATIONS. Sheila Olmstead.
For description see under Environmental Studies.

*F&ES 220bG/*EVST 220b, LOCAL FLORA. Thomas Siccama.
Th 1-5 IV; Not CR/D/F Meets RP (o)

A winter field course in the collection and identification of plants. Discussion and interpretation of the communities and ecosystems in which they occur.

*F&ES 221a/*E&EB 230aG/*EVST 221a, FIELD ECOLOGY. David Post.
For description see under Biology.

F&ES 245b/EVST 245b/PLSC 146b, INTERNATIONAL ENVIRONMENTAL POLICY AND GOVERNANCE. Benjamin Cashore.
For description see under Environmental Studies.

F&ES 255b/EVST 255b/PLSC 215b, ENVIRONMENTAL POLITICS AND LAW.
John Wargo.
For description see under Environmental Studies.

F&ES 260aG/EVST 260aG, STRUCTURE, FUNCTION, AND DEVELOPMENT OF TREES. Graeme Berlyn.
For description see under Environmental Studies.

F&ES 261LbG/EVST 261Lb, LABORATORY FOR STRUCTURE, FUNCTION, AND DEVELOPMENT OF VASCULAR PLANTS. Graeme Berlyn.
For description see under Environmental Studies.

F&ES 262a/EVST 262a, ECOLOGY AND ENVIRONMENTAL PROBLEM SOLVING. Oswald Schmitz.
For description see under Environmental Studies.

*F&ES 263La/*EVST 263La, LABORATORY FOR ECOLOGY AND ENVIRONMENTAL PROBLEM SOLVING. Oswald Schmitz.
For description see under Environmental Studies.

*F&ES 275aG/*EVST 275a, ECOSYSTEMS PATTERNS AND PROCESSES.
Thomas Siccama, Peter Raymond, Oswald Schmitz.
For description see under Environmental Studies.

*F&ES 276LaG/*EVST 276La, LABORATORY FOR ECOSYSTEMS PATTERNS AND PROCESSES. Peter Raymond, Thomas Siccama.
For description see under Environmental Studies.

F&ES 307bG/EVST 307b, ORGANIC POLLUTANTS IN THE ENVIRONMENT.
Shimon Anisfeld.
For description see under Environmental Studies.

F&ES 315a/E&EB 115aG, CONSERVATION BIOLOGY. L. Kealoha Freidenburg.
For description see under Biology.

*F&ES 344bG/*EVST 344b, AQUATIC CHEMISTRY. Gaboury Benoit.
For description see under Environmental Studies.

F&ES 360bG/E&EB 360b/EVST 360b, WILDLIFE CONSERVATION ECOLOGY.
Oswald Schmitz.
For description see under Environmental Studies.

F&ES 365a^G/E&EB 365a/EVST 365a, LANDSCAPE ECOLOGY. David Skelly.
For description see under Environmental Studies.

*F&ES 370a^G/*E&EB 370a^G/*EVST 370a, AQUATIC ECOLOGY. David Skelly.
For description see under Environmental Studies.

F&ES 440a^G/EVST 440a, ENVIRONMENTAL HYDROLOGY. James Sainers.
For description see under Environmental Studies.

COURSES IN THE SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES

For listings and detailed descriptions of professional school courses, consult the bulletin of the School of Forestry & Environmental Studies, or see www.yale.edu/environment.

FRENCH

Director of undergraduate studies: Julia Prest, Rm. 324, 82–90 Wall St.,
432-4902, dus.french@yale.edu

FACULTY OF THE DEPARTMENT OF FRENCH

PROFESSORS

Ora Avni, R. Howard Bloch, Edwin Duval, Marie-Hélène Girard (*Visiting*),
Thomas Kavanagh, (*Chair*), Christopher L. Miller, Patrick Wald-Lasowski (*Visiting*)

ASSOCIATE PROFESSORS

Catherine Labio, Farid Laroussi, Donia Mounsef, Jean-Jacques Poucel

ASSISTANT PROFESSOR

Julia Prest

LECTURERS

Diane Charney, Caroline Hatton, Maryam Sanjabi, Alyson Waters

SENIOR LECTORS

Ruth Koizim, Matuku Ngame, Lauren Pinzka, Françoise Schneider

LECTORS

Anne Ambrogelly, Marie-Dominique Boyce, Soumia Koundi

Students who major in French become proficient in spoken and written French, gain firsthand access to the works of influential writers, philosophers, filmmakers, artists, and scientists, and acquire an extensive knowledge of French and francophone literatures, societies, and cultures.

French is spoken by nearly 200 million Francophones in more than fifty countries. It is used as an official working language in dozens of international organizations—including the United Nations, the International Monetary Fund, NATO, and the Council of Europe—and in nongovernmental organizations such as Amnesty International and *Médecins sans frontières* (Doctors without Borders). The French major is of particular relevance to students interested in careers in international law, business, or government, all of which require advanced training in a major world language, in-depth understanding of a foreign culture, and the critical skills a liberal arts major fosters. French majors also pursue careers in fields such as communications, journalism, secondary and higher education, scientific research, medicine, museology, the arts, publishing, translation, fashion, and the culinary arts.

Students are encouraged to create an individual program of study and to take courses in other departments and programs, including African American Studies, African Studies, Film Studies, History, History of Art, Humanities, International Studies, Literature, Music, Philosophy, Political Science, Renaissance Studies, Theater Studies, and Women's, Gender, and Sexuality Studies. The department is also committed to working closely with students who wish to complete a second major and those who wish to earn certification as a teacher of French through the Teacher Preparation and Education Studies program.

Students who are contemplating a major in French should consult with the director of undergraduate studies as early as possible in order to plan a coherent program of study that reflects their personal interests and goals.

Study abroad. Students are urged to consider a junior year or term abroad, for which appropriate course credit is granted. Summer study abroad may also, in some cases, receive course credit. Further information may be obtained from the Office of International Education and Fellowship Programs (www.yale.edu/iefp) and from Ruth Koizim, the study abroad adviser for the Department of French.

Prerequisites. Candidates for the major should fulfill one of the following options by the end of the sophomore year: 1) two term courses in the FREN 138–149 range; or 2) two term courses in the FREN 150 or higher range (only one of which may be in the FREN 170–199 range). If the second option is used as a prerequisite, the two courses may be counted as two of the twelve term courses required for the major. The director of undergraduate studies may make exceptions in the case of outstanding students who have not satisfied these prerequisites.

The standard major. The standard major consists of twelve term courses from Group B (described below), including the senior essay. Two courses must be advanced seminars in the FREN 300–449 range (only one of which may be a Group C course). No more than three courses may be in the FREN 150–199 range. Two term courses in Group C may count toward the major. With prior approval of the director of undergraduate studies, a third Group C course may count toward the major for a student with an exceptionally strong background in French. With prior approval of the director of undergraduate studies, up to four term courses taught outside the department but bearing directly on the student's principal interest may be counted toward the major. Exceptions of up to two additional term courses may be made in the case of outstanding students for courses taught in French as part of a Junior Year or Term Abroad program. The maximum number of term courses in English that may count toward the major is five.

Senior requirement. Seniors must submit a senior essay, in French or in English, to the department by November 17 (fall term) or April 23 (spring term). The student normally completes the essay while enrolled in FREN 491a or b and works under the direction of a faculty adviser. A preliminary statement indicating the general area to be addressed and the name of the adviser must be submitted to the director of undergraduate studies by September 22 (fall-term essay) or November 17 (spring-term essay). A one-page prospectus and bibliography are due September 29 (fall term) or January 26 (spring term). A rough draft must be submitted to the adviser by October 27 (fall term) or March 30 (spring term). The senior essay should give evidence of careful reading and research and substantial independent thought. Its length should be about thirty pages. Students planning to complete a yearlong

senior essay should consult the director of undergraduate studies for the relevant deadlines.

The intensive major. The intensive major is designed for students who wish to undertake a more extensive project of research and writing during their senior year. Requirements for the intensive major are the same as those for the standard major, except that two of the twelve upper-level term courses in French are devoted to the preparation of a senior essay (FREN 493) written in French or English under the direction of a faculty adviser and presented no later than April 23 of the senior year. Students must select their subject and adviser by the end of the junior year. The senior essay should be about sixty pages in length. For the Class of 2007 only, a nonnative speaker of French who writes a one-term essay in French (FREN 494a or b) is considered an intensive major. Students planning to pursue advanced work in French after graduation are encouraged to write their senior essay in French.

All majors. It is strongly recommended that all majors take at least one term course in the FREN 160–169 sequence. Students who intend to pursue graduate study in French should take courses pertaining to all historical eras, from the Middle Ages to the present. Majors and other qualified undergraduates may enroll in a graduate-level seminar with the approval of the director of undergraduate studies, the director of graduate studies, and the instructor.

Candidates for the major should consult the director of undergraduate studies no later than the fall term of the junior year. Schedules must be approved and signed by the director of undergraduate studies. Students planning to study abroad or to petition for completion of two majors should contact the director of undergraduate studies during the sophomore year. For the Class of 2009 and subsequent classes, courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

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 subjects elected from other departments. Close consultation with departmental advisers is required; candidates for a Special Divisional Major should consult the director of undergraduate studies in French by the fall term of the junior year. For further information about the Special Divisional Major see that heading below in this chapter.

Group A courses (FREN 100–149) consist of language courses that lead directly to courses counting toward the major. For further details, students should consult the *Freshman Handbook* or see the director of undergraduate studies.

Group B courses (FREN 150–494, not including Group C courses) are more advanced courses that are taught in French and count toward the major. Courses in the FREN 160–169 range are gateway courses that introduce students to the study of French and francophone literatures, societies, and cultures. Courses in the FREN 170–199 range are advanced language courses. Courses in the FREN 200–299 range help to make the transition from gateway courses to advanced seminars and introduce time periods, genres, and other key areas of French and francophone studies. Courses in the FREN 300–449 range are typically advanced, limited-enrollment seminars.

Group C courses are taught in English; readings may be in French or English. Two term courses from this group may be counted for credit toward the major.

Group D courses are taught in other departments but may count toward the French major, with permission of the director of undergraduate studies.

Placement. Proper placement is essential for productive language study. All students who have not yet taken French at Yale are expected to take the departmental placement test, with the exception of students who have no previous knowledge of French whatsoever and those enrolling in courses designated L5.

The departmental placement test will be given at the beginning of the fall term on Sunday, September 3, at 2 P.M. (A–M) and on Monday, September 4, at 2 P.M. (N–Z).

• **Foreign language requirement (Class of 2008 and previous classes).** Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in French by a score of 4 or higher on either of the Advanced Placement tests in French (French Language, French Literature). The requirement may also be met by successful completion of FREN 132b, Intensive Intermediate and Advanced French, or of FREN 131a or b, Intermediate and Advanced French II, or of any French course numbered higher than 131 that is conducted in French. Alternatively, students may satisfy the requirement by passing a departmental examination covering reading, writing, and listening skills equivalent to those represented by the successful completion of FREN 131a or b.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisites: Two term courses in the FREN 138–149 range; or two term courses in the FREN 160 or higher range (only one of which may be in the 170–199 range)

Number of courses: Twelve term courses from Group B beyond prerequisite (including the senior essay); ten term courses for students whose prerequisites include two courses in the FREN 160 or higher range

Distribution of courses: No more than three term courses in the FREN 150–199 range; at least two term courses in the FREN 300–449 range (one of which must be taught in French)

Substitutions permitted: Two term courses in Group C for two courses in Group B; with prior approval of DUS, up to four term courses taken outside the French dept for courses in Group B

Senior requirement: Senior essay in French or English (FREN 491a or b)

Intensive major: *Class of 2008 and later*—for the senior requirement, two-term senior essay in French or English (FREN 493); *Class of 2007*—the same, or one-term essay in French by nonnative speakers of French

GROUP A COURSES

Preregistration, which is required for courses numbered from 100 to 149, is held at the beginning of the fall term.

FREN 115, ELEMENTARY AND INTERMEDIATE FRENCH. Matuku Ngame and staff.

5 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L1–L2 3 C Credits Meets RP (61) Cr/Year only

Through extensive use of audio and video material, the course provides intensive training and practice in all the language skills, with an initial emphasis on

listening and speaking. Authentic, unsimplified French is used as in actual situations. Emphasis on communicative proficiency, self-expression, and cultural insights. Mandatory weekly tests given on Monday at 30-minute intervals from 5 to 8.30 P.M. To be followed by FREN 130a or b. *Conducted entirely in French. Daily classroom and laboratory attendance is required. For students with no previous study of French. Preregistration required.*

FREN 117a, INTENSIVE ELEMENTARY FRENCH. Anne Ambrogely and staff.

Lect. MWF 9.30-10.20; *practice* MTWThF 10.30-11.20; *weekly test* T 11.30-12.20
I; Not CR/D/F L1-L2 2 C Credits Meets RP (32)

An accelerated course in French that covers in one term the material taught in FREN 115. Through extensive use of audio and video material, the course provides intensive training and practice in all the language skills, with an initial emphasis on listening and speaking. Provides a maximum of contact hours with native speakers. Admits to FREN 132b. *Conducted entirely in French. For students with no previous knowledge of French.* (Formerly the first term of FREN 125)

FREN 118a, INTERMEDIATE FRENCH. Marie-Dominique Boyce.

MTWThF 9.30-10.20 I; Not CR/D/F L2 1½ C Credits
Meets RP (32)

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 discussions 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. Preregistration, which is required, is on Tuesday, September 5, from 2 to 4.30 P.M. in LC 101.*

★FREN 120a or b, FRENCH FOR READING. Maryam Sanjabi.

2 HTBA I (61)

Fundamental grammar structures and basic vocabulary 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. *Conducted in English. Does not satisfy the language requirement.*

FREN 130a or b, INTERMEDIATE AND ADVANCED FRENCH I.

Ruth Koizim, Soumia Koundi, and staff.

5 HTBA For sections see www.yale.edu/courseinfo I; Not CR/D/F L3
1½ C Credits Meets RP (61)

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, plays, novels, and films. Admits to FREN 131a or b. *Conducted entirely in French. After FREN 115, FREN 118a, or a satisfactory placement test score. Preregistration, which is required, is on Tuesday, September 5, from 2 to 4.30 P.M. in LC 101.*

FREN 131a or b, INTERMEDIATE AND ADVANCED FRENCH II.

Ruth Koizim, Soumia Koundi, and staff.

5 HTBA For sections see www.yale.edu/courseinfo I; Not CR/D/F L4
1½ C Credits Meets RP (61)

The second 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. 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 138a or 139b. *Conducted entirely in French. After FREN 130a or b, or a satisfactory placement test score. Preregistration, which is required, is on Tuesday, September 5, from 2 to 4:30 P.M. in LC 101.*

FREN 132b, INTENSIVE INTERMEDIATE AND ADVANCED FRENCH.

Anne Ambrogelly and staff.

Lect. MWF 9.30–10.20; *practice* MTWThF 10.30–11.20; *weekly test* T 11.30–12.20

I; Not CR/D/F L3–L4 2 C Credits Meets RP (32)

An accelerated course in French that covers in one term the material taught in FREN 130a or b and 131a or b. Continued practice in the four language skills. Emphasis on grammar review, writing practice, and vocabulary enrichment through the study of novels, short stories from the francophone world, films, and other media. Admits to FREN 138a. *Conducted entirely in French. After 117a or 115 or with permission of the course chair and a satisfactory placement test score.* (Formerly the second term of FREN 125)

FREN 138a, ADVANCED LANGUAGE PRACTICE I. Françoise Schneider and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L5 (61)

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. *Recommended for students planning to use the language practically and as a preparation for higher-level courses in both language and literature. After FREN 131a or b or 132b or a satisfactory placement test score. May be taken after FREN 139b.*

FREN 139b, ADVANCED LANGUAGE PRACTICE II. Françoise Schneider and staff.

3 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L5 (61)

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. Emphasis on oral practice through debates and presentations on current events. *Recommended for students planning to use the language practically and as a preparation for higher-level courses in both language and literature. After FREN 131a or b or 132b or a satisfactory placement test score. May be taken independently of 138a.*

GROUP B COURSES

Courses numbered from 150 to 199, unless otherwise indicated, are open to students who have passed two courses in the FREN 138–149 range and to others with consent of the department. Courses numbered from 200 to 449 are open to students who have passed a course in the FREN 160–165 range, or with permission of the instructor. Unless otherwise indicated, Group B courses are conducted entirely in French.

FREN 150a or b, ADVANCED CULTURE AND CONVERSATION.

Françoise Schneider and staff.

3 HTBA For sections see www.yale.edu/courseinfo I L5
Meets RP (61)

Intensive oral practice designed to further skills in listening comprehension, speaking, and reading through the use of videos, films, fiction, audiovisual materials, and articles. Special emphasis on discussing contemporary French and francophone cultures. Class activities include debates, presentations, songs, and skits. *After FREN 138a, 139b, or a satisfactory placement test score. May not be taken for credit after courses numbered 160 or higher.*

Gateway Courses

FREN 160a or b, INTRODUCTION TO THE STUDY OF LITERATURE IN FRENCH. Farid Laroussi [F], Lauren Pinzka [Sp].

3 HTBA For sections see www.yale.edu/courseinfo
I; Not CR/D/F L5, Hu (61)

Introduction to close reading and analysis of literary texts written in French. Works by authors such as Marie de France, Molière, Balzac, Hugo, Baudelaire, Césaire, and Duras.

FREN 162b, FRENCH AND FRANCOPHONE CULTURAL HISTORY.

Farid Laroussi.

TTh 11.30-12.45 I; Not CR/D/F L5, Hu (24)

An interdisciplinary introduction to French and francophone cultural history organized around a particular theme or topic such as *gastronomie/logie*, fashion, travel, culture and the state, or Cartesianism and French identity.

FREN 164a, CONTEMPORARY FRENCH AND FRANCOPHONE SOCIETIES AND CULTURES. Marie-Hélène Girard.

MW 9-10.15 I; Not CR/D/F L5, Hu (0)

Introduction to contemporary French and francophone societies and cultures, with an emphasis on political, social, and institutional issues. Organized around a particular theme or topic, such as *la francophonie*, identity and memory, class and citizenship, or the history of French-American relations.

FREN 165a, LITERARY ANALYSIS AND THEORY. Ora Avni.

TTh 11.30-12.45 I; Not CR/D/F L5, Hu (0)

Intensive practice in key techniques of writing about French literature, with a focus on acquiring and developing analytical tools and critical vocabulary through various hermeneutic approaches. Study of selected literary and critical texts, including works of poetry, fiction, and theater, culled from various eras. *Designed to supplement FREN 160a or b. Recommended for prospective majors and students with a primary interest in literary studies.*

Advanced Language Courses

★FREN 185a, TRANSLATION. Alyson Waters.

W 3.30-5.20 I L5, Hu (0)

An introduction to the practice and theory of literary translation, conducted in workshop format. Stress on close reading, with emphasis initially on grammatical structures and vocabulary, subsequently on stylistics and aesthetics. Texts selected by virtue of the stylistic, cultural, or theoretical problems they present. Additional attention paid to translation as a means to understand and communicate cultural difference in the case of French, African, Caribbean, and Québécois authors. Texts by Benjamin, Beckett, Borges, Steiner, and others. *Readings in French and in English. After FREN 138a and 139b or with permission of instructor. Preference given to juniors and seniors.*

★FREN 195b, ADVANCED WRITING WORKSHOP. Maryam Sanjabi.

MW 2.30-3.45 I; Not CR/D/F L5 (○)

An advanced writing course for students who wish to work intensively on perfecting their written French. Frequent compositions of varying lengths, including creative writing, *rédactions* (compositions on concrete topics), and *dissertations* (critical essays). After FREN 138a, 139b, or a satisfactory placement test score. Recommended for prospective majors. (Formerly FREN 155b)

Introductory Topics

★FREN 212b, INTRODUCTION TO MEDIEVAL FRENCH LITERATURE.

Caroline Hatton.

TTh 2.30-3.45 I; Not CR/D/F L5, Hu (○)

A survey of the major literary forms of the eleventh through thirteenth centuries in their social and cultural contexts. Study of allegory, epic, *fabliau*, hagiography, *lai*, lyric and narrative poetry, and prose and verse romance.

★FREN 221a, INTRODUCTION TO THE FRENCH ENLIGHTENMENT.

Thomas Kavanagh.

MW 11.30-12.45 I L5, Hu (○)

Study of the French Enlightenment as a crucial transition from *ancien régime* absolutism to modernity. Topics include the heritage of absolutism, *libertinage* and the rococo, new relations between the public and private spheres, changing constructions of identity and gender, and the role of the *philosophes* in the coming of the Revolution. Authors include La Bruyère, Montesquieu, Prévost, Marivaux, Voltaire, Rousseau, Laclos, Beaumarchais, Mercier, Mirabeau, Olympe de Gouges, and Sade. Examination of paintings by Watteau, Chardin, Boucher, Fragonard, and Greuze, as well as cinematic representations of the period by Leconte, Frears, and Renoir.

FREN 252b, ON NARRATIVE: *LE RÉCIT*. Ora Avni.

TTh 11.30-12.45 I L5, Hu (24)

An examination of the nineteenth-century French short story, with emphasis on the narrative voice. Authors may include Gautier, Balzac, Mérimée, Maupassant, Flaubert, Barbey d'Aureville, Nerval, Loti, and Daudet. Short theoretical texts by Todorov, Genette, and Prince.

★FREN 269b/★LITR 345b, FRANCO-BELGIAN COMIC STRIPS.

Catherine Labio.

TTh 2.30-3.45 I; Not CR/D/F L5, Hu (○)

Study of Franco-Belgian comic strips, or *bandes dessinées* (*B.D.*), as a narrative and visual art form, with attention to historical, formal, theoretical, and cultural perspectives. Works by Hergé, Franquin, Uderzo and Goscinny, Bretécher, Tardi, Schuiten and Peeters, David B., Satrapi, and others. Consideration of medieval illuminated manuscripts and tapestries, narrative and historical paintings, eighteenth-century prints, nineteenth-century pioneer works by Doré, Busch, and Töpffer, and early twentieth-century series such as Caumery and Pinchon's *Bécassine* and Winsor McKay's *Little Nemo*. Theoretical readings on the relationship among text, image, and narratology.

Advanced Topics

★FREN 324b, MOLIÈRE, MARIVAUD, AND THEORIES OF COMEDY.

Julia Prest.

MW 11.30-12.45 I; Not CR/D/F L5, Hu (34)

A study of the work of Molière, France's greatest comic playwright, and of Marivaux, one of his most important successors, in the context of theater history

and comic theory. Plays include *L'Ecole des femmes*, *Le Tartuffe*, *Le Bourgeois gentilhomme*, *Le Triomphe de l'amour* and *L'Ile des esclaves*. Theoretical works by Aristotle, Bergson, Freud, and others.

★FREN 375a, THE NINETEENTH-CENTURY NOVEL.

Patrick Wald-Lasowski.

MW 9-10.15 I; Not CR/D/F L5, Hu (o)

The rise of the novel in France from romanticism to decadence, with a focus on realism. Careful consideration of fiction and short polemical texts. Readings include works by Balzac, Stendhal, Hugo, Flaubert, Zola, and Huysmans.

★FREN 394b, THE CONTEMPORARY FRENCH NOVEL. Alyson Waters.

W 3.30-5.20 I; Not CR/D/F L5, Hu (o)

A study of novels that have appeared in France within the past five years, with attention to current French literary trends. Secondary readings from the French literary press. Authors include Rene Belletto, Tonino Benacquista, Jean Echenoz, Yasmina Khadra, Amelie Nothomb, and Fred Vargas.

★FREN 401a, MARCEL PROUST'S *A LA RECHERCHE*. Farid Laroussi.

TH 9-10.15 I; Not CR/D/F L5, Hu (o)

Exploration of important themes in Marcel Proust's *A la recherche du temps perdu* through the close reading of three volumes: *Du côté de chez Swann*, *Le côté de Guermantes II*, and *Le temps retrouvé*. Analysis of Proust's theory of time and consciousness. Additional readings in theories of literature and memory. Emphasis on reading for narrative technique, social discourse, and the function of humor.

SPECIAL TUTORIAL AND SENIOR COURSES

★FREN 470a and 471b, SPECIAL TUTORIAL FOR JUNIORS AND SENIORS.

Director of undergraduate studies.

HTBA I; Not CR/D/F (o)

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 degree.

★FREN 491a or b, THE SENIOR ESSAY IN THE STANDARD MAJOR.

Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

A one-term research project completed under faculty supervision and resulting in a substantial paper in French or English.

★FREN 493, THE SENIOR ESSAY IN THE INTENSIVE MAJOR. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o) *Cr/Year only*

A yearlong research project completed under faculty supervision and resulting in a paper of considerable length, in French or English.

★FREN 494a or b, THE SENIOR ESSAY IN FRENCH IN THE INTENSIVE MAJOR. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F 2 C Credits (o)

A one-term research project completed under faculty supervision and resulting in a substantial paper in French by a nonnative speaker of French. *For the Class of 2007 only.*

GROUP C COURSES

Courses in this group are conducted in English; readings may be in French or English. Group C courses are open to all students in Yale College.

★FREN 014a, THE COURT OF LOUIS XIV. Julia Prest.
MW 2.30-3.45 Hu (○) Fr sem

An interdisciplinary study of the court of the Sun King. Topics include the promotion of Louis XIV's official image, the king's mistresses, his participation in court ballets, the chateau of Versailles, satire of life at court, and the Affair of the Poisons. Sources include memoirs, ballet programs, plays, essays, pictures, secondary literature, and films. Readings in French. *Enrollment limited to freshmen.*

FREN 241a/ENGL 189a/HUMS 231a, WORD AND IMAGE IN THE MIDDLE AGES. R. Howard Bloch, Lee Patterson.
For description see under Humanities.

★FREN 356b/★LITR 417b, ROMANCE AND REALISM: THE NINETEENTH-CENTURY NOVEL. Peter Brooks.
For description see under Literature.

★FREN 357a/★HUMS 383a/★LITR 415a, ROUSSEAU, FREUD, PROUST. Peter Brooks.
For description see under Literature.

★FREN 448a/★FILM 473a/★HUMS 388a/★LITR 448a, FRENCH-AMERICAN FILM RELATIONS. Dudley Andrew, David Bromwich.
For description see under Film Studies.

GROUP D COURSES

Group D courses are taught in other departments but may count toward the French major, with permission of the director of undergraduate studies.

HIST 273a, EUROPE IN THE AGE OF TOTAL WAR, 1914–1945.
Jay Winter.

★MUSI 340b, LISTENING IN NINETEENTH-CENTURY PARIS.
Gundula Kreuzer.

FRESHMAN SEMINAR PROGRAM

The Freshman Seminar program offers a diverse array of courses open to freshmen and designed with freshmen in mind. Enrollment in seminars is limited to eighteen students. Most seminars meet twice each week and do not, unless otherwise noted, presume any prior experience in the field. Students must apply and preregister for freshman seminars over the summer before freshman year. To ensure that all applicants share an equal chance at being admitted to a seminar, students are assigned randomly from among those who apply before the published deadline. Students who apply after the deadline will be considered for placement only if space is available. Registration details and a complete list of courses may be found on line at www.yale.edu/yalecollege/freshmen/special/seminars.

For a full description of each seminar, see the course listings of the originating department.

- ★AMST 003b, AMERICAN LITERATURE AND WORLD RELIGIONS.
Wai Chee Dimock.
- ★APHY 050b, SCIENCE OF MODERN TECHNOLOGY. Daniel Prober.
- ★BENG 090a, STEM CELLS: SCIENCE AND POLITICS. Erin Lavik.
- ★CPSC 079b, DIGITAL PHOTOREALISM. Julie Dorsey.
- ★E&EB 081a, KEY ISSUES IN EVOLUTION. Stephen Stearns.
For description see under Biology.
- ★EENG 001a, INTRODUCTION TO NANOSCIENCE. Mark Reed.
- ★ENGL 131b, VERSIFICATION. Penelope Laurans.
- ★ENGL 132b, AUSTEN AND DICKENS. Traugott Lawler.
- ★F&ES 011a, CHINA'S ENVIRONMENTAL ISSUES. Gordon Geballe.
- ★FREN 014a, THE COURT OF LOUIS XIV. Julia Prest.
- ★G&G 095b, OUR CHANGING CLIMATE. Steven Sherwood.
- ★HIST 003a, CLASSICS OF WORLD HISTORY. Valerie Hansen.
- ★HIST 004a/★AMST 005a/★RLST 005a, AMERICAN RELIGION, AMERICAN LIFE. Jon Butler.
For description see under History.
- ★HIST 006a/★HSHM 005a, MEDICINE AND SOCIETY IN AMERICAN HISTORY. Rebecca Tannenbaum.
For description see under History.
- ★HIST 008a/★HUMS 080a/★RLST 001a, ESSENTIAL HERESIES. Carlos Eire.
For description see under History.
- ★HIST 009a/★HUMS 079a, THE VIKING AGE. Anders Winroth.
For description see under History.
- ★HIST 010a, POSTWAR AMERICA AT HOME: 1945–1960. Cynthia Russett.
- ★HIST 011b, AMERICA'S FOUNDING ERA. Joanne Freeman.
- ★HIST 014b, THE MAKING OF THE MODERN UNIVERSITY.
George Levesque.
- ★HSAR 005b/★HUMS 081b, MEDIEVAL CATHEDRALS PAST AND PRESENT.
Robert Nelson.
For description see under History of Art.
- ★HUMS 076a, EPIDEMICS IN GLOBAL PERSPECTIVE. William Summers.
- ★LITR 091a/★HUMS 077a, MODERNISM IN LITERATURE AND ARTS.
Pericles Lewis.
For description see under Literature.
- ★MCDB 060, TOPICS IN REPRODUCTIVE BIOLOGY. William Segraves.
For description see under Biology.

- ★MUSI 001a, EXPLORING THE NATURE OF GENIUS. Craig Wright.
- ★MUSI 022b/★HUMS 078b, MUSIC, LOVE, AND SEXUAL DESIRE IN MEDIEVAL EUROPE. Margot Fassler.
For description see under Music.
- ★NELC 001a/★ARCG 001a, EGYPT AND NORTHEAST AFRICA: A MULTIDISCIPLINARY APPROACH. John Darnell.
For description see under Near Eastern Languages & Civilizations.
- ★PHIL 080a, LIFE. Shelly Kagan.
- ★PHYS 095a, RADIATION, NUCLEAR PHYSICS, AND THE UNIVERSE. Peter Parker.
- ★PORT 001b, LATIN AMERICAN SHORT FICTION. Paulo Moreira.
- ★RLST 006b, THE HISTORICAL JESUS. Dale Martin.
- ★RUSS 022a, THE DIVINE AND THE HUMAN IN RUSSIAN FICTION. Vladimir Alexandrov.
For description see under Slavic Languages & Literatures.
- ★SCIE 030, CURRENT TOPICS IN SCIENCE. Charles Bailyn, Douglas Kankel.
- ★SOCY 041a, SOCIOLOGY OF SOCIAL CONTROL AND CRIMINAL JUSTICE. Philip Smith.
- ★SPAN 060a, FRESHMAN COLLOQUIUM: LITERARY STUDIES IN SPANISH. Jason Cortés.

GAY AND LESBIAN STUDIES

Gay and lesbian studies courses are offered through the Women's, Gender, and Sexuality Studies program. For a listing of Yale College courses and a description of the track in lesbian, gay, bisexual, transgender, and queer studies (LGBTQ), see under Women's, Gender, and Sexuality Studies.

GENDER STUDIES

(See under Women's, Gender, and Sexuality Studies.)

GEOLOGY AND GEOPHYSICS

Director of undergraduate studies: Robert Gordon, 207 KGL, 432-3125 [F]; Jay Ague, 216 KGL, 432-3171 [Sp]; dus@geology.yale.edu, www.yale.edu/geology

FACULTY OF THE DEPARTMENT OF GEOLOGY AND GEOPHYSICS

PROFESSORS

Jay Ague, David Bercovici, Robert Berner, Mark Brandon, Derek Briggs, Leo Buss, Michael Donoghue, Jacques Gauthier, Robert Gordon, Thomas Graedel, Leo Hickey (*Chair*), Shun-ichiro Karato, Jeffrey Park, Danny Rye, Adolf Seilacher (*Adjunct*), Brian Skinner, Ronald Smith, Karl Turekian, George Veronis, Elisabeth Vrba, John Wettlaufer

ASSOCIATE PROFESSORS

Peter Reiners, Steven Sherwood

ASSISTANT PROFESSORS

Ruth Blake, David Evans, Alexey Fedorov, Jun Korenaga, Mark Pagani

LECTURER

Catherine Skinner

The Geology and Geophysics program prepares students for the application of scientific principles and methods to the understanding of Earth and life as a system on a regional and a planetary scale. Subjects range from the history of Earth and life upon it to present-day environmental processes, integrating the study of Earth's deep interior, tectonic plates, oceans, atmosphere, land surface, natural resources, and biota. The emphasis of the curriculum is on developing and employing basic principles from the core sciences (physics, chemistry, biology) to further an understanding of Earth's past and present, and to address issues relating to its future. Students gain a broad background in the natural sciences, while also selecting a specific track to focus their work on planetary or environmental phenomena of particular interest. The B.S. tracks emphasize hands-on research experience in fieldwork, in laboratories, or in computer modeling. While some graduates continue on to research, consulting, or industrial careers in earth 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.

B.S. degree program. Majors in the B.S. program choose from four tracks: the atmosphere and ocean track, the environmental geosciences track, the paleontology and geobiology track, and the solid earth sciences track. The tracks are suggested pathways to professional careers and to major areas of research in geology and geophysics. Students may change tracks during their course of study with guidance from the director of undergraduate studies.

1. The *atmosphere and ocean track* provides a comprehensive understanding of the theory, observation, and prediction of the atmosphere-ocean-climate system. Topics range from past changes, including the ice ages, to present-day storms and weather, to forecasting climate change and global warming. The prerequisites are college-level chemistry (CHEM 113, 114, or 118a), physics (PHYS 180a, 181b and PHYS 165La, 166Lb), computing (ENAS 130b or equivalent), and mathematics through differential equations (MATH 120a or b and ENAS 194a or b). The major requirements consist of ten and one-half course credits beyond the prerequisites, including either the senior essay or the senior thesis. Students take one 100-level course or freshman seminar as an introduction to Earth processes (G&G 095b, 100a, 110a, 120b, 125b); a higher-level course in G&G can be substituted with the permission of the director of undergraduate studies. Core courses totaling five and one-half credits introduce students to the Earth's climate system (G&G 140a and 141La), meteorology (G&G 322a), physical oceanography (G&G 335a), fluid mechanics (MENG 361a), and statistics or linear algebra (STAT 230b or 238a or MATH 222a or b). Three electives are chosen from topics in the environment; processes that govern the atmosphere, ocean, and land surface; physics; and statistics. A list of suggested electives is available from the office of the director of undergraduate studies or on the Web at www.yale.edu/geology. At least one elective must be from G&G.

2. The *environmental geosciences track* provides a scientific understanding of the natural and anthropogenic processes that shape the Earth-atmosphere-biosphere system. It emphasizes comparative studies of past and current Earth processes to inform models of the environment's future. The prerequisites are broad and flexible and include college-level chemistry (CHEM 113,

114, or 118a) and mathematics through multivariate calculus (MATH 120a or b). Depending on their area of focus, students may choose a prerequisite in physics (PHYS 150a, 151b; 180a, 181b; or 200a, 201b), or they may choose cellular biology (MCDB 120a) and evolutionary biology (E&EB 122b or G&G 125b). The major requirements consist of eleven courses beyond the prerequisites, including either the senior essay or the senior thesis. Students take two courses in G&G numbered 090–150 as an introduction to the Earth system (G&G 095b, 100a, 110a, 120b; G&G 125b may be used if the physics prerequisites are selected). Four core courses are chosen from topics in resource use and sustainability (G&G 205a), the microbiology of surface and near-surface environments (G&G 255b), geochemical principles (G&G 301a), environmental chemistry and pollution (G&G 457a), climate (G&G 322a), and satellite-based image analysis (G&G 362b). Four electives selected from Geology and Geophysics, Environmental Studies, Ecology and Evolutionary Biology, and related fields provide a broad approach to scientific study of the environment. A list of suggested electives is available from the office of the director of undergraduate studies or on the Web at www.yale.edu/geology. Electives may be chosen from the core courses, and at least two must be from G&G.

3. The *paleontology and geobiology track* 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 (MCDB 120a and E&EB 122b) and chemistry (CHEM 113, 114, or 118a), and mathematics through multivariate calculus (MATH 120a or b). The major requirements consist of eleven courses beyond the prerequisites, including either the senior essay or the senior thesis. Students take G&G 110a to gain geological and environmental context, and they are introduced to the fossil record and evolution in G&G 125b. Four core courses give majors a comprehensive background in sedimentary rocks and fossilization (G&G 230a), the study of evolution (G&G 250a), microbiology in past and present environments (G&G 255b), and statistical data analysis as applied to the life sciences (E&EB 210a). Four electives selected from Geology and Geophysics, Ecology and Evolutionary Biology, Molecular, Cellular, and Developmental Biology, and related fields offer students maximum flexibility in pursuing their specific interests. A list of suggested electives is available from the office of the director of undergraduate studies or on the Web at www.yale.edu/geology. At least one elective must be from G&G.

4. The *solid Earth sciences track* emphasizes an integrated geological, geochemical, and geophysical approach to the study of processes operating within Earth and their manifestation 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 for natural disasters such as earthquakes and volcanic eruption). Students acquire a fundamental understanding of the solid Earth system, both as it exists today and as it has evolved over geologic time scales. The prerequisites are college-level chemistry (CHEM 113, 114, or 118a) and physics (PHYS 150a, 151b; 180a, 181b; or 200a, 201b), and

mathematics through multivariate calculus (MATH 120a or b). The major requirements consist of eleven courses beyond the prerequisites, including either the senior essay or the senior thesis. Students take two courses in G&G numbered 090–150 as an introduction to the Earth system (G&G 095b, 100a, 110a, 120b, 125b). The core of the track consists of four courses chosen from topics in mantle dynamics, earthquakes, and volcanoes (G&G 201a), mountain building and global tectonics (G&G 212b), rocks and minerals (G&G 220b), sedimentary rocks and processes (G&G 230a), and geochemical principles (G&G 301a). Students also select four electives in geology, geochemistry, geophysics, or related topics. A list of suggested electives is available from the office of the director of undergraduate studies or on the Web at www.yale.edu/geology. Electives may be chosen from core courses, and at least two must be from G&G.

B.A. degree program. The B.A. degree in Geology and Natural Resources requires fewer upper-level courses than the B.S. degree. It may be more appropriate for students who wish to major in two separate Yale programs, who study geoscience in preparation for a career in law, business, or government, or who resolve on a science major only after the freshman year. The prerequisites include mathematics (MATH 115a or b), biology (MCDB 120a or G&G 255b), and chemistry (CHEM 103b, 113, 114, or 118a). The major requirements consist of nine courses beyond the prerequisites. These nine include two courses in G&G numbered 090–150; courses in natural resources (G&G 205a) and geochemistry (G&G 301a); and five additional courses at the 200 level or higher in Geology and Geophysics or Environmental Engineering, including either the senior essay or the senior thesis. Course selections can be guided by any of the B.S. tracks described above.

Senior requirement. Seniors in both degree programs must prepare either a senior essay based on one term of library, laboratory, or field research (G&G 492a or b) or, with the consent of the faculty, a two-term senior thesis (G&G 490), 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 director of undergraduate studies for approval of the thesis proposal. The petition should be submitted by the end of the junior year. If the two-term senior thesis is elected, the second term of G&G 490 may count as an elective toward the major. A copy of each senior thesis or senior essay is deposited in the archives of the Geology and Geophysics Library.

Geology and Geophysics majors may not employ the Credit/D/Fail option for their prerequisites or for courses in the major. Higher-level courses may, with the permission of the director of undergraduate studies, be substituted for prerequisites and for specific required courses. Qualified seniors are encouraged to enroll in graduate courses, with the permission of the directors of graduate and undergraduate studies.

Practical experience. In addition to prerequisites and required courses in Geology and Geophysics, candidates for the B.A. and B.S. degrees are strongly encouraged to gain practical experience in the earth sciences. This can be done in two ways: (1) by attending a summer field course elsewhere, or (2) by participating in summer research opportunities offered by the Department of Geology and Geophysics, by other academic institutions, or by certain government agencies and private industries. Consult the director of undergraduate studies for further information.

REQUIREMENTS OF THE MAJOR

- Prerequisites:** *B.A. degree*—MATH 115a or b; MCDB 120a or G&G 255b; CHEM 103b, 113, 114, or 118a; *B.S. degree: All tracks*—CHEM 113, 114, or 118a; MATH 120a or b; *Atmosphere and ocean track*—ENAS 130b or equivalent; ENAS 194a or b; PHYS 180a, 181b, 165La, 166Lb; *Environmental geosciences track*—physics (PHYS 150a, 151b, or 180a, 181b, or 200a, 201b) or biology (MCDB 120a and either E&E 122b or G&G 125b); *Paleontology and geobiology track*—MCDB 120a; E&E 122b; *Solid Earth sciences track*—PHYS 150a, 151b, or 180a, 181b, or 200a, 201b
- Number of courses:** *B.A. degree*—nine term courses beyond prerequisites for letter grades (including senior requirement); *B.S. degree: Atmosphere and ocean track*—ten and one-half course credits beyond prerequisites for letter grades (including senior requirement); *Environmental geosciences, paleontology and geobiology, and solid Earth sciences tracks*—eleven courses beyond prerequisites for letter grades (including senior requirement)
- Distribution of courses:** *B.A. degree*—two courses in G&G numbered 090–150; five addtl courses at 200 level or higher in G&G or Environmental Engineering; *B.S. degree: Atmosphere and ocean track*—one freshman seminar or 100-level course in G&G; three electives as specified; *Environmental geosciences track*—two courses in G&G numbered 090–150; four electives as specified; *Paleontology and geobiology track*—four electives as specified; *Solid Earth sciences track*—two courses in G&G numbered 090–150; four electives as specified
- Specific courses required:** *B.A. degree*—G&G 205a, 301a; *B.S. degree: Atmosphere and ocean track*—G&G 140a, 141La, 322a, 335a, MENG 361a, and statistics (STAT 230b or 238a) or linear algebra (MATH 222a or b); *Environmental geosciences track*—four from G&G 205a, 255b, 301a, 322a, 362b, 457a; *Paleontology and geobiology track*—G&G 110a, 125b, 230a, 250a, 255b, E&E 210a; *Solid Earth sciences track*—four from G&G 201a, 212b, 220b, 230a, 301a
- Substitutions permitted:** *B.A. and B.S. degree programs*—with permission of DUS, higher-level courses for prerequisites or required courses
- Senior requirement:** *B.A. and B.S. degree programs*—Senior essay (G&G 492a or b) or, with permission of faculty, two-term senior thesis (G&G 490)

Unless otherwise indicated, courses in Geology and Geophysics count toward the natural science requirement for the Class of 2008 and previous classes.

***G&G 095b, OUR CHANGING CLIMATE.** Steven Sherwood.

TTh 1-2.15 Sc (o) Fr sem

Investigation of the science of contemporary climate change or “global warming.” Historical and contemporary methods used by scientists to draw conclusions concerning Earth’s complex climate system and human influences on it. *Enrollment limited to freshmen.*

[G&G 100a, NATURAL HAZARDS]

G&G 110a, INTRODUCTORY GEOSCIENCE. Jeffrey Park, Danny Rye.

TTh 1-2.15, 1 HTBA IV; Not CR/D/F Sc (26)

An introduction to the processes that shape Earth’s environment through the interactions of rocks, soils, the atmosphere, and the hydrosphere. Field trips and practical sessions in the properties of natural materials. Topics include evolution of landscapes; hydrologic and tectonic cycles; extreme geologic events such as earthquakes, floods, volcanism, and landslides; society’s economic dependence on natural materials such as soils, minerals, and fossil fuels; and human influences on the natural environment.

[G&G 120b, GLOBAL ENVIRONMENTAL CHANGE]

G&G 125b/E&EB 125b, HISTORY OF LIFE. Derek Briggs, Jacques Gauthier, Leo Hickey.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

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.

★G&G 140a/★EVST 201a, ATMOSPHERE, OCEAN, AND ENVIRONMENTAL CHANGE. Ronald Smith.

For description see under Environmental Studies.

★G&G 141La/★EVST 202La, LABORATORY FOR ATMOSPHERE, OCEAN, AND ENVIRONMENTAL CHANGE. Ronald Smith.

For description see under Environmental Studies.

G&G 201a, MANTLE DYNAMICS, EARTHQUAKES, AND VOLCANOES.

Jun Korenaga, David Bercovici, Mark Brandon.

TTh 11.30-12.45, 1 HTBA IV; Not CR/D/F QR, Sc (24)

Quantitative introduction to the dynamics of Earth's interior and surface manifestations such as plate tectonics, earthquakes, and volcanoes. Emphasis on understanding various geological phenomena through the framework of mantle convection in the cooling Earth. Discussion of how Earth's internal processes affect human environments in both the short and the long term. Weekly lab sessions familiarize students with the spatial and temporal scales of geological processes through brief field excursions. *Prerequisites:* CHEM 113, 114, or 118a; MATH 120a or b; and PHYS 150a, 151b, or 180a, 181b, or 200a, 201b; or permission of instructor.

G&G 205a, NATURAL RESOURCES AND THEIR SUSTAINABILITY.

Robert Gordon, Brian Skinner.

TTh 1-2.15 IV; Not CR/D/F Sc (0)

A study of the formation and distribution of renewable and nonrenewable energy, mineral, and water resources. Topics include the consequences of extraction and use; depletion and the availability of substitutes; and economic and geopolitical issues. *Recommended preparation: introductory chemistry and geology.*

★G&G 212b, GLOBAL TECTONICS. Mark Brandon, David Evans.

TTh 1-2.15 IV; Not CR/D/F Sc (26)

The architecture of continents and oceans; detailed geology of lithospheric plate margins and mountain chains. Examples of plate-interaction histories from the ancient geological record emphasize the interdisciplinary approaches used to determine interlinked Earth-system processes involving the mantle, crust, hydrosphere, atmosphere, and biosphere. The course features a field trip to the southwestern United States during spring break. *Prerequisite: one course in G&G or permission of instructor. Enrollment limited to 15.*

G&G 220b, PETROLOGY AND MINERALOGY. Jay Ague.

TTh 9-10.15; lab 2 HTBA IV; Not CR/D/F Sc (22)

Comprehensive study of the structures, chemistry, and physical properties of minerals. Interpretation of mineral associations and textures in terms of processes acting in the formation of igneous and metamorphic rocks. Study of the interplay between plate tectonics and the genesis of igneous and metamorphic rocks. *After one year of college-level chemistry; G&G 110a recommended. (Formerly G&G 320b)*

G&G 230a, STRATIGRAPHY. Leo Hickey.

TTh 9-10.15; *lab* Th 1.30-3.30 IV; Not CR/D/F Sc (22)

The nature and classification of sedimentary rock bodies; principles in determining their ages by fossils and other means; interpretation of depositional environments; the historical record of the dynamic response of sediments to mountain building, to changes in sea level and climate, and to the evolution of Earth's biota. Laboratory sessions include one overnight field trip and two weekend field trips. *Prerequisite: CHEM 113 or permission of instructor.*

G&G 250a^G, PALEONTOLOGY AND EVOLUTIONARY THEORY.

Elisabeth Vrba.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

Current concepts in evolutionary and systematic theory with particular reference to how they apply to the fossil record. Emphasis on use of paleontological data to study evolutionary processes. *After G&G 125b or a 100-level course in biological sciences.*

G&G 255b, ENVIRONMENTAL GEOMICROBIOLOGY. Ruth Blake.

TTh 1-2.15; *lab* 2 HTBA IV; Not CR/D/F Sc (26)

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.*

[G&G 280a, PHYSICS OF EARTH'S EVOLUTION]

G&G 300b^G, MINERAL DEPOSITS. Brian Skinner.

3 HTBA IV; Not CR/D/F Sc (50)

Introduction to formation and distribution of mineral deposits. *After G&G 220b.*

G&G 301a^G, INTRODUCTION TO GEOCHEMISTRY. Peter Reiners,

Mark Pagani.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc (34)

Basic principles of geochemistry and their use in geological science. Thermodynamics of aqueous and igneous systems. Element fractionation and isotope geochemistry. Biogeochemical cycles, geochronology, cosmochemistry. *After CHEM 114 or 118a, and MATH 115a or b; G&G 220b recommended.*

*G&G 304a^G/*EVST 404a, MINERALS AND HUMAN HEALTH.

Catherine Skinner.

TTh 11.30-12.45 IV; Not CR/D/F Sc (0)

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.*

[G&G 315b^G, PALEOBOTANY]

G&G 319a^G, INTRODUCTION TO THE PHYSICS AND CHEMISTRY OF EARTH MATERIALS. Shun-ichiro Karato.

TTh 11.30-12.45 IV; Not CR/D/F QR, Sc (24)

Basic principles that control the physical and chemical properties of Earth materials. Equation of state, phase transformations, chemical reactions, elastic properties, diffusion, kinetics of reaction and mass/energy transport. *After MATH 120a or b, PHYS 181b, and CHEM 113.*

G&G 322a^G, PHYSICS OF WEATHER AND CLIMATE. Steven Sherwood.

TTh 9-10.15 IV; Not CR/D/F QR, Sc (22)

The climatic system; survey of atmospheric behavior and climatic change; meteorological measurements and analysis; formulation of physical principles governing weather and climate with selected applications to small- and large-scale phenomena. *After* PHYS 181b and MATH 120a or b or equivalents.

[G&G 323b^G, THEORY OF CLIMATE]

G&G 326b^G, INTRODUCTION TO EARTH AND PLANETARY PHYSICS.

Jun Korenaga.

MWF 10.30-11.20 IV; Not CR/D/F QR, Sc (33)

An introduction to the structure and dynamics of Earth and other planets in the context of cosmic evolution. Review of basic physical principles and their applications to geophysics and planetary physics. Star formation and nucleosynthesis; planetary accretion and the birth of the solar system; heat flow, plate tectonics, and mantle dynamics; seismology and geodesy; core dynamics, geomagnetism, and planetary magnetism. *Prerequisites:* PHYS 181b and MATH 120a or b or equivalents.

G&G 333a^G, PALEOGEOGRAPHY. David Evans.

Th 2.30-3.45, 1 HTBA IV; Not CR/D/F QR, Sc (0)

Quantitative methods for measuring horizontal motions on the surface of the Earth. Histories of continental motions and supercontinents during the past three billion years. True polar wander. Foundations of paleomagnetism, including experience with field sampling and laboratory data acquisition. *Prerequisites:* G&G 100a, 110a, or other G&G course numbered 200 or higher; or permission of instructor.

G&G 335a^G, PHYSICAL OCEANOGRAPHY. Alexey Fedorov.

Th 11.30-12.45 IV; Not CR/D/F QR, Sc (24)

An introduction to ocean dynamics. Exploration of the physical mechanisms underlying large-scale ocean circulation, the Gulf Stream, wind-driven waves, tides, coastal upwelling, and phenomena attributable to Earth's rotation. *After* PHYS 181b and MATH 120a or b, or with permission of instructor.

G&G 342a/PHYS 342a, INTRODUCTION TO EARTH AND ENVIRONMENTAL PHYSICS. John Wettlaufer.

For description see under Physics.

G&G 355a^G, EXTRAORDINARY GLIMPSES OF PAST LIFE. Derek Briggs, Adolf Seilacher.

MW 11.30-12.45 IV; Not CR/D/F Sc (34)

The fossil record is typically limited to the hard parts of organisms. In exceptional settings, called *lagerstaetten*, more complete and even nonmineralized animal skeletons are preserved. These peepholes into the history of life (e.g., the Burgess Shale, Solnhofen limestones) are examined to reveal ancient lifestyles, environments, and preservational processes. *After* G&G 230a.

*G&G 362b^G/★ARCG 362b, OBSERVING THE EARTH FROM SPACE.

Ronald Smith and staff.

Th 9-10.15; lab Th or F 1.30-3.20 or 3.30-5.20

IV; Not CR/D/F QR, Sc (0)

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. *Preference to undergraduates in G&G, Anthropology, and Environmental Studies. Prerequisites:* college-level physics or chemistry, two courses in geology and natural science of the environment or equivalents, and computer literacy.

G&G 370b, REGIONAL PERSPECTIVES ON GLOBAL GEOSCIENCE.

David Evans.

TTh 2.30-3.45 IV; Not CR/D/F Sc (0)

Examination of the geological record of a specific region of the world. The region studied varies from year to year and is selected by interested students. Successful completion of the course earns priority eligibility status for attendance on a departmental field trip to the studied region. *Prerequisite: one G&G course or permission of instructor.* (Formerly G&G 270b)

***G&G 402b^G, PALEOCLIMATES.** Alexey Fedorov, Mark Pagani.

TTh 11.30-12.45 IV; Not CR/D/F Sc (0)

A study of the dynamic evolution of Earth's climate. Topics include warm (the Cretaceous, the Eocene, the PETM, the Pliocene) and cold (the "snowball Earth") climates of the past, glacial cycles, abrupt climate changes, the climate of the past thousand years, and the climate of the twentieth century. *After PHYS 181b and one course in meteorology (G&G 322a) or oceanography (G&G 335a), or with permission of instructor.*

G&G 421b^G, GEOPHYSICAL FLUID DYNAMICS. George Veronis.

TTh 1-2.15 IV; Not CR/D/F QR, Sc (26)

Derivation of the equations of a geophysical fluid. Analysis of the most important dynamical phenomena common to all planetary atmospheres, oceans, and interiors, with emphasis on the roles of planetary rotation, gravitation, and thermal gradients. *After or concurrently with MENG 361a or equivalent and one course in meteorology or oceanography; or with permission of instructor.*

G&G 440a^G, GEOMICROBIOLOGY: MICROBIAL PROCESSES IN THE GEOLOGIC ENVIRONMENT. Ruth Blake.

TTh 1-2.15 IV; Not CR/D/F Sc (26)

A laboratory-based course providing interdisciplinary practical training in geo-microbiological methods including microbial enrichment and cultivation techniques; light, epifluorescence, and electron microscopy; and molecular methods (DNA extraction, PCR, T-RFLP, FISH). *Prerequisite: college-level chemistry.*

[G&G 450b^G, TIME-DEPENDENT DEFORMATION OF EARTH MATERIALS]**G&G 457a^G, MARINE, ATMOSPHERIC, AND SURFICIAL GEOCHEMISTRY.**

Karl Turekian.

MWF 9.30-10.20 IV; Not CR/D/F Sc (32)

Examination of the processes at the Earth's surface, including the atmosphere, oceans, ice caps, and upper layers of crust, using insights gained from radioactive, radiogenic, and light stable isotopes. *Prerequisites: a 100-level course in G&G and CHEM 113, 114, or 118a; or permission of instructor.*

G&G 465a^G/ARCG 465a^G/ENAS 381a, ARCHAEO-METALLURGY.

Robert Gordon.

TTh 9-10.15 III or IV; Not CR/D/F So (22)

Technology in material culture explored through evidence of the winning and use of metals from earliest to modern times. Environmental consequences; resource depletion and sustainability. Principles of materials science applied to the interpretation of artifacts; use of primary documentary sources. *After introductory physics or chemistry. May be applied toward the Science distributional requirement upon election of the Sc option during the course selection period and completion of specified assignments.*

***G&G 487a or b, INDIVIDUAL STUDY IN GEOLOGY AND GEOPHYSICS.**

Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F $\frac{1}{2}$ C Credit (0)

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.

★G&G 488a and 489b, RESEARCH IN GEOLOGY AND GEOPHYSICS.

Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (o)

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.

★G&G 490, RESEARCH AND SENIOR THESIS. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (o)

Two terms of independent library, laboratory, field, or modeling-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 by the end of the junior year. The plan requires approval of the full G&G faculty.

★G&G 492a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (o)

One term of independent library, laboratory, field, or modeling-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 at the beginning of the term in which the essay is to be written.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Courses in the Graduate School are open to undergraduates with permission of the instructor and the director of graduate studies. Descriptions of graduate courses are available at the office of the director of undergraduate studies.

GERMANIC LANGUAGES AND LITERATURES

Director of undergraduate studies: Kirk Wetters, 305 WLH, 432-0782, kirk.wetters@yale.edu

FACULTY OF THE DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURES

PROFESSORS

Carol Jacobs (*Chair*), Rainer Nägele, Brigitte Peucker, Henry Sussman (*Visiting*)

ASSISTANT PROFESSORS

Elke Siegel, Kirk Wetters

LECTURERS

Anthony Niesz, William Whobrey

SENIOR LECTORS

Marion Gehlker (*Language Coordinator*), Howard Stern

The major in German is a liberal arts major whose aim is to provide solid training in a humanistic discipline by giving students an awareness of

German literature and culture in the context of European civilization, a real competence in the German language, and a general understanding of German-language literature. Although by no means restricted to prospective teachers or graduate students in German, the major provides background for professional work in these pursuits.

Prerequisite. Students choosing the major should have completed GMAN 115a or b and 116a or b or have received equivalent credit through advanced placement or study abroad.

The major. The major consists of eleven term courses, for a total of twelve course credits, including GMAN 130a or b and 131a or b; 138a or 139b; GMST 150b; GMAN 161a and 162b, the introductory sequence in German literature; and the senior essay. All courses in the major must be taken for a letter grade. The remaining courses to fulfill the major are chosen from Group B (conducted in German), up to two courses from Group C (conducted in English), one additional language course from Group A numbered 140 or above, and, with prior approval of the director of undergraduate studies, up to two term courses taken outside the department but bearing directly on the German cultural context.

Senior requirement for the standard major (one-term senior essay). Seniors in the standard Germanic Languages and Literatures major enroll in GMAN 492a, a guided senior essay tutorial course. Students meet on a biweekly basis with the director of undergraduate studies 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. A preliminary statement indicating the general area to be dealt with and the choice of adviser should be submitted to the director of undergraduate studies by September 15; a three-page prospectus and bibliography are due by October 6. A rough draft must be submitted to the adviser by November 10. The essay is graded jointly by the adviser and a designated faculty reader.

The intensive major (two-term senior essay). The intensive major is designed for students who wish to undertake a more extensive project of research and writing during their senior year. Requirements for the intensive major are the same as for the standard major, except that the intensive major requires twelve term courses (totaling thirteen course credits) beyond the prerequisite, of which two are devoted to the preparation of the senior essay (GMAN 492a and 493b). This essay, written under the direction of a faculty adviser, should be between sixty and seventy-five pages in length and should be presented no later than April 27 of the senior year. The second term of essay preparation is undertaken independently, without tutorial support. As with the standard senior essay, the essay is graded jointly by the adviser and a designated faculty reader.

Group A courses (GMAN 115–159) include elementary, intermediate, and advanced language courses. Only one advanced language course at the level of 140b and above may count toward the major.

Group B courses (GMAN 161 and above) are advanced courses and count toward the major. Readings are in German, and the language of instruction is usually German.

Group C courses are given in English with texts in translation. Only two term courses from this group may count toward the major.

Candidates for the major in Germanic Languages and Literatures should consult the director of undergraduate studies.

Summer study and study abroad. All students may take Elementary German or German for Reading Knowledge in the summer in New Haven. Intermediate German is offered during the summer in New Haven and Berlin. For information, contact the director of undergraduate studies or the language coordinator. Students are urged to consider the Junior Year or Term Abroad program, for which appropriate course credit toward the major is granted. Such study is valuable not only for achieving comfortable fluency in German, but also for gaining a firsthand knowledge of the German cultural context; it is an educational experience that provides the student with additional skills and options for the future. The department offers diverse opportunities for study abroad and a scholarship program for summer courses at German universities. Members of the faculty will advise and consult with all 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 Junior Year or Term Abroad program, see chapter III of this bulletin.

German Studies. In addition to the major in German literature, there is also a major in German Studies, an interdisciplinary study of the cultural, historical, and political life of the German-speaking peoples. See German Studies in the text below.

The Literature Major. Within a Literature major, the study of German may be combined with study of English literature or of another foreign literature in departments such as Classics, East Asian, French, Italian, Portuguese, Slavic, or Spanish. For details, see the comparative literature track under The Literature Major.

Placement. A departmental placement examination, consisting of grammar, vocabulary, error correction, reading, and writing, will be administered on Sunday, September 3, from 2 to 3.15 P.M. in 207 WLH. A makeup examination will be administered on Monday, September 4, from 9 to 10.15 A.M. in 207 WLH. If test results are inconclusive, students will be asked to attend an oral interview. Students wishing to enroll in GMAN 115a, 116a, 119a, 125, 130a, or 131a must register for sections on Tuesday, September 5, from 2 to 4 P.M. in 309 WLH during the Academic Fair. Students wishing to take the placement exam in January should sign up with the director of undergraduate studies by December 15, 2006. Students may also consult the director of undergraduate studies or the language coordinator for advice about placement and about language study.

- *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language requirement in German by a score of 4 or higher on either of the Advanced Placement tests in German (German Language, German Literature). The requirement may also be met by successful completion of GMAN 125, Intensive German, or of GMAN 130a or b and 131a or b, Intermediate German. Alternatively, students may satisfy the requirement by scoring above the intermediate level on the departmental placement examination.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisite: GMAN 115a or b and 116a or b, or equivalent

Number of courses: Eleven term courses, totaling twelve course credits, beyond prerequisite (including the senior essay tutorial) for letter grades

Specific courses required: GMAN 130a or b, 131a or b; 138a or 139b; 161a and 162b; GMST 150b

Distribution of courses: No more than one advanced language course; no more than two Group C courses; with prior approval of DUS, two term courses outside the department

Substitutions permitted: With approval of DUS, courses taken on Junior Year or Term Abroad for other courses in the major

Senior requirement: Senior essay tutorial course (GMAN 492a)

Intensive major: Twelve term courses, totaling thirteen course credits, beyond prerequisite for letter grades, including a two-term senior essay (GMAN 492a and 493b)

GROUP A COURSES

GMAN 115a or b, ELEMENTARY GERMAN I. Marion Gehlker and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L1 1½ C Credits Meets RP (61)

A beginning course in spoken and written German that combines oral practice and cultural awareness with a solid foundation in grammar and vocabulary. Listening comprehension through online audio exercises and in-class video clips. Topics include family and school life, German-speaking countries, short literary readings by Hesse, Goethe, and Wondratschek, popular music, and the feature film *Lola rennt*. Tutors are available for extra help or for advanced practice. To be followed by GMAN 116a or b. *Fall preregistration, which is required, is held on Tuesday, September 5, from 2 to 4 P.M. in 309 WLH; for spring preregistration consult the director of undergraduate studies or the language coordinator. Enrollment limited to 14 per section. Credit only on completion of GMAN 116a or b.*

GMAN 116a or b, ELEMENTARY GERMAN II. Marion Gehlker and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L2 1½ C Credits Meets RP (61)

Continuation of GMAN 115a or b. Topics include German history, the environment, multicultural Germany, Austria, and Switzerland, popular music, a soap opera, and the feature film *Das schreckliche Mädchen*. Listening comprehension through online audio exercises and in-class video clips. Students read poems by Goethe and Jandl and short stories by Bischel, Brecht, and Kafka. Tutors are available for extra help or for advanced practice. To be followed by GMAN 130a or b (also offered during the summer in New Haven and Berlin). *Fall preregistration, which is required, is held on Tuesday, September 5, from 2 to 4 P.M. in 309 WLH; for spring preregistration consult the director of undergraduate studies or the language coordinator. Enrollment limited to 14 per section.*

GMAN 119a and 120b, GERMAN READING. Staff.

MWF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F (61)

Students learn the skills with which to read German-language texts of any difficulty with some fluency. Study of syntax and grammar; practice in close reading and translation of fiction and expository prose in the humanities and sciences. *Conducted in English. Does not satisfy the language distributional requirement. Credit for GMAN 119a only on completion of 120b.*

GMAN 125, INTENSIVE GERMAN. Howard Stern.

MTWThF 9.30-10.20, MTWTh 10.30-11.20 I; Not CR/D/F L1-L4

4 C Credits Meets RP (0)

Intensive training in speaking, reading, writing, and comprehending the language. The first term stresses the mastery of formal grammar; the second concentrates on speaking, writing, and the conversion of grammatical knowledge into reading competence for literary and scholarly purposes. *For beginning students of superior linguistic ability.*

GMAN 130a or b, INTERMEDIATE GERMAN I. Marion Gehlker and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L₃ 1½ C Credits Meets RP (61)

Builds on and expands knowledge acquired in GMAN 116a or b. A content-based class that helps students improve their oral and written linguistic skills and their cultural awareness through texts and audiovisual materials relating to German literature, culture, history, and politics. Topics include German universities, Berlin or Frankfurt, Germany before and after the Berlin Wall, and interpersonal relationships. Course materials include online listening comprehension exercises, poems and short stories by Kafka, Brecht, Kästner, Schneider, and Kaschnitz, popular and classical music, and the feature film *Das Versprechen*. Tutors are available for extra help or for advanced practice. *After GMAN 116a or b or according to placement examination.* Followed by GMAN 131a or b. *Fall preregistration, which is required, is on Tuesday, September 5, from 2 to 4 P.M. in 309 WLH; for spring preregistration consult the director of undergraduate studies or the language coordinator. Enrollment limited to 14 per section.*

GMAN 131a or b, INTERMEDIATE GERMAN II. Marion Gehlker and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L₄ 1½ C Credits Meets RP (61)

Continuation of GMAN 130a or b. Topics include multicultural Germany, globalization, pacifism, and music and politics. Readings include fiction and non-fiction texts by Celan, Kaminer, Einstein, and a full-length novel by Frisch or Honigsmann. Tutors are available for extra help or for advanced practice. *After GMAN 131a or b or according to placement examination.* Normally followed by GMAN 138a or 139b or, with permission of the director of undergraduate studies, by GMAN 161a. *Fall preregistration, which is required, is on Tuesday, September 5, from 2 to 4 P.M. in 309 WLH; for spring preregistration consult the director of undergraduate studies or the language coordinator. Enrollment limited to 14 per section.*

GMAN 138a, ADVANCED GERMAN I. Staff.

138a-1: MW 9-10.15 I; Not CR/D/F L₅ (61)

138a-2: MW 11.30-12.45 I; Not CR/D/F L₅ (61)

An advanced language course intended to improve students' proficiency in aural and reading comprehension, as well as in speaking and writing. Discussion of literary texts by major German authors. Emphasis on vocabulary expansion with specialized grammatical review and a focus on stylistic development in students' writing.

Recommended for students planning to use the language practically and as a preparation for higher-level courses in both language and literature. *After GMAN 125 or 131a or b. For entering students with a score of 4 or 5 on the German Language Advanced Placement test, or according to results of the placement examination.*

GMAN 139b, ADVANCED GERMAN II. Howard Stern.

MW 11.30-12.45 I; Not CR/D/F L₅ (34)

Continuation of GMAN 138a. A foundation and overview of the German literary tradition. Development of the analytic vocabulary and historical background necessary for the interpretation of complex literary texts, especially of the eighteenth and nineteenth centuries.

Recommended for students planning to use the language practically and as a preparation for higher-level courses in both language and literature. *After GMAN*

125 or 131a or b. For entering students with a score of 4 or 5 on the *German Language Advanced Placement test*, or according to results of the placement examination. GMAN 138a is not a prerequisite.

GMAN 140b, GERMAN CULTURE, HISTORY, AND POLITICS IN TEXT AND FILM. Marion Gehlker.

TTh 11.30-12.45 I L5 (24)

An advanced language course focusing on improving upper-level language skills through the discussion of selected aspects of German culture, politics, and history in literary and nonliterary texts and film. Topics include the Weimar Republic, youth movements, social democracy, *Vergangenheitsbewältigung*, and postwar developments. Frequent oral and written assignments; emphasis on vocabulary building. After GMAN 125, 131b, 138a, or 139b.

GROUP B COURSES

Courses in this group are open to students who have successfully completed GMAN 138a or 139b or the equivalent. Conducted in German with readings in German, unless otherwise indicated.

GMAN 161a, INTRODUCTION TO GERMAN LITERATURE: LESSING TO HEINE. Kirk Wetters.

TTh 11.30-12.45 I L5, Hu (24)

A historical and thematic study of representative works of German literature in the age of Goethe, focusing on drama but also considering lyric poetry and prose narratives. Representative authors include Lessing, Goethe, Schiller, Kleist, Hölderlin, Eichendorff, Tieck, Hoffmann, and Heine. After GMAN 138a or 139b or, with special permission of the instructor, GMAN 125 or 131b. Required for German majors.

GMAN 162b, INTRODUCTION TO GERMAN LITERATURE: BÜCHNER TO THE PRESENT. Elke Siegel.

TTh 11.30-12.45 I L5, Hu (24)

An investigation of the mainstreams of German literature since the death of Goethe. Dramas, lyric poetry, *Novellen*, and short novels. Authors include Büchner, Schnitzler, Bernhard, Jelinek, Mann, Kafka, Brecht, Grass, Bachmann, and Handke. After GMAN 138a or 139b. GMAN 161a is not a prerequisite. Open to qualified freshmen. Required for German majors.

*GMAN 163a, GERMAN POETRY IN PERFORMANCE. Howard Stern.

MW 2.30-3.45 I; Not CR/D/F Hu (○)

An introduction to German poetry from Goethe to the present, emphasizing the craft of verse and the problems of live performance. Exercises in declamation, memorization, and reading from script. Literary theory, parody, translation, and free composition. Authors include Schiller, Mörike, Heine, Hofmannsthal, Rilke, Brecht, Eich, and Celan. Readings and discussion in English and German.

*GMAN 336a^G, INTRODUCTION TO MIDDLE HIGH GERMAN LITERATURE. William Whobrey.

TTh 11.30-12.45 I (24)

A survey of the major works of German vernacular literature from 1150 to 1250, including courtly love poetry, heroic epic, Arthurian romance, crusader songs, and religious narratives. Examination of the development of the German language, the development of vernacular literature, the broader context of Latin culture, and the problems of manuscript transmission. Readings in the

original Middle High German. Works include *Nibelungenlied*, *Parzival*, *Tristan*, *Minnesang*, *Gregorius*, and *Der arme Heinrich*.

★GMAN 341aG/★GMST 341a, GERMAN LITERATURE AND POLITICS: 1960S TO THE PRESENT. Elke Siegel.

T 3.30-5.20 I; Not CR/D/F L5, Hu (o)

An introduction to contemporary German literature from 1960 to the present, with a focus on the relationship between politics and literature. With a background context of the Nazi past in West Germany, topics include literature and the Holocaust; literary revolts against institutions and norms; the politics of minority discourses; the problematic question of German victimhood in World War II; the 1968 student movement and the Red Army Faction; and the disillusionment with 1968 in the following generations. Authors include Kluge, Weiss, Enzensberger, Timm, Brinkmann, Fichte, Handke, Walser, Beyer, Dische, Röggl, Peltzer, Kracht, Goetz, and Zaimolu.

★GMAN 344bG/★GMST 344b/★LITR 199b, GOETHE AND THE DEMONIC. Kirk Wetters.

Th 1.30-3.20 I; Not CR/D/F Hu (o)

Discussion of key texts by Goethe that are not covered in other courses. Focus on Goethe's conception of "the demonic," which he used to characterize the relation of literature to life and individual to world. Reception of the "demonic" concept by later authors such as Kierkegaard, Georg Lukács, and Walter Benjamin. *Familiarity with Goethe's works is presumed. Readings and discussion in German (subject to student preferences).*

GROUP C COURSES

Courses in this group are conducted in English with both readings and discussion in English. The courses are open to all students in Yale College.

GMAN 255aG/GMST 155a/LITR 204a, IDEOLOGY, REVOLUTION, AND RELIGION IN GERMAN THOUGHT. Henry Sussman.

For description see under German Studies.

★GMAN 296a/★GMST 296aG/★HUMS 369a/★LITR 229a, SOVEREIGNTY: POWER AND REPRESENTATION. Kirk Wetters.

For description see under German Studies.

★GMAN 297a/★GMST 297aG/★HUMS 352a/★LITR 313a, FRIENDSHIP IN LITERATURE AND PHILOSOPHY. Elke Siegel.

For description see under German Studies.

★GMAN 315a/★GMST 315aG/★HUMS 368a/★LITR 431a, SYSTEMS AND THEIR THEORY. Henry Sussman.

For description see under German Studies.

★GMAN 352bG/★GMST 352b/★HUMS 353b/★LITR 442b, THOMAS MANN: *THE MAGIC MOUNTAIN*. Rainer Nägele.

W 1.30-3.20 I; Not CR/D/F Hu (o) Tr

A close reading of Thomas Mann's *The Magic Mountain*. Analysis of the novel as a narrative investigation into a period of European and German culture that came to an abrupt end with World War I, with consideration of Europe's cultural and intellectual history from the Enlightenment to the early twentieth century. Assessment of *The Magic Mountain* as both the tradition and the end of the bildungsroman. *Discussion in English; readings available in German or English. Recommended preparation: a basic knowledge of German.*

★GMAN 353b/★GMST 353b^G/★HUMS 351b/★LITR 424b, DIALECTIC OF ENLIGHTENMENT: KANT AND SADE. Rainer Nägele.
For description see under German Studies.

GMST 150b, INTRODUCTION TO GERMAN CULTURE AND THOUGHT.
Elke Siegel.

★GMAN 478a *or* b, DIRECTED READINGS OR INDIVIDUAL RESEARCH IN GERMANIC LANGUAGES AND LITERATURES. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

Individual study under faculty supervision. Applicants must submit a prospectus and bibliography approved by the faculty adviser to the director of undergraduate studies. The student meets with the adviser at least one hour each week and takes a final examination or writes a term paper. *No credit granted without prior approval of the director of undergraduate studies.*

★GMAN 492a *and* 493b, THE SENIOR ESSAY TUTORIAL. Director of undergraduate studies.

HTBA I; Not CR/D/F (o)

Preparation of an original essay under the direction of a faculty adviser.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

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 from the office of the director of undergraduate studies.

GERMAN STUDIES

Director of undergraduate studies: Kirk Wetters, 305 WLH, 432-0782,
kirk.wetters@yale.edu

FACULTY ASSOCIATED WITH THE MAJOR

PROFESSORS

*Walter Cahn (*History of Art*), David Cameron (*Political Science*), Mark Gelber (*Judaic Studies*) (*Visiting*), Timothy Guinnane (*Economics, History*), *Karsten Harries (*Philosophy*), Carol Jacobs (*German*), Rainer Nägele (*German*), *Brigitte Peucker (*German, Film Studies*), Steven Smith (*Political Science*), Henry Sussman (*German*) (*Visiting*), Katie Trumpener (*Comparative Literature, English*), Frank Turner (*History*), Christopher Wood (*History of Art*)

ASSOCIATE PROFESSORS

Michael Friedmann (*Adjunct*) (*Music*), Kevin Repp (*History*)

ASSISTANT PROFESSORS

Elke Siegel (*German*), Kirk Wetters (*German*)

*Member of the Advisory Committee for the program.

The major in German Studies offers an interdisciplinary approach to the study of the German cultural tradition in history, philosophy, the fine arts, music, film studies, politics, and culture, with a German-language requirement. The major draws on several departments and programs along with core courses in German Studies. It is particularly suited to students wishing to combine interests in German language and culture with intensive work in another discipline.

In German Studies, students have the freedom to develop a program of courses to meet their particular needs and interests. Through consultation with the director of undergraduate studies, each student in the major is expected to define a focus of concentration within the major. Interested students should contact the director of undergraduate studies to begin planning their course of study.

Two majors. The German Studies major is particularly well suited for students who wish to fulfill the requirements of two majors. For such students, the focus of concentration within the German Studies major often reflects or augments the other elected major.

Prerequisite. Students choosing the German Studies major should have completed GMAN 115a or b and 116a or b or have received equivalent credit through advanced placement or study abroad.

The major. The major consists of twelve term courses, for a total of thirteen course credits, including GMAN 130a or b and 131a or b or equivalent; either GMAN 138a or 139b; GMST 150b; either GMAN 161a or 162b; and the senior essay. The remaining courses include four term courses that together constitute a focus of concentration, one of which is designated as the junior seminar, taken in the spring of the junior year. Students in the standard major choose two additional term courses; those in the intensive major choose one. Two of the six courses beyond the required list of courses should be advanced seminars in German literature or culture. No courses taken on a Credit/D/Fail basis may be applied toward the requirements of the major.

Focus of concentration and junior seminar. The junior seminar and three other term courses are chosen from inside or outside the department after consultation with the director of undergraduate studies. This cluster of courses constitutes a focus of concentration in an area of study related to the major; examples of areas of concentration are history, philosophy, Germanic languages and literatures, psychology, sociology, political and social theory, film studies, history of art, and music. During the spring term of the junior year, each student selects one seminar in the focus of concentration as the designated junior seminar. This seminar provides the student with bibliographic and research skills that lay a foundation for work on the senior essay, and it culminates in the submission of a substantial term paper, ordinarily twenty-five pages.

Senior requirement for the standard major (one-term senior essay). Seniors in the standard German Studies major enroll in GMST 490, a guided senior essay tutorial course. Students meet on a biweekly basis with the director of undergraduate studies 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. A preliminary statement indicating the general area to be addressed and the choice of adviser should be submitted to the director of undergraduate studies by September 15, 2006; a three-page prospectus and a bibliography are due by October 13. A rough draft must be submitted to the adviser by November 17. The completed essay, due on December 8, is judged by the faculty adviser and a second reader.

Intensive major (two-term senior essay). Requirements for the intensive major are the same as for the standard major, except that the intensive major requires only one elective advanced seminar in German literature or culture and culminates in a two-term senior essay under the direction of a faculty

adviser. In the fall term seniors in the intensive major enroll in GMST 490 and begin work on their project under the guidance and supervision of the 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 director of undergraduate studies by October 27, 2006. The student must submit a draft of at least fifteen pages of the essay by December 8 to receive credit for the first term of the course. The second term is devoted to completing the essay, which should be substantial (between fifty and sixty pages); the completed essay must be submitted by April 27, 2007. The senior essay is judged by the faculty adviser and a second reader.

Study abroad. Students are strongly encouraged to study in Germany for a summer, or for one or two terms on the Junior 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 a 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 will 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 Junior Year or Term Abroad program, see chapter III of this bulletin.

REQUIREMENTS OF THE MAJOR

Prerequisite: GMAN 115a or b and 116a or b or equivalent

Number of courses: Twelve term courses, totaling thirteen course credits, beyond prerequisites (including the senior essay tutorial) for letter grades

Specific courses required: GMAN 130a or b and 131a or b; GMAN 138a or 139b; GMST 150b; GMAN 161a or 162b

Distribution of courses: Four term courses that constitute a focus of concentration, one of which is the junior sem; two addtl advanced sems in German lit or culture

Substitutions permitted: With approval of DUS, courses taken on Junior Year or Term Abroad for other courses in the major

Senior requirement: Senior essay (GMST 490)

Intensive major: One addtl advanced sem (rather than two); two-term senior essay (GMST 490)

GMST 150b, INTRODUCTION TO GERMAN CULTURE AND THOUGHT.

Elke Siegel.

MW 11.30-12.45 I or II Hu (○)

An interdisciplinary inquiry into the seminal literary, artistic, social, political, and intellectual movements that constitute German culture and thought. Topics include Germans and their cultural and national identity; the Enlightenment; melancholy and the German psyche; the German family; German industrialization; the impact of Marx, Nietzsche, and Freud; the Weimar Republic; and Nazism and the Holocaust. *No prerequisites. Readings, lectures, and discussion in English.*

GMST 155a/GMAN 255a^G/LITR 204a, IDEOLOGY, REVOLUTION, AND RELIGION IN GERMAN THOUGHT. Henry Sussman.

MW 1.30-2.20, 1 HTBA I Hu (○) Tr

Exploration of the crosscurrents of conservatism and radicality in nineteenth- and early twentieth-century German literature and culture. Analysis of contributions

to the enterprise of self-aware speculation and systems critique: Nietzsche's *Genealogy of Morals* and *The Anti-Christ*; Marx's writings on German idealism and *Das Kapital*; Freud in his vacillations between cultural criticism and the medical authority he sought for psychoanalysis; and Brecht in his recalibration of Western dramaturgy toward alienation, gesture, and shock. Questions about the systematic aspirations of the Western tradition.

★GMST 296a^G/★GMAN 296a/★HUMS 369a/★LITR 229a, SOVEREIGNTY: POWER AND REPRESENTATION. Kirk Wetters.

M 3.30-5.20 II; Not CR/D/F Hu (o)

Examination of the concept of sovereignty (which in democracies masquerades as "executive authority") as representational structure, starting with its classic modern formulations (Machiavelli, Hobbes, Bodin) and ending with the most current theoretical reflections (Agamben, Badiou). Focus on the work of Carl Schmitt and his contemporaries (Benjamin, Ball), particularly their elaboration of the concept of "political theology." Consideration of the broader question of secularization (Marx, Weber, Blumenberg, Derrida, Benjamin, Taubes, Hamacher). Literary representations of sovereignty in Shakespeare (with Kantorowitz) and Kleist.

★GMST 297a^G/★GMAN 297a/★HUMS 352a/★LITR 313a, FRIENDSHIP IN LITERATURE AND PHILOSOPHY. Elke Siegel.

W 3.30-5.20 I or II; Not CR/D/F Hu (o)

An interdisciplinary study of friendship as a community of individuals differing radically from communities based on love, family, or nation. The history of friendship traced from antiquity to the present. Authors include Plato, Aristotle, Cicero, Montaigne, Schiller, Nietzsche, Simmel, Schmitt, Kafka, and Bernhard. *Readings and discussion in English.*

★GMST 311a/★HUMS 358a/★LITR 455a^G, PLATO'S LEGACY.

Carol Jacobs.

For description see under Literature.

★GMST 315a^G/★GMAN 315a/★HUMS 368a/★LITR 431a, SYSTEMS AND THEIR THEORY. Henry Sussman.

T 1.30-3.20 I or II Hu (o)

Examination of conceptual systems that have, since the outset of modernity, furnished a format and platform for rigorous thinking at the same time that they have imposed on language the attributes of self-reflexivity, consistency, repetition, purity, and dependability. Readings of texts by Kant, Hegel, Freud, N. Wiener, Bateson, Wilden, Luhmann, Kafka, Borges, Calvino, and Pynchon.

★GMST 341a/★GMAN 341a^G, GERMAN LITERATURE AND POLITICS: 1960S TO THE PRESENT. Elke Siegel.

For description see under Germanic Languages & Literatures.

★GMST 344b/★GMAN 344b^G/★LITR 199b, GOETHE AND THE DEMONIC.

Kirk Wetters.

For description see under Germanic Languages & Literatures.

★GMST 352b/★GMAN 352b^G/★HUMS 353b/★LITR 442b, THOMAS MANN: *THE MAGIC MOUNTAIN*. Rainer Nägele.

For description see under Germanic Languages & Literatures.

★GMST 353b^G/★GMAN 353b/★HUMS 351b/★LITR 424b, DIALECTIC OF ENLIGHTENMENT: KANT AND SADE. Rainer Nägele.

Th 3.30-5.20 I or II; Not CR/D/F Hu (o) Tr

A juxtaposition of Kant and Sade, based on a study of their own writings and on a pair of essays that place them together. Readings include an essay on the Enlightenment by Adorno and Horkheimer that views Sade as a Kantian rationalist and systematizer, and a discussion by Lacan of ethics, psychoanalysis, Kant, and Sade.

★GMST 367b/★HIST 420b, LEFTIST CULTURE AND POLITICS IN TWENTIETH-CENTURY GERMANY. Ute Frevert, Katie Trumpener.
For description see under History.

★GMST 370b/★FILM 466b^G/★LITR 379b, THE FILMS OF FASSBINDER, HERZOG, AND WENDERS. Brigitte Peucker.
For description see under Film Studies.

GMST 380a/MUSI 280a, MUSIC IN NAZI GERMANY. Gundula Kreuzer.
For description see under Music.

★GMST 381b/★LITR 320b/★MGRK 207b/★WGSS 207b, FAIRY TALES. George Syrimis.
For description see under Hellenic Studies.

★GMST 456b^G/★LITR 456b, INTERPRETATION AND AUTHORITY. Carol Jacobs.
For description see under Literature.

★GMST 479a or b, DIRECTED READINGS OR INDIVIDUAL RESEARCH IN GERMAN STUDIES. Consult the director of undergraduate studies.
HTBA II; Not CR/D/F (○)

Individual study under faculty supervision. Applicants must submit a prospectus and bibliography approved by the faculty adviser to the director of undergraduate studies. The student meets with the adviser at least one hour each week and takes a final examination or writes a term paper. *No credit granted without prior approval of the director of undergraduate studies.*

★GMST 490, THE SENIOR ESSAY. Consult the director of undergraduate studies.
HTBA II; Not CR/D/F (○)

Preparation of the senior essay under the supervision of a member of the faculty. *Required of all seniors majoring in German Studies.*

GREEK

(See under Classical Languages and Literatures and under Hellenic Studies.)

HEBREW

(See under Near Eastern Languages and Civilizations.)

HELLENIC STUDIES

Directors: Stathis Kalyvas, 8 Prospect Pl., 432-5386, stathis.kalyvas@yale.edu;
John Geanakoplos, 30 Hillhouse Ave., 432-3397, john.geanakoplos@yale.edu; associate program chair: George Syrimis, 34 Hillhouse Ave., 432-9342, george.syrimis@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF HELLENIC STUDIES

PROFESSORS

John Geanakoplos (*Economics*), Stathis Kalyvas (*Political Science*)

LECTURER

George Syrimis (*Comparative Literature*)

LECTOR

Gerasimus Katsan

Hellenic Studies is a program of the Council on European Studies. 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, Literature, Political Science, Religious Studies, and Russian and East European Studies. A major in Ancient and Modern Greek is described under Classical Languages and Literatures. Students who have an interest in postantiquity Greek language, society, or culture are advised to consult with the associate program chair of the Hellenic Studies program or to contact the Council on European Studies, 242 LUCE, 432-3423.

MGRK 115^G, ELEMENTARY MODERN GREEK. Gerasimus Katsan.
MTWThF 9.30-10.20 I; Not CR/D/F L1-L2 3 C Credits (32)
Cr/Year only

An introduction to modern Greek, with emphasis on spontaneous oral expression. Use of communicative activities, graded texts, written assignments, grammar drills, audiovisual material, and contemporary documents. In-depth cultural study.

MGRK 130^G, INTERMEDIATE MODERN GREEK. Gerasimus Katsan.
MTWThF 11.30-12.20 I; Not CR/D/F L3-L4 3 C Credits (34)
Cr/Year only

Through extensive use of authentic contemporary resources, the course develops students' proficiency in understanding, speaking, reading, and writing modern Greek. Continued familiarization with contemporary Greek culture. Modern Greek literature introduced in the second term. *Prerequisite: MGRK 115 or satisfactory placement test.*

*MGRK 140a, ADVANCED MODERN GREEK. Gerasimus Katsan.
Th 1.30-3.20 I; Not CR/D/F L5 (0)

An advanced language course intended to improve students' oral proficiency, listening skills, reading comprehension, and writing. Use of authentic texts including literature, periodicals, historical writing, and popular culture. *Conducted in Greek. Prerequisite: MGRK 130 or permission of instructor.*

*MGRK 206a, CONTEMPORARY GREECE. George Syrimis.
W 1.30-3.20 I Hu (0)

An interdisciplinary study of the major historical, social, and cultural events that have shaped contemporary Greece. Particular emphasis on the changing forces that inform current perceptions of Greek identity, the classical past, Europeanization, ethnography, ethnic and immigrant communities, the language question, and gender and sexuality. Cultural topics include film, music, dance, and literature.

*MGRK 207b/*GMST 381b/*LITR 320b/*WGSS 207b, FAIRY TALES.
George Syrimis.
W 1.30-3.20 I Hu (0) Tr

A comparative examination of the genre of folktales and fairy tales from their classical origins to modern anthologies, with particular focus on the history and criticism of the Greek and the German traditions. The history of folktales and

fairy tales studied within the discipline of folklore and the framework of romanticism. Special attention to the critical approaches of formalism, Marxism and new historicism, psychoanalysis, feminism, anthropology, cultural studies, and ethnography. Consideration of modern rewritings of folktales and fairy tales by contemporary writers; examples from contemporary cinema.

★MGRK 208a, MODERN GREEK LITERATURE IN TRANSLATION.

Gerasimus Katsan.

T 1.30-3.20 I; Not CR/D/F Hu (o) Tr

A survey of nineteenth- and twentieth-century modern Greek literature in translation, including poetry and prose.

★MGRK 450a and 451b, SENIOR SEMINAR IN MODERN GREEK LITERATURE. George Syrimis.

3 HTBA I; Not CR/D/F L5 (o)

A senior seminar in modern Greek literature for students with advanced proficiency in modern Greek. *May be offered toward the major in Ancient and Modern Greek.*

★MGRK 481a, INDEPENDENT TUTORIAL. Gerasimus Katsan.

HTBA I; Not CR/D/F (o)

For students with advanced language skills in modern Greek who wish to engage in individual study or concentrated reading and research on material not otherwise offered in courses. Applicants submit a detailed project proposal to the language studies coordinator. The student must meet with the instructor for at least one hour each week, and the work must terminate in a term paper or its equivalent.

HINDI

(*See under South Asian Studies.*)

HISTORY

Director of undergraduate studies: Robert Harms, 237 HGS, 432-1355,
robert.harms@yale.edu

FACULTY OF THE DEPARTMENT OF HISTORY

PROFESSORS

Jean-Christophe Agnew, Abbas Amanat, Ivo Banac, David Blight, Paul Bushkovitch, Jon Butler, George Chauncey, John Demos, Carlos Eire, Laura Engelstein, John Mack Faragher, Paul Freedman (*Chair*), Joanne Freeman, Ute Frevert, John Gaddis, Glenda Gilmore, Robert Gordon, Ramachandra Guha (*Visiting*), Timothy Guinnane, Valerie Hansen, Robert Harms, Jonathan Holloway, Paula Hyman, Matthew Jacobson, Gilbert Joseph, Donald Kagan, Paul Kennedy, Daniel Kevles, Benedict Kiernan, Bentley Layton, Ivan Marcus, John Matthews, John Merriman, Joanne Meyerowitz, Steven Pincus, Stephen Pitti, Tessa Rajak (*Visiting*), Cynthia Russett, Lamin Sanneh, Stuart Schwartz, Frank Snowden, Jonathan Spence, Harry Stout, Frank Turner, Noël Valis, John Warner, Anders Winroth, Jay Winter, Keith Wrightson

ASSOCIATE PROFESSORS

Michael Auslin, Susan Lederer, Mary Lui, Michael R. Mahoney, Carolyn Moehling, Naomi Rogers, Timothy Snyder, Steven Stoll

ASSISTANT PROFESSORS

Jennifer Baszile, Bruno Cabanes, Seth Fein, Beverly Gage, Michael Gasper, Lillian Guerra, Jennifer Klein, Ole Molvig, Alyssa Mt. Pleasant, Carlos Noreña, Mridu Rai, Ronald Rittgers, Youval Rotman, Celia Schultz, Marci Shore (*Visiting*), Francesca Trivellato, Charles Walton, Kariann Yokota

LECTURERS

Shawn Alexander, Adel Allouche, Theodore Bromund, Annping Chin, Nicole Cohen, Faisal Devji, Robert Forbes, Scott Gac, Carine Germond, Jay Gitlin, Walter Goffart, Veronika Grimm, Maija Jansson, María Jordán, Bettyann Kevles, Hoi-eun Kim (*Visiting*), Stephen Lassonde, George Levesque, John Mangan, Thomas McDow, William Metcalf, David Musto, Brian Noell, Christine Philiou, Frank Prochaska, Daniel Stein Kokin, William Summers, Rebecca Tannenbaum, Robert Wokler

Unless designated by a star, courses in History are open to all students in Yale College. Unstarred courses, however, are liable to be limited in their enrollment (“capped”) at the beginning of the term, depending on the number of teaching assistants available.

A student who becomes a History major is assigned an adviser from among the departmental faculty. The adviser is available throughout the year for consultation about courses and the major. At the beginning of each term, students majoring in History must have their departmental adviser approve and sign their schedules. It is possible for students to change advisers provided they obtain the written consent of the new adviser.

The major. The prerequisite for entering the History major is two term courses in history. Courses completed in fulfillment of the prerequisite may be applied to the requirements of the major.

Selection of courses. The Department of History strongly urges each student to devise a program of study that, while meeting individual interests and needs, also achieves a balance between diversification and specialization. Exposure to a variety of areas of history is desirable first because only wide-ranging experience can give students confidence in having discovered their own true interests and aptitudes. Equally important, studying various times and societies, including preindustrial ones, prevents provincialism and provides the comparative knowledge essential to a clearer understanding of the area chosen for specialization. Finally, the department assumes that all students understand the vital importance of studying the historical traditions from which their society has developed. One cannot expect to understand another culture without a firm historical grasp of one’s own.

Requirements of the major. Twelve terms of history are required, which may include the two terms taken as prerequisites. Included in these twelve terms must be:

(a) two terms of United States or Canadian history (courses in the colonial period may fulfill this requirement);

(b) two terms of European or British history (courses in Greek and Roman, Byzantine, and Russian history may fulfill this requirement);

(c) three terms of African, Asian, Latin American, or Middle Eastern history.

Two of these seven terms must be courses in preindustrial history, and they must be chosen from two of the geographical categories listed above. Preindustrial history courses are so marked in their data lines. Students may use the same courses to count toward both geographical and preindustrial requirements. Only in rare cases will the director of undergraduate studies consider petitions from History majors seeking geographical or chronological credit outside of a History course’s primary designation.

Two terms of HIST 400–493 are required and are normally taken during the junior year, although students are encouraged to take more than two junior seminars. (See below under HIST 400–493, Seminars for Upperclassmen, for information about pre-enrollment.) Students must choose junior seminars from two different geographical categories. Sophomores contemplating a junior term abroad are urged to consider taking at least

one junior seminar in the sophomore year. Residential college seminars that count toward the History major do not fulfill the junior seminar requirement. During senior year, each student must complete a senior departmental essay written under the guidance of a member of the faculty.

Credit toward the major will be given only for courses included in the History listing below and in the History course listings included in the on-line Yale College Course Supplement. All courses in History of Science, History of Medicine count automatically toward the History major. *No substitutions from other departments are allowed.*

Library orientation. The History department requires all majors to complete a ninety-minute introductory research session for historians by the end of the third week of the junior year. Several library orientation sessions are offered at the beginning of each term. Students are strongly encouraged to take this class during their sophomore year; indeed, sophomores who have not taken the library orientation before the end of the first week after spring break will not be permitted to preregister for the following year's junior seminars. Students may offer no substitutions for this orientation. Students should register on the Web at www.library.yale.edu/rsc/schedule/intro.html. For questions students should contact the director of undergraduate studies.

History of Science, History of Medicine. A major in History of Science, History of Medicine is available to students through the auspices of the History department. See under History of Science, History of Medicine.

Placement in advanced courses. With a few exceptions, chiefly HIST 400–493, history courses are automatically open to all freshmen. Acceleration credit in history resulting from the requisite score on an Advanced Placement test in history will not be counted toward the History major. Courses for the major must be taken at Yale, except with prior permission of the director of undergraduate studies.

Senior departmental essay. History is more than past events; it is also the discipline of historical inquiry. As a discipline, it uses many techniques, but its basic method is the collection and careful evaluation of evidence and the written presentation of reasonable conclusions derived from that evidence. To experience history as a discipline, a student must grapple at first hand with the problems and rigors involved in this kind of systematic investigation and exposition. The Department of History therefore requires each student majoring in History to present a historical essay on a subject of the student's choice to the department in the senior year. The range of acceptable topics is wide, but most essays fall into two categories. The first involves the study of a limited problem through research in accessible source materials. The second is a critical assessment of a significant historical controversy or historiographical issue. Whatever topic the student elects, the essay must be interpretive and analytical, not only narrative and descriptive.

In choosing the subject of the senior essay, students should be aware that lack of foreign language expertise is not necessarily a bar to researching a topic in the history of a non-English-speaking area. Many translated materials exist, and for some areas of the world (chiefly Africa, Asia, and Latin America) diaries, letters, and newspapers composed by missionaries, businessmen, and diplomats writing in English are available. Many of these sources are held in Yale's extensive archival collections; others are available on microfilm.

Seniors receive course credit for satisfactory completion of their departmental essays by enrolling in HIST 495a or b and 496a or b. They must also complete a library research colloquium for the senior essay. Students should

register for the colloquium on the Web at www.library.yale.edu/rsc/schedule/essay.html.

REQUIREMENTS OF THE MAJOR

Prerequisites: Two term courses in history

Number of courses: Twelve term courses (including prerequisites and senior essay)

Substitution permitted: None outside the History dept listing

Distribution of courses: Two courses in U.S. or Canadian, two courses in European or British, three courses in African, Asian, Latin American, or Middle Eastern history, of which two must be preindustrial in different geographical areas; at least two courses in HIST 400–493, normally in junior year, in two different geographical areas (as defined above)

Senior requirement: Senior essay (HIST 493a and 496b, or 493b and 496a)

History courses numbered 001 to 020 are freshman seminars, with enrollment limited to 15. Courses numbered 100 to 199 are in the history of the United States or Canada; those in the 200s, Europe and Britain; and those in the 300s, the rest of the world. Courses numbered from 100 to 380 are subject to capping at the beginning of each term.

★DRST 003, DIRECTED STUDIES: HISTORICAL AND POLITICAL THOUGHT. Kathryn Slanski, Elizabeth Foster, Paul Freedman, Bryan Garsten, Charles Hill, Margaret Litvin, Karuna Mantena, Steven Smith, Norma Thompson, Roy Tsao.

For description see under Directed Studies. PreInd [F]

★HIST 003a, CLASSICS OF WORLD HISTORY. Valerie Hansen.

MW 2.30–3.45 Hu (○) Fr sem

An introduction to the historical traditions of Greece and Rome, Islam, and China. Focus on Polybius, Herodotus, al-Tabari, Masudi, Sima Qian, and Sima Guang. Particular attention to their treatment of people and events outside their borders. *Enrollment limited to freshmen.*

★HIST 004a/★AMST 005a/★RLST 005a, AMERICAN RELIGION, AMERICAN LIFE. Jon Butler.

MW 1–2.15 WR, Hu (○) Fr sem

The intersection of religion and American life explored from the Puritans to the present. Focus on religion and social values, slavery, politics, reform, gender, and America's role in spawning new religions. Special attention to understanding religion's remarkable persistence in American culture to the early twenty-first century. *Enrollment limited to freshmen.*

★HIST 006a/★HSHM 005a, MEDICINE AND SOCIETY IN AMERICAN HISTORY. Rebecca Tannenbaum.

TTh 11.30–12.45 WR, Hu (○) Fr sem

Consideration of disease and healing in American history from colonial times to the present. Topics include the changing role of the physician, alternative healers and therapies, and the social impact of epidemics from smallpox to AIDS. *Enrollment limited to freshmen.*

★HIST 008a/★HUMS 080a/★RLST 001a, ESSENTIAL HERESIES. Carlos Eire.

TTh 2.30–3.45 Hu (27) Fr sem

Introduction to the major individuals and movements that have challenged the intellectual and spiritual status quo in Western civilization. *Enrollment limited to freshmen.*

★HIST 009a/★HUMS 079a, THE VIKING AGE. Anders Winroth.

TTh 9-10.15 Hu (○) Fr sem

Exploration of the ambiguous role of the Vikings in the history of the early Middle Ages. Focus both on the Vikings' impact in Europe (raids, trade, and settlement) and on developments in their Scandinavian homelands (Christianization and the creation of kingdoms). *Enrollment limited to freshmen.*

★HIST 010a, POSTWAR AMERICA AT HOME: 1945–1960. Cynthia Russett.

TTh 2.30-3.45 WR, Hu (○) Fr sem

An examination of the ways in which American culture took shape in the years after World War II. Focus on domestic culture and society during the years when unprecedented prosperity vied with fears of Armageddon. *Enrollment limited to freshmen.*

★HIST 011b, AMERICA'S FOUNDING ERA. Joanne Freeman.

MW 2.30-3.45 WR, Hu (○) Fr sem

An introduction to the study and writing of history, focusing on the founding years of the new American nation. Topics include the creation of a new form of governance, the growth of partisan conflict, questions of leadership and citizenship, early American journalism, and early attempts at creating an American culture, as well as an introduction to some of the leading figures involved in America's founding. *Enrollment limited to freshmen.*

★HIST 014b, THE MAKING OF THE MODERN UNIVERSITY.

George Levesque.

TTh 2.30-3.45 Hu (○) Fr sem

A survey of the history of American higher education from the colonial era to the Cold War. Emphasis on changes in the profile of students, role of faculty, and scope of the curriculum. Particular attention to how these changes reflected larger developments in American intellectual, cultural, and social history. *Enrollment limited to freshmen.*

HIST 105a/AMST 189a, THE FORMATION OF MODERN AMERICAN CULTURE, 1750–1876. Kariann Yokota.

For description see under American Studies.

HIST 106b/AMST 191b, THE FORMATION OF MODERN AMERICAN CULTURE, 1920 TO THE PRESENT. Michael Denning.

For description see under American Studies.

HIST 107a/AMST 133a/ER&M 187a, THE NATIVE AMERICAN EXPERIENCE IN NORTH AMERICA. Alyssa Mt. Pleasant.

TTh 11.30-12.20, I HTBA II Hu (24)

A survey of Native American history from the first migrations of native people to the present. Emphasis on native responses to changing historical circumstances. Topics include the rise of indigenous civilizations, the European invasions, tribes and empires, the fur trade, wars of dispossession and removal, the reservation system, revitalization movements, native sovereignty and tribal resurgence, urban migration, and pan-Indianism.

HIST 112a/AMST 190a, THE FORMATION OF MODERN AMERICAN CULTURE, 1876–1919. Jean-Christophe Agnew.

For description see under American Studies.

HIST 115b/AMST 188b, THE COLONIAL PERIOD OF AMERICAN HISTORY. Rebecca Tannenbaum.

TTh 11.30-12.45, I HTBA II; Not CR/D/F Hu (24) PreInd

Significant themes in American life, 1607–1750: politics and imperial governance; social structure; religion; ecology; race relations; gender; popular culture; the rhythms of everyday life. *Freshman enrollment limited to students with scores of 4 or 5 on the Advanced Placement test in American history.*

HIST 116a, THE AMERICAN REVOLUTION. Joanne Freeman.

MW 2.30-3.20, 1 HTBA II; Not CR/D/F Hu (37) PreInd

Examination of the American Revolution from the perspective of the colonists, and their shifting identities as English subjects, colonial settlers, revolutionaries, and Americans. Readings include contemporary correspondence and eyewitness accounts.

HIST 119a, THE CIVIL WAR AND RECONSTRUCTION ERA, 1845–1877.

Robert Forbes.

TTh 11.30-12.20, 1 HTBA II; Not CR/D/F Hu (24)

An exploration of the causes, course, and consequences of the American Civil War. A search for the multiple meanings of a transformative event, including national, sectional, racial, constitutional, social, gender, intellectual, and individual dimensions.

HIST 120b/EVST 120b, INTRODUCTION TO ENVIRONMENTAL HISTORY.

Steven Stoll.

For description see under Environmental Studies.

HIST 124b, UNITED STATES: THE YOUNG REPUBLIC. Robert Forbes.

TTh 2.30-3.20, 1 HTBA II Hu (27)

Introduction to the early life of the American Republic, focusing on the interplay between culture and politics. Topics include the creation of a national government; the impact of continental expansion; the nature and sources of economic and political power at the local, state, regional, and federal levels; party formation and competition; religion and reform; the formation of an intellectual culture; and slavery and sectional strife.

HIST 125b/AMST 130b/HSHM 230b, A HISTORY OF AMERICAN BODIES.

Susan Lederer.

For description see under History of Science, History of Medicine.

HIST 127a/WGSS 200a, U.S. LESBIAN AND GAY HISTORY.

George Chauncey.

MW 10.30-11.20, 1 HTBA II Hu (33)

Introduction to the social, cultural, and political history of lesbians, gay men, and other socially constituted sexual minorities. Focus on understanding categories of sexuality in relation to shifting normative regimes and broad developments in U.S. history, primarily in the twentieth century. Topics include the emergence of homosexuality and heterosexuality as categories of experience and identity; the changing relationship between homosexuality and transgenderism; the development of diverse lesbian and gay subcultures and their representation in popular culture; the sources of antigay hostility; religion and sexual science; generational change and everyday life; AIDS; and gay, antigay, feminist, and queer movements.

HIST 128b/AMST 213b/ER&M 286b, HISTORY OF MEXICAN AMERICANS SINCE 1848. Stephen Pitti.

MW 10.30-11.20, 1 HTBA II; Not CR/D/F Hu (33)

A survey of Mexicans and Mexican Americans in the United States since the Mexican War, with particular attention to communities and conflicts in the U.S.–Mexico border region. Topics include the rise of Latino immigration since the mid-nineteenth century, the influence of the Mexican Revolution on the

United States, patterns of ethnic and racial conflict in the Southwest, and struggles by immigrant and native-born residents to create new labor and civil rights movements.

HIST 132b/AMST 132b, AMERICAN POLITICS AND SOCIETY, 1945 TO THE PRESENT. Jennifer Klein.

MW 1-2.15 II; Not CR/D/F Hu (36)

Investigation of the issues of political economy, civil rights, class politics, and gender roles that defined postwar America. Topics include legacies of the New Deal as they played out after World War II; the origins, agenda, and ramifications of the Cold War; postwar suburbanization and its racial dimensions; migration and immigration; cultural changes; social movements of the Right and Left; Reaganism and its legacies; and the United States and the global economy.

HIST 135b/ECON 182b, AMERICAN ECONOMIC HISTORY. Staff.

For description see under Economics.

HIST 137b/AMST 230b/ER&M 223b, INTERNATIONAL HISTORY OF THE UNITED STATES IN THE TWENTIETH CENTURY. Seth Fein.

MW 2.30-3.45, 1 HTBA II Hu (37)

The political, economic, and sociocultural interactions of the United States with other states and societies since around 1900. Topics include domestic and international dimensions of U.S. foreign policy, the global context of U.S. political economy and identities, and the transnational presence of and response to the United States within other nations. Emphasis on culture and ideology.

HIST 171b/AMST 271b/WGSS 201b, WOMEN IN AMERICA: THE TWENTIETH CENTURY. Joanne Meyerowitz.

TTh 10.30-11.20, 1 HTBA II Hu (23)

A survey of women's political, social, and economic lives and of relations between the sexes in the twentieth century. Topics include the winning of the vote; changes in occupational and family life; and participation in public activism through two world wars, the Great Depression, the Cold War, the rebirth of feminism, and the "postfeminist" decades.

HIST 174b, AMERICAN INTELLECTUAL AND CULTURAL LIFE IN THE TWENTIETH CENTURY. Cynthia Russett.

TTh 10.30-11.20, 1 HTBA II Hu (23)

A survey of important intellectual developments from the "Innocent Rebellion" of the pre-World War I period through the 1960s. Topics include coming to terms with the European legacy; intellectuals and the Left in the Depression; the postwar "end of ideology"; and the apocalyptic visions of the 1960s.

HIST 176a^G/^{}HSHM 320a^G, THE ENGINEERING AND OWNERSHIP OF LIFE. Daniel Kevles.

T 1.30-3.20 II; Not CR/D/F Hu (0)

The development of biological knowledge and control in relation to intellectual property rights in living organisms. Topics include agribusiness, medicine, biotechnology, and patent law.

HIST 186a/AFAM 161a, AFRICAN AMERICAN HISTORY: FROM THE BEGINNING TO EMANCIPATION. Jennifer Baszile.

For description see under African American Studies.

HIST 187b/AFAM 162b/AMST 162b, AFRICAN AMERICAN HISTORY: FROM EMANCIPATION TO THE PRESENT. Jonathan Holloway.

For description see under African American Studies.

HIST 196b/INTS 319b, TERRORISM IN AMERICA, 1865–2001.

Beverly Gage.

TTh 1.30-2.20, I HTBA II Hu (26)

A survey of the history and theory of terrorism in the United States since the Civil War. Topics include the Ku Klux Klan, anarchist and labor violence, the Weather Underground, antiabortion violence, the Oklahoma City bombing, and 9/11. Examination of the ideological roots of violence as well as legal, cultural, and political responses.

HIST 202b, EUROPEAN CIVILIZATION, 1648–1945. John Merriman.

MW 10.30-11.20, I HTBA II Hu (33)

An overview of the economic, social, political, and intellectual history of modern Europe. Topics include the rise of absolute states, the scientific revolution, the Enlightenment, the French Revolution and Napoleon, the industrial revolution, the revolutions of 1848, nationalism and national unifications, Victorian Britain, the colonization of Africa and Asia, fin-de-siècle culture and society, the Great War, the Russian Revolution, the Europe of political extremes, and World War II.

HIST 205a/CLCV 205a, INTRODUCTION TO ANCIENT GREEK HISTORY.

Donald Kagan.

For description see under Classical Languages & Literatures. PreInd

HIST 206b/LATN 447b^G, ROMAN SOCIAL HISTORY IN LATIN TEXTS.

John Matthews.

For description see under Classical Languages & Literatures.

HIST 207b/CLCV 235b, NERO AND HIS AGE. John Matthews.

For description see under Classical Languages & Literatures.

HIST 208b/CLCV 232b, FOOD AND DIET IN GRECO-ROMAN ANTIQUITY.

Veronika Grimm.

For description see under Classical Languages & Literatures. PreInd

HIST 210a/HUMS 229a, THE EARLY MIDDLE AGES, 284–1000.

Anders Winroth.

MW 10.30-11.20, I HTBA II Hu (33) PreInd

A survey of the major developments in the political, social, and religious history of western Europe from the accession of Diocletian to the feudal transformation. Topics include the conversion of Europe to Christianity, the fall of the Roman Empire, the rise of Islam and the Arabs, the “Dark Ages,” Charlemagne and the Carolingian renaissance, and the Viking and Hungarian invasions.

HIST 211b/HUMS 230b, THE BIRTH OF EUROPE, 1000–1500.

Paul Freedman.

MW 10.30-11.20, I HTBA II Hu (33) PreInd

A survey of Europe during the central and late Middle Ages, from the feudal revolution to the age of discoveries. Study of how Europe came to be defined in terms of national states and international empires. Topics include the rise and decline of papal power, church reform movements, the Crusades, contacts with Asia, the commercial revolution, and the culture of chivalry.

HIST 216b, EVOLUTION OF THE BYZANTINE EMPIRE. Youval Rotman.

TTh 4-5.15 II Hu (27) PreInd

The history of the Byzantine Empire from its reorganization by Justinian in the sixth century to its final destruction by the Turks in the mid-fifteenth century. Focus on the role Byzantium played as a political, economic, and cultural power.

HIST 217a/CLCV 206a, INTRODUCTION TO ROMAN HISTORY:
THE REPUBLIC. William Metcalf.
For description see under Classical Languages & Literatures. PreInd

HIST 218b/CLCV 207b, INTRODUCTION TO ROMAN HISTORY:
THE EMPIRE. Serena Connolly.
For description see under Classical Languages & Literatures. PreInd

HIST 219a^G/JDST 200a^G/RLST 148a^G, HISTORY OF JEWISH CULTURE TO THE
REFORMATION. Ivan Marcus.
For description see under Religious Studies. PreInd

HIST 222a/CLCV 124a, THE CITY OF CONSTANTINOPLE FROM
CONSTANTINE TO JUSTINIAN. John Matthews.
For description see under Classical Languages & Literatures.

HIST 223a/HUMS 260a/RNST 223a, RENAISSANCE ITALY. Brian Noell.
TTh 1.30-2.20, 1 HTBA II Hu (26) PreInd

An overview of the social, economic, political, and cultural dimensions of the Italian Renaissance. Topics include life in the city and the countryside; family and gender roles; marginal groups; religion; war and state-building; arts and sciences; and the Mediterranean and the New World.

HIST 224a/FILM 460a/ITAL 323a, MODERN ITALY: HISTORY AND FILM.
Millicent Marcus, Frank Snowden.

TTh 11.30-12.45; *screenings* w 7 P.M. II Hu (24)

An examination of the making of modern Italy from the Congress of Vienna to the present, fusing the techniques of historians with the insights of modern film studies. History as it is represented and transformed in the cinema; dialogue between these two discourses. Topics include national unification; regionalism and the Italian South; organized crime and the Mafia; emigration; fascism; malaria and its social impact; the First and Second World Wars; Christian Democracy, communism, and the Italian Republic; the consumer society; terrorism; and contemporary politics. *No knowledge of Italian required.*

HIST 225b/HUMS 385b, ENGLAND'S AGE OF REVOLUTIONS, C. 1640–1776.
Steven Pincus.

TTh 11.30-12.45 II; Not CR/D/F Hu (24) PreInd

A study of England's transformation from a backward and peripheral player in Europe in 1600 to the ruler of Europe's most powerful empire by 1763. Topics include the English Civil War, the rule of Oliver Cromwell, the development of the British Empire in India, North America, and the West Indies, the Anglo-Dutch wars, the Glorious Revolution, the Jacobite rebellions of 1715 and 1745, the Seven Years' War, the origins of party politics, the transformation of the English economy, and the emergence of a political press.

HIST 232b, TWENTIETH-CENTURY BRITAIN. Jay Winter.

MW 10.30-11.20, 1 HTBA II; Not CR/D/F Hu (33)

A survey of twentieth-century British history. Topics include imperialism, liberal reform, World Wars I and II, the rise of labor, family life, popular culture, the European question, Thatcher and Blair, national identity, and the debate over national decline.

HIST 234b/HSHM 235b, EPIDEMICS AND SOCIETY IN THE WEST SINCE
1600. Frank Snowden.

TTh 10.30-11.20, 1 HTBA II Hu (23)

A study of the impact of epidemic diseases such as bubonic plague, cholera, malaria, and AIDS on society, public health, and the medical profession in comparative and international perspective. Topics include popular culture and mass hysteria, the mortality revolution, urban renewal and rebuilding, sanitation, the germ theory of disease, the emergence of scientific medicine, and debates over the biomedical model of disease.

HIST 236a/HSHM 217a, HISTORY OF THE MODERN SCIENCES IN SOCIETY.
Ole Molvig.

TTh 1-2.15, I HTBA II Hu (26)

An introduction to the history of science from the Enlightenment to the present. Focus on the physical sciences, with some attention to developments in the life sciences. Topics include the clockwork universe, the chemical revolution, evolutionary theory, thermodynamics, quantum theory, colonial empires, industry, professionalization, cultural modernism, and nuclear fear.

HIST 249a^G/JDST 282a^G, JEWS AND MODERNITY IN EASTERN EUROPE AND RUSSIA. Marci Shore.

For description see under Judaic Studies.

HIST 251a/RNST 251a, EARLY MODERN ENGLAND: POLITICS, RELIGION, AND SOCIETY UNDER THE TUDORS AND STUARTS. Keith Wrightson.

TTh 10.30-11.20, I HTBA II; Not CR/D/F Hu (23) PreInd

An introduction to the development of English society between the late fifteenth and early eighteenth centuries—a vital period of social, political, economic, and cultural transition, and one that provided the immediate context of early British settlement in North America and the literature of the English Renaissance.

HIST 255b, THE EXPERIENCE OF WAR IN THE TWENTIETH CENTURY.
Bruno Cabanes.

MW 11.30-12.45 II Hu (34)

An introduction to new approaches in the history of war. Focus on a comparative examination of the actors, forms of violence, ideological stakes, and memories of modern war.

HIST 261a/PLSC 176a, THE COLD WAR. John Gaddis.

MW 1-2.15, I HTBA II or III Hu, So (36)

The Cold War from beginning to end, viewed from the perspective of all its major participants, with particular emphasis on recently released Soviet, East European, and Chinese sources. *Not open to freshmen. Counts toward either European or U.S. distributional credit within the major.*

HIST 263a, EASTERN EUROPE TO 1914. Ivo Banac, Timothy Snyder.

MW 10.30-11.20, I HTBA II Hu (33)

Eastern Europe from the medieval state to the rise of modern nationalism. Themes include religious diversity, the constitution of empire, and the emergence of secular political ideologies. Topics include the Ottoman Empire, the Polish-Lithuanian Commonwealth, the Habsburg monarchy, and various native currents.

HIST 264b, EASTERN EUROPE SINCE 1914. Ivo Banac, Timothy Snyder.

MW 10.30-11.20, I HTBA II Hu (33)

Eastern Europe from the collapse of the old imperial order to the enlargement of the European Union. Main themes include world war, nationalism, fascism, and communism. Special attention to the structural weaknesses of interwar nation-states and postwar communist regimes. Nazi and Soviet occupation as an

age of extremes. The collapse of communism. Communism after 1989 and the dissolution of Yugoslavia in the 1990s as parallel European trajectories.

HIST 265a, GERMANY, 1871–1990. Ute Frevert.

MW 10.30–11.20, I HTBA II Hu (33)

An introduction to German history from unification in 1871 until reunification in 1990. Focus on major political, economic, social, and cultural transformations, with a special emphasis on the First and Second World Wars.

HIST 269a^G/JDST 286a^G/RLST 230a^G, HOLOCAUST IN HISTORICAL

PERSPECTIVE. Paula Hyman.

MW 10.30–11.20, I HTBA II Hu (33)

A survey of the major historical issues raised by the Holocaust, including the roots of Nazism; different theoretical perspectives and ways of accounting for genocide; the behavior of perpetrators, victims, and bystanders; and problems of representation.

HIST 273a, EUROPE IN THE AGE OF TOTAL WAR, 1914–1945. Jay Winter.

TTh 10.30–11.20, I HTBA II; Not CR/D/F Hu (23)

A survey of European history that addresses the two world wars and the transformation of European society and culture between 1914 and 1945.

HIST 274b, OLD REGIME FRANCE. Charles Walton.

TTh 10.30–11.20, I HTBA II Hu (23)

Examination of social, political, and cultural changes in Old Regime France from the rise of Louis XIV and the absolutist state in the mid-seventeenth century to the outbreak of the French Revolution in 1789. Topics include state building, court culture, civility, enlightenment, the public sphere, and the causes of the Revolution.

HIST 275a, FRANCE, 1789–1871. John Merriman.

MW 10.30–11.20, I HTBA II Hu (33) PreInd

Dimensions of political, social, and economic change in France during its most turbulent period. The causes and impact of the revolutions of 1789, 1830, 1848, and 1871; the impact of demographic change and large-scale industrialization; shifting political elites, the development of republican and socialist alternatives to monarchy, and the consequences of urbanization.

HIST 290a, RUSSIA FROM THE NINTH CENTURY TO 1801.

Paul Bushkovitch.

TTh 11.30–12.45 II; Not CR/D/F Hu (24) PreInd

The mainstream of Russian history from the origins of the Kievan state to 1801. Political, social, and economic institutions as they made the transition from orthodoxy to the Enlightenment.

HIST 310a, HISTORY OF MODERN SOUTH ASIA. Mridu Rai.

MW 11.30–12.45, I HTBA II Hu (34)

Survey of the Indian subcontinent's history from colonial rule, through nationalist resistance, to postcolonial history. Topics include the establishment of British dominion; colonial transformation of Indian politics, society, economy, and culture; nationalism before and after Gandhi; the partition of India; and recent developments in South Asia.

HIST 314b, EARLY SOURCES IN CHINESE INTELLECTUAL TRADITIONS.

Anping Chin.

MW 1–2.15, I HTBA II; Not CR/D/F Hu (36) PreInd

Readings in translation of the basic texts of Confucianism, Taoism, and legalism. Examination of what the early Chinese thought about the world and themselves, how they articulated what they thought and organized what they knew, and how they explored the irrational and issues such as fairness and moral appropriateness.

HIST 315a, HISTORY OF TRADITIONAL CHINA TO 1600.

Valerie Hansen.

MW 10.30-11.20, I HTBA II; Not CR/D/F Hu (0) PreInd

A survey of Chinese history from the introduction of oracle bone writing in c. 1200 B.C. to A.D. 1600, and the effects of the discovery of the New World on China. Philosophical, religious, and literary texts in translation as well as archaeological and art-historical evidence used to explore Chinese civilization.

HIST 316b, HISTORY OF MODERN CHINA, 1600-2007.

Jonathan Spence.

MW 11.30-12.20, I HTBA II; Not CR/D/F Hu (34)

The rise and fall of the Qing (1644-1912), China's last dynasty. Traditional Chinese values, and the effect of foreign ideas and technologies on those values. China's first Republic (1912-1949) and the impact of foreign imperialism and communism. The People's Republic of China under Mao Zedong and Deng Xiaoping, and China's changing economic and political structures.

HIST 325b, RACE, SPIRITUALITY, AND REVOLUTION IN THE CARIBBEAN.

Lillian Guerra.

TTh 1.30-2.20, I HTBA II Hu Meets RP (26)

The Caribbean explored as a complex and diverse region shaped by imperial rivalries, patterns of colonial exploitation, cultural diversity, and varied forms of resistance to foreign domination. Focus on Jamaica, Trinidad and Tobago, Haiti, the Dominican Republic, and Nicaragua from the eighteenth century to the present. Topics include the age of privacy, slavery, Garveyism, the Trujillo dictatorship, Haitian popular religion, the Sandinista revolution, and U.S. foreign policy toward the region.

HIST 343a, HISTORY OF THE PALESTINE-ISRAEL QUESTION.

Michael Gasper.

TTh 2.30-3.20, I HTBA II Hu (27)

An introduction to the history of the Palestine-Israel question from the nineteenth century to the present. Topics include the development of Zionism and Palestinian identity; the Ottoman, British, and Palestinian reactions to Zionist immigration; the relationship between the early Zionist settlers and the Palestinians; war, resettlement, and the creation of refugee populations; and attempts at resolution.

HIST 348a, STATE, SOCIETY, AND CULTURE IN THE MIDDLE EAST.

Abbas Amanat.

TTh 10.30-11.20, I HTBA II Hu (23)

A survey of the Middle East and its transformation from the age of Islamic empires to modern nation-states; the political, economic, and cultural challenge of the West; nationalism, ideology, and autocracy in the Arab world, Iran, and Turkey; religion, modernity, and social protest; the Arab-Israeli conflict and the United States; the Islamic revolution; and ethnicity, gender, and identity in the contemporary Middle East.

HIST 355a, COLONIAL LATIN AMERICA. Stuart Schwartz.

MW 11.30-12.45, I HTBA II; Not CR/D/F Hu (34) PreInd

A survey of the conquest and colonization of Latin America from pre-Columbian civilizations through the movements for independence. Emphasis on social and economic themes and the formation of identities in the context of multiracial societies.

HIST 358b/ER&M 341b, MEXICO IN THE NINETEENTH AND TWENTIETH CENTURIES. Gilbert Joseph.

TTh 2.30-3.45 II; Not CR/D/F Hu (27)

Modern Mexico from the wars of independence in the early nineteenth century to the present. Social, cultural, and economic trends and their relationship to political movements; particular emphasis on the Revolution of 1910 and the long shadow it has cast.

HIST 360a/NELC 402a, THE ISLAMIC NEAR EAST FROM MUHAMMAD TO THE MONGOL INVASION. Adel Allouche.

For description see under Near Eastern Languages & Civilizations. PreInd

HIST 361b, HISTORY OF BRAZIL. Stuart Schwartz.

MW 11.30-12.45, I HTBA II; Not CR/D/F Hu (34)

An introduction to the broad sweep of Brazilian history from European contact to the reestablishment of civilian government in the 1990s. Focus on the multi-ethnic nature of Brazilian society, the formation of social and political patterns, and the relationship of people to the environment.

HIST 400-493, SEMINARS FOR UPPERCLASSMEN. Consult the director of undergraduate studies.

Juniors majoring in History must take at least two terms of HIST 400-493. The seminars must be from two of the three different geographic categories indicated in the text above. Each seminar aims to acquaint students in a substantial and professional way with the literature of a period in history; to train them as far as possible in the use of primary source materials; to introduce them to problems of bibliography, historiography, and historical method; and to give them training in the writing of history. The relative importance of these objectives in any particular seminar depends on its subject matter, the previous preparation of its students, and the availability of materials.

Enrollment in seminars. Each term prospective junior History majors should apply for seminars for the following term on forms provided by the department. Forms will be available in 237 HGS after midterm in the fall and after break in the spring. On these forms students indicate their first three choices of seminars for each term. Accelerated students holding junior status must notify the undergraduate history administrator in 237 HGS, 432-1359, by October 20 in the fall and by March 9 in the spring in order to be eligible to preregister for the following term's seminars. All students who wish to preregister must declare their major and take the mandatory History library orientation by the end of the first week after midterm in the fall and by the end of the first week after break in the spring. Lists of assignments for the following term will be made available as soon as possible, posted outside 237 HGS.

In September and in January, application for admission should be made directly to the instructors of the seminars, who will admit students to remaining vacancies in their seminars. Priority is given to applications from juniors, then seniors, majoring in History, but applications are also accepted from qualified sophomores and from students majoring in other disciplines or programs. The department seeks wherever possible to accommodate students' preferences; for their part, students should recognize that limitations imposed by the size of seminars (normally fifteen students) make accommodation impossible in some instances. HIST 494a or b and residential college seminars that count toward the History major do not fulfill the junior seminar requirement.

ALL SEMINARS NUMBERED 400–493 COUNT AS JUNIOR SEMINARS

★HIST 401b, THE ART OF BIOGRAPHY. John Gaddis.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

A comparative examination of successful as well as unsuccessful biographies, intended to identify both principles and pitfalls.

★HIST 406a/★CLCV 406a, ATHENIAN IMPERIAL DEMOCRACY.

Donald Kagan.

For description see under Classical Languages & Literatures. PreInd

★HIST 407b^G/★CLCV 407b^G, THUCYDIDES AND THE PELOPONNESIAN WAR. Donald Kagan.

For description see under Classical Languages & Literatures. PreInd

★HIST 408a/★CLCV 208a, RELIGIONS OF THE ROMAN EMPIRE.

Veronika Grimm.

For description see under Classical Languages & Literatures. PreInd

★HIST 410a, THE EMPIRE OF CHARLEMAGNE. Walter Goffart.

T 9.30-11.20 II; Not CR/D/F WR, Hu (o) PreInd

Main topics of Carolingian history, including the alliance with the papacy, the institutions of the constituent kingdoms, the reform of the church, the rejuvenation of letters and learning, and the fragmentation of the empire.

★HIST 411b, RELIGIOUS CONVERSION IN MEDIEVAL EUROPE.

Anders Winroth.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

A study of the conversion of European societies, from the forced baptism of the Saxons in the eighth century to the Christianization of the last pagan hold-out, Lithuania, in 1387. Exploration of why so many were prepared to abandon their ancestral pagan religions for Christianity or (in some cases) Islam or Judaism.

★HIST 412a^G/★CLCV 204a^G/★JDST 230a^G, NEW APPROACHES TO JOSEPHUS.

Tessa Rajak.

For description see under Judaic Studies. PreInd

★HIST 413b^G/★CLCV 239b^G/★JDST 231b^G, DIASPORA INTERACTION AMONG JEWS, GREEKS, AND ROMANS. Tessa Rajak.

For description see under Judaic Studies. PreInd

★HIST 414a, CULTURE, DISSIDENCE, AND CONTROL IN GOLDEN AGE SPAIN. María Jordán.

T 1.30-3.20 II; Not CR/D/F WR, Hu (26)

Examination of aspects of Spanish culture and society in the Golden Age (c. 1550–1650) that demonstrate discontent, dissidence, and suggestions for reform. Emphasis on the intersection of historical and literary sources and the dynamic between popular and elite cultures. *Prerequisite: reading knowledge of Spanish.*

★HIST 415a/★NELC 380a/★RLST 420a^G, THE MAKING OF MONASTICISM.

Bentley Layton.

For description see under Religious Studies. PreInd

★HIST 416b, RUSSIA AND THE EURASIAN STEPPE. Paul Bushkovitch.

W 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

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.

★HIST 417b^G/★JDST 283b^G, JEWS AND COSMOPOLITANISM IN MODERN EUROPEAN INTELLECTUAL HISTORY. Marci Shore.
For description see under Judaic Studies.

★HIST 418a^G/★JDST 272a^G, JEWISH INTELLECTUAL AND CULTURAL LIFE IN EARLY MODERN ITALY. Daniel Stein Kokin.
For description see under Judaic Studies. PreInd

★HIST 419b, PHILANTHROPY AND SOCIAL REFORM IN MODERN BRITAIN. Frank Prochaska.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

An examination of the role of philanthropy and social reform in Britain from the late eighteenth century to the present. Topics include charity and religion, women's philanthropy, working-class traditions of mutual aid and benevolence, the Poor Law and urban poverty, the rise and decline of collective provision, and charity and democratic values.

★HIST 420b/★GMST 367b, LEFTIST CULTURE AND POLITICS IN TWENTIETH-CENTURY GERMANY. Ute Frevert, Katie Trumpener.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

A survey of Germany's rich leftist history, contrasted with popular associations of Germany with imperialist power, authoritarian government, and militant rightist ideology. Discussion includes the nineteenth-century labor movement (then Europe's most powerful) and its effects on twentieth-century politics and culture; the left-modernist imprint of Weimar culture; and post-1945 developments in East and West Germany.

★HIST 421a, THE RUSSIAN REVOLUTION. Laura Engelstein.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Examination of the social, political, and cultural forces that brought about the collapse of the Russian Empire in 1917 and led to the establishment of the Soviet regime. Themes include the impact of World War I, the problem of the monarchy, the role of radical movements, and the nationality question.

★HIST 422a^G/★JDST 390a^G/★RLST 217a^G, MEMORY, MEMOIRS, AND MODERN JEWISH HISTORY. Paula Hyman.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Exploration of how memoir writers from the seventeenth century to the twentieth understand their own experience against the backdrop of Jewish history. Focus on the construction of identity and the relation of personal and collective memory, with special attention to the interaction of minority status, gender, and class in a variety of historical contexts. *Counts toward only European distributional credit within the major.*

★HIST 423a, THE CULTURAL HISTORY OF THE FIRST WORLD WAR. Bruno Cabanes.

T 2.30-4.20 II; Not CR/D/F WR, Hu (o)

An introduction to the historiography of the First World War, drawing on recent work in the cultural history of the war. Readings focus on national sentiment, gender relations, cultural mobilization, violence and its impact on soldiers and civilians, mourning, and memory.

★HIST 424b, DIARIES AND MEMOIRS OF TWENTIETH-CENTURY EUROPE. Laura Engelstein.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Exploration of how men and women of twentieth-century western, central, and eastern Europe (including Russia) made sense of their lives in the context of war, revolution, and cultural conflict. Focus on first-person narratives, some by professional writers, others by ordinary people searching for personal and cultural identity.

★HIST 425b/★AMST 456b, MAKING AMERICA MODERN, 1880-1920.

Jean-Christophe Agnew.

For description see under American Studies.

★HIST 426b^G/★JDST 273b^G, JEWISH MESSIANISMS IN HISTORICAL CONTEXT AND THEORY. Daniel Stein Kokin.

For description see under Judaic Studies.

★HIST 427a/★WGSS 427a, WITCHCRAFT IN COLONIAL AMERICA.

Rebecca Tannenbaum.

W 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

An examination of the social, religious, economic, and gender history of British North America as it manifested itself through witchcraft beliefs and trials.

★HIST 428a/★WGSS 428a, LABOR AND DEMOCRACY IN THE TWENTIETH-CENTURY UNITED STATES. Jennifer Klein.

W 2.30-4.20 II; Not CR/D/F WR, Hu (o)

A history of work, labor relations, social movements, and labor policy in the United States since 1890; the history of class politics and economic development in modern America. Racial and gender hierarchies from farms to factories to sweatshops; labor rights as part of broader struggles over citizenship rights and democracy. Topics include various forms of labor organizing and protest, limits and possibilities of solidarity, braceros and migrant workers, civil rights, the Cold War, politics and policy, and Wal-Mart.

★HIST 429a/★HSHM 413a, X-RAY VISIONS: MEDICAL IMAGING SINCE 1895. Bettyann Kevles.

T 1.30-3.20 II WR, Hu (o)

An examination of the development of X rays, CT, MRI, ultrasound, and nuclear medicine. Their impact on diagnostic medicine, the legal system, and culture (high and low). Topics include the nature of invention—how new technologies appear; the economics of medicine in relation to technology; the role of warfare in invention; and the impact of these technologies on the arts.

★HIST 430a, THE FIRST WORLD WAR. Jay Winter.

Th 2.30-4.20 II; Not CR/D/F WR, Hu (o)

A survey of recent historical interpretations of the military, social, and cultural history of the war of 1914-18.

★HIST 431b/★HSHM 424b, SCIENCE, INVENTION, AND THE VISUAL ARTS. Bettyann Kevles.

W 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of the impact of scientific theories and technologies on the visual arts in the twentieth century. Topics include relativity, quantum mechanics, medical images inside the human body to the level of DNA, and images from space. Focus on the works of individual artists and art movements in Europe and the United States.

***HIST 432a/*HUMS 432a/*JDST 270a/*RLST 201a, MEDIEVAL JEWS, CHRISTIANS, AND MUSLIMS IMAGINING EACH OTHER.**

Ivan Marcus.

For description see under Humanities. PreInd

***HIST 433a, THE CREATION OF THE AMERICAN POLITICIAN, 1789–1820.**
Joanne Freeman.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

Exploration of the creation of an American style of politics through examination of the 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 culture of the early republic.

***HIST 434a/*HSHM 454a, SCIENCE, TECHNOLOGY, AND MODERNITY.**
Ole Molvig.

W 3.30-5.30 II; Not CR/D/F WR, Hu (o)

The intersections of science, technology, and culture explored from the mid-nineteenth century to the mid-twentieth. Technical and scientific developments integrated with an informed reading of social, intellectual, and artistic responses to the challenges posed by modern science and technology.

***HIST 435b/*HSHM 456b/*HUMS 405b, SCIENCE, DRAMA, AND THE NOVEL.** Daniel Kevles.

For description see under Humanities.

***HIST 436b, LIBERALISM AND CONSERVATISM IN U.S. POLITICS, 1932–1988.** Beverly Gage.

W 3.30-5.20 II; Not CR/D/F WR, Hu (o)

An examination of American domestic politics and political thought since the New Deal. Emphasis on the decline of midcentury liberalism and the rise of modern American conservatism. Topics include McCarthyism, the civil rights movement, the New Left, labor, business activism, the conservative intellectual movement, the Christian Right, and the Reagan Revolution.

***HIST 437a/*TPRP 437a, CHILDHOOD IN AMERICA.** Stephen Lassonde.

M 1.30-3.20 II; Not CR/D/F WR, Hu (o)

A survey of the emerging literature in the history of childhood in America. A historical approach that ends with contemporary sociological and journalistic explorations of children's experiences in American society.

***HIST 438b/*PLSC 419b, THE EUROPEAN PROJECT, 1945 TO THE PRESENT.**
Carine Germond.

M 2.30-4.20 II; Not CR/D/F WR, Hu (o)

A survey of European integration history from 1945 to the present. Attention to European institutional developments since World War II, main stages of European integration, the role of the member states and the European institutions, European policy-making processes, and contemporary developments and debates.

***HIST 439a, URBAN HISTORY IN THE UNITED STATES, 1870 TO THE PRESENT.** Jennifer Klein.

M 3.30-5.20, *screenings* HTBA II; Not CR/D/F Hu (o)

An investigation of the history of work, leisure, consumption, and housing in American cities. Topics include formation and re-formation of ethnic communities; the segregation of cities along the lines of class and race; the impact of federal policy; the growth of suburbs; and cities in the global economy.

★HIST 440a or b/★HSHM 328a or b, METHODS AND LITERATURE IN THE HISTORY OF SCIENCE AND MEDICINE.

For description see under History of Science, History of Medicine.

★HIST 441a^G/★AFAM 424a/★AMST 407a/★HSHM 433a^G, RACE AND MEDICINE IN AMERICA, 1800–2000. Susan Lederer.

For description see under History of Science, History of Medicine.

★HIST 442a, FOOD AND POWER IN AMERICAN HISTORY.

Helen Veit.

W 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Examination of food in American history from the colonial era to the present. Topics include the changing economic, technological, and military systems that have secured abundant food supplies for the United States; changes in the ways Americans produce, consume, and think about food; and the effects of gender, class, and race on food in the U.S.

★HIST 443b/★AMST 325b/★ER&M 322b, INDIAN-COLONIAL RELATIONS IN COMPARATIVE PERSPECTIVE. Alyssa Mt. Pleasant.

For description see under American Studies.

★HIST 444a^G/★HSHM 451a/★INTS 340a, SCIENCE, ARMS, AND THE STATE.

Daniel Kevles.

M 1.30-3.20 II; Not CR/D/F WR, Hu (36)

A history of chemical, nuclear, and biological weapons in the twentieth century, focusing on the integration in the United States of national security policy making, scientific research, and military innovation. Topics include consequences of weapons development for the scientific community and the civilian economy, public attitudes toward weapons of mass destruction, and political movements to control such weapons.

★HIST 445a/★AMST 446a/★WGSS 445a, HISTORY OF SEXUALITY IN THE UNITED STATES. Joanne Meyerowitz.

M 1.30-3.20 II; Not CR/D/F WR, Hu (o)

An examination of public battles over sexuality in the U.S. during the nineteenth and twentieth centuries. Focus on obscenity, homosexuality, and interracial sex.

★HIST 446a/★AMST 424a, AN INTRODUCTION TO THE CULTURAL HISTORY OF THINGS. Kariann Yokota.

For description see under American Studies.

★HIST 447b/★AMST 408b/★HSHM 457b^G, THE CULTURAL GROUNDING OF AMERICAN MEDICINE. John Warner.

For description see under History of Science, History of Medicine.

★HIST 448b/★PLSC 310b^G, THE AGE OF ENLIGHTENMENT AND ITS CRITICS. Robert Wokler.

For description see under Political Science.

★HIST 449b/★AFAM 438b, FOUNDATIONS OF AFRICAN AMERICAN CULTURE. Jennifer Baszile.

For description see under African American Studies.

★HIST 450a/★AFAM 371a, THE EARLY MODERN ATLANTIC WORLD. William Casey King.

For description see under African American Studies. PreInd

***HIST 451b/*AFAM 422b/*AMST 451b/*WGSS 458b, BLACK MEN IN AMERICAN CULTURE.** Jennifer Baszile.

For description see under African American Studies.

***HIST 452a, HISTORY OF FREE SPEECH.** Charles Walton.

W 2.30-4.30 II; Not CR/D/F WR, Hu (o)

Examination of the problem of free speech in the early modern and modern eras. Focus on struggles to define the meaning and limits of free expression, from seventeenth-century England through the French Enlightenment to the twentieth-century United States. Interdisciplinary approach draws on history, philosophy, legal and communication studies, and sociology.

***HIST 453b, PROBLEMS AND TOPICS IN THE FRENCH REVOLUTION.**

Charles Walton.

W 2.30-4.30 II; Not CR/D/F WR, Hu (o)

Examination of the origins, course, and legacies of the French Revolution. Topics include Old Regime society and politics and the causes of the outbreak of revolution, the factors fueling political radicalization and terror after 1789, the creation of new institutions and political culture, and the Revolution's legacy for women and French colonial societies in the modern era.

***HIST 454b/*TPRP 456b, TRANSFORMATION IN AMERICAN EDUCATION.**

John Mangan.

W 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Exploration of the historical roots of American education, both primary and secondary; examination of the ways in which the complex history of education, beginning in the colonies, foretells many of today's educational challenges.

***HIST 455a, THE AMERICAN RENAISSANCE IN CULTURAL CONTEXT.**

Robert Forbes.

W 3.30-5.20 II; Not CR/D/F WR, Hu (o)

Exploration of the works of Hawthorne, Emerson, Cooper, Melville, and Poe, with particular focus on the political and social context in which these works appeared. Topics include religion, government, the economy, slavery and race, social reform, and the historical imagination.

***HIST 456b/*AMST 412b/*FILM 405b, FILM AND HISTORY.** Seth Fein.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

An exploration of relationships between cinema and the past that focuses on two discrete but related themes: how film constructs history and how history can be approached through the study of film.

***HIST 457b, AMERICAN CULTURE IN THE TWENTIES AND THIRTIES.**

Cynthia Russett.

W 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Literature, politics, and social thought examined to determine the intellectual configuration of the decades between the two world wars. Authors may include Malcolm Cowley, John Dos Passos, James Agee, and Sinclair Lewis.

***HIST 458a/*PLSC 413a, THE FRANCO-GERMAN RELATIONSHIP IN POSTWAR EUROPE.** Carine Germond.

TTh 1-2.15 II; Not CR/D/F WR, Hu (o)

A survey of the developments of Franco-German relations in the context of European integration from World War II to the present. Topics include the institutional aspects of the bilateral cooperation, its policy areas, the role of

main political actors, and the historical significance and function of the Franco-German partnership in Europe.

★HIST 459b, POLITICAL ECONOMY OF NATURE. Steven Stoll.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Examination of various ways that capitalist societies have apportioned resources and conceived of nature, progress, and wealth. A topical survey of classical political economy, considering recent works on economy and nature. Ideas of nature within economic thought are revealed through a variety of examples from eighteenth-century England, nineteenth-century North America, and twentieth-century Africa.

★HIST 460a/★AMST 419a/★ER&M 450a, LAND, HOMELANDS, AND AMERICAN INDIAN HISTORIES. Alyssa Mt. Pleasant.

For description see under American Studies.

★HIST 461a, COMMUNISM AND ANTICOMMUNISM IN THE TWENTIETH-CENTURY UNITED STATES. Beverly Gage.

W 3.30-5.20 II; Not CR/D/F WR, Hu (o)

An examination of the intertwined histories of domestic communism and anti-communism in the twentieth-century United States. Topics include McCarthyism, the communist relationship with the Soviet Union, civil liberties, Cold War culture, and communist activism. Focus on connections between foreign policy and domestic political culture, the effect of anticommunism on political and social reform movements, and questions of American exceptionalism.

★HIST 462b/★HSAR 462b, SHOPS AND SHOPPING. Jay Gitlin, Sandy Isenstadt.

W 2.30-4.20 II; Not CR/D/F WR, Hu Meets RP (o)

Historical overview of the spaces and practices of shopping. Topics include the consumer revolutions of the eighteenth century in Europe and North America, development of distinct building types for shopping, industrialization of consumer goods and the evolution of packaging and branding, women and consumer culture, the role of advertising, identity politics of shopping, the suburbanization of shopping from malls to Internet shopping, and the absorption of public space within the sphere of commerce.

★HIST 463b/★AMST 409b/★ER&M 447b, NORTHEASTERN NATIVE AMERICA, 1850 TO TODAY. Alyssa Mt. Pleasant.

For description see under American Studies.

★HIST 464a, IDENTITY FORMATION IN THE MODERN MIDDLE EAST. Michael Gasper.

T 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Exploration of the history of Middle Eastern societies over the past century and a half through an examination of identity formation. The question of gender in identity formation; the politics of memory and history writing; and the intersections of religion, nationalism, colonialism, and minority status in emergent nation-states.

★HIST 465a, TRIBES, PEASANTS, AND NATION IN THE MIDDLE EAST. Michael Gasper.

W 3.30-5.20 II WR, Hu (o)

An examination of the place that rural populations have had in the emergence and development of modern nation-states in the Middle East. Readings focus on

the material conditions of rural populations and the ideological representations of peasants and tribes in national and transnational narratives of community in the Middle East.

***HIST 466a, GREEK AND ARABIC MEDIEVAL HISTORIOGRAPHY.**

Youval Rotman.

T 3.30-5.20 II; Not CR/D/F WR, Hu (o)

An examination of how history was written from Greco-Roman times to the Middle Ages, with a focus on Byzantium and the Arab world. Comparisons of different historiographical approaches. Introduction to the techniques, philosophies, and ideologies of medieval historiography.

***HIST 467b/*AMST 304b, AMERICAN CULTURE IN THE REVOLUTIONARY ERA.** Kariann Yokota.

For description see under American Studies.

***HIST 468a, QUEBEC AND CANADA FROM 1791 TO THE PRESENT.**

Jay Gitlin.

W 3.30-5.20 II; Not CR/D/F WR, Hu (o)

The history of Quebec and its place within Canada from the Constitutional Act of 1791 to the 1998 provincial election. Topics include the Rebellion of 1837, Confederation, the Riel Affair, industrialization and emigration to New England, the evolution of 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). *Counts toward only U.S. and Canadian distributinal credit within the major.*

***HIST 469b/*WGSS 351b, WOMEN'S HISTORY: METHODOLOGICAL AND COMPARATIVE INQUIRY.** Rebecca Tannenbaum.

For description see under Women's, Gender, & Sexuality Studies.

***HIST 470a/*WGSS 470a, GENDER, NATION, AND SEXUALITY IN MODERN LATIN AMERICA.** Lillian Guerra.

Th 1.30-3.20 II; Not CR/D/F WR, Hu (26)

Ideologies of modernity, criminality, and progress as they intersect with gendered struggles to define sexual freedom and the nation in nineteenth- and twentieth-century Latin America. Topics include antiprostitution campaigns, debates over homosexuality, efforts to revise traditional gender roles in revolutionary societies, and the relationship between gender and race honor.

***HIST 471a/*AMST 411a, THE IDEA OF THE WESTERN HEMISPHERE.**

Seth Fein.

M 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Conceptualizations of the Americas from the era of Monroe and Bolívar to that of Bush and Chávez. Consideration of connections between international relations and culture through the study of diplomacy, ideology, geography, art, literature, and film. *Counts toward either U.S. or non-Western distributinal credit within the major, upon application to the director of undergraduate studies.*

***HIST 472a/*ER&M 342a, REVOLUTIONARY CHANGE IN TWENTIETH-CENTURY LATIN AMERICA.** Gilbert Joseph.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Analysis of revolutionary movements in Latin America, including discussion of common North American misconceptions about the movements. Critical examination of popular images and orthodox interpretations, using a variety of propositions about these revolutionary processes. An interdisciplinary study of the process of revolutionary change at the grassroots level.

★HIST 473a/★AMST 436a/★ER&M 428a, *LATINOS IN THE TWENTIETH CENTURY*. Stephen Pitti.

For description see under Ethnicity, Race, & Migration.

★HIST 474b, *READING ANTEBELLUM AMERICA, 1830–1860*.

James Lundberg,

T 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Study of the three decades prior to the Civil War, focusing on the political and cultural discussion of what it meant to be an American. Topics include meanings of democracy, ideas for reforming society, and the problem of slavery.

★HIST 475b, *AFRICAN AMERICAN INTELLECTUAL AND SOCIAL HISTORY, 1880–1920*. Shawn Alexander.

T 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Examination of the principal currents of black intellectual and social history from the end of Reconstruction through the first decade of the NAACP. Focus on the legacy and leadership of individuals such as Booker T. Washington, W. E. B. Dubois, and Ida B. Wells-Barnett, as well as on the social and political contexts of black America's response to the betrayal of the promises of Reconstruction.

★HIST 481b, *TRAVEL ON THE SILK ROAD*. Valerie Hansen.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

Examination of expeditions to the Xinjiang region of China sponsored by the Swedish, British, French, German, and Japanese in the late nineteenth and early twentieth centuries. Special attention to reconstructing the travel experiences of monks and merchants in the first millennium.

★HIST 482b, *THE VIETNAM WARS, 1900 TO THE PRESENT*.

Charles Keith.

T 2.30-4.20 II; Not CR/D/F WR, Hu (o)

An examination of the wars that have defined modern Vietnam. Topics include the rise of anticolonial movements, independence, the war with America, the intercommunist conflict with China and Cambodia, and the politics and memory of these conflicts in contemporary Vietnam. Attention to both primary sources and historical methodology.

★HIST 483b/★HSHM 447b^G, *HISTORY OF CHINESE SCIENCE*.

William Summers.

Th 1.30-3.20 II; Not CR/D/F WR, Hu Meets RP (o)

A study of the major themes in Chinese scientific thinking from antiquity to the twentieth century. Emphasis on non-Western concepts of nature and the development of science in China, East-West scientific exchanges, and China's role in modern science.

★HIST 484b/★NELC 403b, *THE MIDDLE EAST BETWEEN CRUSADERS AND MONGOLS*. Adel Allouche.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

An exploration of the impact of the Crusades and the Mongol conquests on the Islamic Middle East. An analysis of the political, social, and economic changes that took place in the region from the eleventh century to the middle of the fourteenth. Emphasis on the rise of new dynasties as a result of changes in the ethnic mosaic of the Middle East.

★HIST 485a/★EAST 402a, *JAPAN AND KOREA: A TRANSNATIONAL HISTORY*. Nicole Cohen.

For description see under East Asian Studies.

***HIST 486a/*AFST 486a, SLAVERY AND THE SLAVE TRADE IN AFRICA.**

Robert Harms.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o) PreInd

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.

***HIST 487a/*AFST 487a, WEST AFRICAN ISLAM: RELIGION AND PUBLIC POLICY.** Lamin Sanneh.

W 2.30-4.20 II; Not CR/D/F WR, Hu (o)

Examination of the impact of Islam on state and society and the encounter of Muslim Africans first with non-Muslim societies in Africa and then with the modern West in the colonial and postcolonial periods. Focus on Muslim religious attitudes and responses to the secular national state and to the Western tradition of the separation of church and state.

***HIST 490b, POSTCOLONIAL SOUTH ASIA, 1947 TO THE PRESENT.**

Mridu Rai.

Th 3.30-5.20 II; Not CR/D/F WR, Hu (o)

Examination of the modern nation-states of India, Pakistan, and Bangladesh in the aftermath of British decolonization. Topics include the imprint of colonialism; democracy and authoritarianism; constructing or contesting nations; regional, linguistic, and caste conflict; gender and politics; political economy of development; war and peace.

***HIST 491b, ISLAM IN THE INDIAN SUBCONTINENT.** Mridu Rai.

T 1.30-3.20 II; Not CR/D/F WR, Hu (o)

An exploration of Muslim identity in Indian history that challenges teleological accounts of an inevitable drift by Muslims toward separate statehood in 1947. Themes include conquest and conversion; cultural and social accommodations under Muslim rule; Muslim self-perceptions under colonial challenge; Muslim politics and the partition of India; being Muslim in postcolonial South Asia.

***HIST 492a, MAHATMA GANDHI AND THE TWENTIETH CENTURY.**

Ramachandra Guha.

T 9.30-11.20 II; Not CR/D/F WR, Hu (o)

The life and work of Mahatma Gandhi used as a backdrop to explore themes of compelling importance in the history of the modern world: anticolonialism, social and gender inequality, cultural pluralism, and the problem of environmental degradation.

***HIST 494a or b, INDIVIDUAL WRITING TUTORIAL.** Robert Harms.

HTBA II; Not CR/D/F (o)

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 a prospectus of the work proposed, a bibliography, and a letter of support from the member of the faculty who will direct the tutorial to the director of undergraduate studies on the Friday before schedules are due. A form to simplify this process is available from the office of the director of undergraduate studies.

***HIST 495a or b and 496a or b, THE SENIOR ESSAY.** Paul Bushkovitch.

HTBA II; Not CR/D/F (o)

There will be a mandatory senior essay meeting on Monday, September 11, 2006, in 114 SSS at 4 P.M.

Preparation of the required senior departmental essay under the supervision of a member of the faculty. To assist in selection of source materials and of a topic, special Library Resource and Method colloquia are held during the fall term. Students must attend one colloquium; those planning to start their senior essay work in January should attend in September.

Students expecting to graduate in May enroll in 495a during the fall term and complete their essays in 496b in the spring term. December graduates enroll in 495b in the spring term and complete their essays in 496a during the following fall term. Students planning to begin their essay in the second term should notify the senior essay director by December 4, 2006. Each student majoring in History must present a completed Statement of Intention, signed by a departmental member who has agreed to serve as adviser, to the undergraduate history administrator in 237 HGS no later than September 18, 2006 (for HIST 495a), or January 23, 2007 (for HIST 495b). Blank statement forms are available in 237 HGS before the end of a student's junior year, and thereafter in the Senior Essay handbook.

In addition to attending at least one Library Resource and Method colloquium and preparing the Statement of Intention, students enrolled in HIST 495a or 495b submit to their advisers a prospectus of the essay and an annotated bibliography during the course of the term, and at least ten pages of the essay or a detailed outline of the entire project by December 11, 2006 (495a), or May 7, 2007 (495b). Those who meet these requirements receive a temporary grade of SAT, 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 495a or b.

Students enrolled in HIST 496a or 496b must submit a completed essay to 211 HGS no later than 5 P.M. on April 9, 2007, in the spring term, or no later than 5 P.M. on December 11, 2006, in the fall term. 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.

The essays should take the form of substantial articles, not longer than 12,500 words (approximately forty double-spaced typewritten pages), with the total word count given at the end of the essay. This is a *maximum* limit; there is no minimum requirement. Length will vary according to the topic and the historical techniques employed. Essays generally run between 10,000 and 12,500 words. The limitation on length is regarded as important because precision, clarity, and conciseness are essential to good historical writing. A brief evaluation of major sources is required. Consult the director of the senior essay course for details.

COURSE IN ANOTHER DEPARTMENT THAT COUNTS TOWARD THE MAJOR

★CLCV 227b/★WGSS 227b, ELITE WOMEN OF ANTIQUITY. Adam Marshak.
For description see under Classical Languages & Literatures. PreInd

GRADUATE AND PROFESSIONAL SCHOOL COURSES OF INTEREST TO UNDERGRADUATES

Some graduate and professional school courses are open to qualified undergraduates with permission of the instructor and the director of graduate studies. (See chapter III, section K, for the number of such courses that students may offer toward the degree.) Course descriptions may be obtained from the office of the director of undergraduate studies.

HISTORY OF ART

Director of undergraduate studies: Sandy Isenstadt, 115 DC, 432-2847,
sandy.isenstadt@yale.edu

FACULTY OF THE DEPARTMENT OF HISTORY OF ART

PROFESSORS

Brian Allen (*Adjunct*), Tim Barringer, Judith Colton (*Emeritus*), Edward Cooke, Jr. (*Chair*), David Joselit, Diana Kleiner, Mary Miller, Amy Myers (*Adjunct*), Robert Nelson, Alexander Nemerov, Jock Reynolds (*Adjunct*), Vincent Scully (*Emeritus*), Robert Thompson, Christopher Wood, Mimi Yiengpruksawan

ASSOCIATE PROFESSORS

Frank Salmon (*Adjunct*), Noa Steimatsky

ASSISTANT PROFESSORS

Anne Dunlop, Milette Gaifman, Sandy Isenstadt, Kellie Jones, Jacqueline Jung, Christine Mehring, Kishwar Rizvi, Lillian Lanying Tseng

LECTURERS

Theresa Fairbanks, Karen Foster, Pamela Franks, Susan Greenberg, Jennifer Gross, Patricia Kane, Laurence Kanter, John Marciari, Scott Wilcox

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.

Requirements of the major. All majors are encouraged to take two 100-level courses, and are required to take at least one. These courses are broad introductory surveys of the European, American, Pre-Columbian, African, and Asian traditions. Prospective majors are encouraged to take these two surveys as early in their course of study as possible. Students who have taken the Advanced Placement test in art history may be able to receive acceleration credit and should consult with the director of undergraduate studies. Students are also required to take two seminars in History of Art. These are advanced courses with limited enrollment and are numbered 400–497 (HSAR 498a or b and 499a or b are not considered seminars). All majors must take HSAR 401a or b, Critical Approaches to Art History, during either the fall or the spring term of the junior year.

Intermediate courses, usually lecture courses, are numbered 200–399. Majors must take at least one 200-, 300-, or 400-level course in each of the following four areas: (1) African, African American, Native American, Pre-Columbian, and Asian; (2) ancient and medieval; (3) Renaissance, Baroque, and eighteenth century; (4) nineteenth- and twentieth-century European and American. Students may propose an alternative distribution in the African, Asian, or Pre-Columbian traditions. History of Art majors are encouraged to take at least one course in studio art, which may count toward the major.

On graduation, the student must have no fewer than twelve course credits in History of Art. Under certain circumstances, and only with the permission of the director of undergraduate studies, two of the twelve courses may be taken in other departments. Normally, these substituted courses address subjects closely linked to art history, for instance, archaeology, history of religion, aesthetics, or visual culture.

History of Art majors are urged to study foreign languages. Students considering graduate work should take German and another modern language (usually French or Italian). Those planning to do graduate work on the art of non-European cultures should make special arrangements about language courses with their advisers.

Senior essay. The senior essay is a research paper written usually in one term (HSAR 499a or b). 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 or with the director of undergraduate studies. In certain cases, a student may be given permission to write a two-term senior essay.

Procedures. The schedules of all majors must be approved and signed by the director of undergraduate studies. Students may consult the following members of the faculty about the major:

BK, A. Dunlop	PC, D. Kleiner
BR, M. Gaifman	SY, C. Mehring, M. Miller,
CC, B. Ewald	C. Wood
DC, E. Cooke	SM, S. Isenstadt
TD, K. Jones, R. Thompson	ES, N. Steimatsky
JE, S. Isenstadt	TC, T. Barringer
MC, A. Nemerov	

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses

Distribution of courses: One 100-level course; two 400-level seminars; at least one 200-, 300-, or 400-level course in each of four areas; one studio art course recommended

Specific course required: HSAR 401a or b

Substitution permitted: With permission of DUS, two related courses from other depts

Senior requirement: Senior essay (HSAR 499a or b)

★HSAR 005b/★HUMS 081b, MEDIEVAL CATHEDRALS PAST AND PRESENT.
Robert Nelson.

MW 9-10.15 Hu (32) Fr sem

A study of two great cathedrals of Eastern and Western Christianity, the sixth-century Hagia Sophia in Istanbul (Constantinople) and the twelfth-century Notre Dame of Paris. Comparison of their creation within different cultural regions and their reception in the modern world. Survey of representations of these buildings in art of the Middle Ages and in modern prose and verse. *Enrollment limited to freshmen.*

HSAR 112a, INTRODUCTION TO THE HISTORY OF ART: PREHISTORY TO THE RENAISSANCE. Vincent Scully.

MW 11.30-12.45, 1 HTBA II Hu (34)

Form as meaning in architecture, sculpture, and painting. Selected studies in these arts from prehistory to the Renaissance. Source reading in translation.

HSAR 115b, HISTORY OF WESTERN ART FROM THE RENAISSANCE TO THE PRESENT. Christine Mehring, Alexander Nemerov.

MW 11.30-12.45, I HTBA II Hu (34)

Painting, sculpture, and graphic arts, with some reference to architecture. Major works and artists treated in terms of form, function, and historical context.

HSAR 118b, MONUMENTS OF ART. Anne Dunlop.

HTBA II Hu Meets RP (50)

An introduction to major artworks and monuments in the history of Western art, from late antiquity to the present day. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

HSAR 202a/ARCG 202a^G, PRE-COLUMBIAN ARCHITECTURE. Mary Miller.

MW 10.30-11.20, I HTBA II Hu (33)

A survey of pre-Columbian architecture and city planning from the Andes to the southwestern United States. Principal sites considered include Machu Picchu, Cuzco, Tiwanaku, Chichen Itza, Tikal, Monte Alban, Teotihuacan, Mesa Verde, and Pueblo Bonito. Attention to domestic architecture, construction techniques, and archaeoastronomy.

HSAR 209b, WESTERN ARCHITECTURE SINCE 1900. Sandy Isenstadt.

TTh 11.30-12.20, I HTBA II Hu (24)

Survey of twentieth-century architecture and urbanism in Europe and the United States in the context of major historical trends. Topics include the rise of modernism, development of mass housing, influence of transportation on architectural and urban form, and development of the architectural profession.

HSAR 220a, AMERICAN PHOTOGRAPHS: 1839–1971. Alexander Nemerov.

TTh 11.30-12.20, I HTBA II; Not CR/D/F Hu (24)

Examination of American photography from daguerreotypes of the 1840s to images of the 1960s and beyond. Survey of historical phenomena illuminated in photographs, including slavery, the Civil War, Western exploration, urban New York, World War II, and postwar suburbia. Photographers include Mathew Brady, Alexander Gardner, Lewis Hine, Walker Evans, Margaret Bourke-White, Weegee, Diane Arbus, and lesser-known practitioners.

HSAR 238b/ARCG 238b/NELC 107b, BURIED CITIES: THERA, POMPEII, AND HERCULANEUM. Karen Foster.

MW 2.30-3.45 II Hu (37)

Study of three ancient cities buried by volcanic eruptions—Thera in c. 1530 B.C. and Pompeii and Herculaneum in A.D. 79—with emphasis on their architecture, wall paintings, and small finds in cultural and historical context.

HSAR 239a^G/ARCG 239a/HUMS 104a/NELC 104a, ART OF THE ANCIENT NEAR EAST AND AEGEAN. Karen Foster.

MW 2.30-3.45 II Hu (37)

Introduction to the art and architecture of Mesopotamia, Egypt, and the Aegean, with attention to cultural and historical contexts.

HSAR 240a/CLCV 182a/RLST 179a, GREEK RELIGION: MYTH, BLOOD, AND FESTIVAL. Milette Gaifman.

For description see under Classical Languages & Literatures.

HSAR 243b/CLCV 160b, GREEK ART AND ARCHITECTURE.

Milette Gaifman.

TTh 11.30-12.45 II; Not CR/D/F Hu (24)

A survey of Greek architecture, sculpture, and painting from the late Geometric period (c. 760 B.C.) to Alexander the Great (c. 323 B.C.), with particular emphasis on social and historical context.

HSAR 252a/ARCG 252a/CLCV 175a, ROMAN ARCHITECTURE.

Diana Kleiner.

TTh 9-10.15 II or III Hu (22)

The great buildings and engineering marvels of Rome and its empire. Study of city planning and individual monuments and their decoration, including mural painting. Emphasis on developments in Rome, Pompeii, and central Italy; survey of architecture in the provinces.

HSAR 265a, ART OF BYZANTIUM, 850-1200. Robert Nelson.

MW 2.30-3.45 II Hu (37)

A survey of the art of Byzantium, a multinational empire that considered itself the direct successor to ancient Rome. Mosaics, churches, icons, enamels, silks, and carved ivories are placed in the context of the empire, the theology of religious images, and the history of devotional practices.

HSAR 266b, INTRODUCTION TO ISLAMIC ARCHITECTURE, 1250-1850.

Kishwar Rizvi.

MW 10.30-11.20, I HTBA II Hu (33)

An introduction to the architecture of the Islamic world up to the early colonial period, c. 1850 C.E., encompassing regions of Asia, Africa, and Europe. A variety of sources and media, from architecture to urbanism, and from travelogues to paintings, are used in an attempt to understand the diversity and richness of Islamic architecture.

HSAR 274b, MEDIEVAL EUROPEAN ART AND ARCHITECTURE.

Jacqueline Jung.

MW 1.30-2.20, I HTBA II Hu (36)

A selective chronological overview of European visual arts and architecture from the decline of the Roman Empire to the beginning of the fifteenth century. Exploration of manuscript painting, monumental sculpture, stained glass, small-scale decorative arts, textiles, and religious edifices, not only for their formal values and iconographic meanings, but also for what they reveal about their respective audiences and their circumstances of production and use.

HSAR 289b, BOSCH AND BRUEGHEL. Christopher Wood.

MW 1.30-2.20, I HTBA II; Not CR/D/F Hu (36)

An investigation of the art of northern Europe during the fifteenth and sixteenth centuries, with a focus on Hieronymus Bosch and Pieter Brueghel. Themes include the relation of art to religion, witchcraft, and the demonic arts; the artistic figuring of social hierarchies, family structure, gender roles, nature, and war; and the critical tension between art and a dynamically changing world.

HSAR 321a, GLOBAL MODERNISM. Sandy Isenstadt.

TTh 11.30-12.20, I HTBA II Hu (0)

Survey of the development of modern architecture in both Western and non-Western countries during the twentieth century. Emphasis on the encounter of new materials and methods of construction with more traditional techniques, and the symbolic use of architecture to articulate cultural identities.

HSAR 328a, THE SELF IN TWENTIETH-CENTURY ART. David Joselit.

TTh 1-2.15 II Hu (26)

A survey of modern art in Europe and the United States, encompassing major movements and figures. Focus on the ways in which twentieth-century practices of art, economics, and politics have been closely linked to new understandings of the self.

HSAR 342b/FILM 328b/ITAL 305b, ITALIAN FILM, 1960–1975.

Noa Steimatsky.

TTh 11.30–12.45; *screenings* T 6.30 P.M. II Hu Meets RP (0)

A survey of Italian cinema from the creation of *La Dolce Vita* to the murder of Pasolini. Consideration of cultural events of the period, including the marketing of Italy's luxury image, student movements, and the rise of left- and right-wing terrorism. Filmmakers include Antonioni, Pasolini, Olmi, Bellocchio, Rosi, and Leone. *Readings in English.*

HSAR 350b, CHINESE ART AND THE MODERN WORLD.

Lillian Lanying Tseng.

MW 10.30–11.20, I HTBA II Hu (33)

A thematic introduction to Chinese art from the fifteenth century to the present, with special attention to its interaction with the rest of the world. Media include architecture, painting, porcelain, print, and installations. Topics include Chinese gardens in the West, Chinese watercolors for international trade, realism and socialist realism, and ink play and abstract expressionism.

HSAR 351a/ARCG 212a, ART AND ARCHAEOLOGY IN CHINA.

Lillian Lanying Tseng.

MW 1–2.15 II; Not CR/D/F Hu (36)

A thematic introduction to art and archaeology in China from the Neolithic period to the ninth century, with emphasis on the negotiation between traditional practices and modern disciplines, and on the reconciliation between writing culture and material culture. Topics include the ambivalence of myth and history, and the interaction of center and periphery.

HSAR 354b/EAST 201b, INTRODUCTION TO KOREAN ART. Youngsook Pak.

For description see under East Asian Studies.

HSAR 363a or b, SURVEY OF JAPANESE ART. Mimi Yiengpruksawan.

TTh 1–2.15 II Hu (26)

Survey of painting, sculpture, and architecture in Japan from 1800 through 1950, with emphasis on social, historical, and ideological concerns in the Japanese visual cultures of modernism and its critiques.

HSAR 378b^G/AFAM 178b^G/AFST 188b^G, FROM WEST AFRICA TO THE BLACK

AMERICAS: THE BLACK ATLANTIC VISUAL TRADITION.

Robert Thompson.

TTh 11.30–12.45 II Hu (24)

Art, music, and dance in the history of key classical civilizations south of the Sahara—Mali, Asante, Dahomey, Yoruba, Ejgham, Kongo—and their impact on New World art and music, especially rock, blues, North American black painting of the past ten years, and black artists of Cuba, Haiti, and Brazil.

HSAR 379a^G/AFAM 112a^G, NEW YORK MAMBO: MICROCOSM OF BLACK CREATIVITY. Robert Thompson.

TTh 11.30–12.45 II Hu (24)

The rise, development, and philosophic achievement of the world of New York mambo and salsa. Emphasis on Palmieri, Cortijo, Roena, Harlow, and Colón. Examination of parallel traditions, e.g., New York Haitian art, Dominican

merengue, reggae and rastas of Jamaican Brooklyn, and the New York school of Brazilian capoeira.

★HSAR 401a or b, CRITICAL APPROACHES TO ART HISTORY.

401a: T 1.30-3.20 II; Not CR/D/F Hu (o) Tim Barringer

401b: M 1.30-3.20 II; Not CR/D/F Hu (o) Robert Nelson

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.

★HSAR 403b^G, ASPECTS OF CONNOISSEURSHIP AND CONSERVATION.

Theresa Fairbanks.

T 1.30-3.20 II; Not CR/D/F Hu Meets RP (o)

A survey of the techniques and materials employed in Western painting, sculpture, and graphic arts from antiquity to the present. Modern examination techniques analyzed as tools for connoisseurship, dating, and authentication, including study of age, damage, and restoration as they change works of art. Investigation of general concepts of preservation and conservation.

★HSAR 413a/★AMST 341a/★FILM 420a, THE VISUAL CULTURE OF THE AMERICAN HOME FRONT, 1941-1945. Alexander Nemerov.

W 1.30-3.20 II; Not CR/D/F Hu (o)

A study of films shown on the home front during World War II, including both propaganda and other genres (musicals, noir, horror, cartoon). Consideration of key artists such as Norman Rockwell. Readings in cultural theory help define the visual culture of the war.

★HSAR 426a/★CLCV 408a, THE ARTS OF PERIKLEAN ATHENS: DEMOCRACY, EMPIRE, AND RELIGION. Milette Gaifman.
For description see under Classical Languages & Literatures.

★HSAR 431a, FRESCO PAINTING IN THE ITALIAN RENAISSANCE.

Anne Dunlop.

T 9.30-11.20 II Hu (o)

An exploration of fresco painting in Italy between 1300 and 1550. Artists include Giotto, the Lorenzetti, Pisanello, Mantegna, and Raphael. Readings drawn from both Renaissance texts and modern art history.

★HSAR 432a, THE ANCIEN RÉGIME OF ART. Christopher Wood.

W 2.30-4.20 II; Not CR/D/F Hu (o)

Exploration of art from the eighteenth century in Europe, a period that tested and eventually overturned traditional social, political, and aesthetic systems. Intensive work with the collections of the Yale Center for British Art, the Yale University Art Gallery, and the Beinecke Library. Artists include Tiepolo, Canaletto, Hogarth, Gainsborough, Piranesi, and Goya.

★HSAR 436b, CONNOISSEURSHIP OF ITALIAN RENAISSANCE PAINTING.

Laurence Kanter.

Th 1.30-3.20 II Hu (o)

An investigation of the problem of connoisseurship, primarily of Florentine painting of the fourteenth and fifteenth centuries, both as a historical discipline and as an exercise in critical thinking.

★HSAR 438b/★HUMS 379b/★RNST 421b, SILK ROAD RENAISSANCE.

Anne Dunlop.

HTBA II; Not CR/D/F Hu (o)

The European Renaissance placed in a global context, focusing especially on artistic exchange along the Silk Road. Topics include the use and reception of Eastern and New World objects and materials in European art; the response to European artists and artworks at Muslim and Chinese courts; and the development of art theory and criticism in China and Europe. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

★HSAR 448a, ART AND MUSIC IN BRITAIN I: PLAINSONG TO GILBERT AND SULLIVAN. Tim Barringer, Margot Fassler.

W 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of the relationship between art and music in Britain at selected historical moments, from the Anglo-Norman synthesis to the Victorian Gothic revival. Themes include music in the Romanesque cathedral; Gothic architecture and music; sacred and secular art and music in Tudor England; the masque at the Stuart court; opera, oratorio, and visual culture in Georgian England; romanticism in art and music; the Gothic revival in art and music; the Aesthetic Movement. The course is coordinated with an exhibition at the Yale Center for British Art and a series of live performances.

★HSAR 449b, ART AND MUSIC IN BRITAIN II: THE TWENTIETH CENTURY. Tim Barringer.

W 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of the relationship between art and music in Britain from the Edwardian era to the present day. Themes include art, music, and landscape; visual and aural cultures of imperialism; the First World War and British culture; the Jazz Age; neoromanticism and the music of Benjamin Britten; pop art and popular music; punk and the “young British artists”; audiovisual connections in contemporary culture. Extensive use of collections in the Yale Center for British Art. The course is coordinated with a series of live performances.

★HSAR 453a, THE ARTIST’S STUDIO: DAVID TO PICASSO.

Susan Greenberg.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

Representations of the artist’s studio in French art and related writings from 1800 to 1945. Particular emphasis on the nineteenth century, when the studio was cast as a romantic environment of artistic inspiration. Artists include David, Vernet, Delacroix, Courbet, Corot, Fantin-Latour, van Gogh, Picasso, and Matisse. Close analysis of works at the Yale University Art Gallery and in other collections.

★HSAR 461b, THE BOOK AS ART IN THE TWENTIETH CENTURY.

Pamela Franks.

T 2.30-4.20 II; Not CR/D/F Hu (o)

The historical development of artists’ books traced through the major art movements of the twentieth century. First-hand consideration of works from Yale’s collections of artists’ books.

★HSAR 462b/★HIST 462b, SHOPS AND SHOPPING. Jay Gitlin,

Sandy Isenstadt.

For description see under History.

★HSAR 466a, MINIMALISM REVISITED. Christine Mehring.

M 1.30-3.20 II; Not CR/D/F Hu (o)

Consideration of the history and reception of minimalism. Artists include Donald Judd, Carl Andre, Eva Hesse, and Felix Gonzalez-Torres. Issues include the problem of meaning in abstract art; the role of the viewer and phenomenology; and the relation of abstraction to politics and gender.

★HSAR 468b, THE PUBLICS OF ART. David Joselit.

T 1.30-3.20 II; Not CR/D/F Hu (o)

A study of how art, and images more generally, can form communities. Consideration of the early twentieth-century Soviet avant-garde, American and European youth radicalism of the 1960s, and political uses of the Internet in the past decade.

★HSAR 481b, ART AND ARCHITECTURE OF THE FORBIDDEN CITY IN CHINA. Lillian Lanying Tseng.

T 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of the Forbidden City from the Mongol Yuan dynasty to the present. Special attention to the interaction between art and politics as revealed by the city planning, architecture, and visual culture of this highly symbolic complex. Case studies include the Altar to Heaven, the Yuanming Garden, the Tiananmen Square, and the Palace Museum.

★HSAR 488b/★EAST 404b, ART AND RELIGION IN KOREA.

Youngsook Pak.

For description see under East Asian Studies.

★HSAR 490a or b/★FILM 320a or b, CLOSE ANALYSIS OF FILM.

For description see under Film Studies.

★HSAR 496a/★FILM 434a/★LITR 370a, SURREALISM AND CINEMA.

Noa Steimatsky.

W 3.30-5.20 II Hu Meets RP (o)

Study of cinema's role in the period of high surrealist production by such key figures as Breton, Buñuel, Dali, and Man Ray. Consideration of dissidents as diverse as Cocteau and Bataille. Exploration of reciprocities with the documentary work of Vigo and Rouch. The survival of the surrealist sensibility in its later disseminations, including films by Franju, Hitchcock, and Tsai.

★HSAR 498a or b, INDEPENDENT TUTORIAL. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

For students who wish to pursue a subject in the history of art not otherwise covered by departmental offerings. May be used for research or directed reading under faculty supervision. A term paper or its equivalent and regular meetings with the adviser are required. To apply for admission, a student should present a prospectus and a bibliography, signed by the adviser, to the director of undergraduate studies.

★HSAR 499a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

Preparation of a research paper about thirty pages long under the direction of a qualified instructor. The essay is written in either the fall or the spring term of the senior year, though preferably in the fall 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 instructor or with the director of undergraduate studies. *No student is permitted to enroll in HSAR 499a or b without submitting a project statement, with the formal title of the essay and a brief description of the subject to be treated. The statement must be signed by the student's adviser and presented to the director of undergraduate studies before the student's schedule can be approved.*

The student must submit a suitable project outline and bibliography to the adviser and the director of undergraduate studies early in the term. The outline should indicate the focus and scope of the essay topic, as well as the proposed research methodology; the bibliography should be annotated. For essays submitted in the fall term, the deadline for the outline is October 6; for those in the spring term, February 9. Senior essays written in the fall term are due on December 8; those in the spring term on April 20. Two copies must be submitted to the director of undergraduate studies. Failure to comply with any deadline will be penalized by a lower final grade. No late essay will be considered for a prize in the department.

Permission may be given to write a two-term essay after consultation with an adviser and the director of undergraduate studies. 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 from fifty to sixty pages in length.

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, 56 High Street.

HISTORY OF GREECE AND ROME

(See under Classical Languages and Literatures.)

HISTORY OF SCIENCE, HISTORY OF MEDICINE

Director of undergraduate studies: Keith Wrightson, 237 HGS, 432-1355, keith.wrightson@yale.edu; Adviser: Susan Lederer, L126 SHM, 785-4338, susan.lederer@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF HISTORY OF SCIENCE, HISTORY OF MEDICINE

PROFESSORS

Asger Aaboe (*Emeritus*), Joseph Fruton (*Emeritus*), Robert Gordon (*Geology & Geophysics*), Dimitri Gutas (*Near Eastern Languages & Civilizations*), Daniel Kevles, Martin Klein (*Emeritus*), Joanne Meyerowitz (*History*), David Musto, Cynthia Russett (*History*), Frank Snowden (*History*), William Summers, Frank Turner (*History*), John Warner (*Chair*)

ASSOCIATE PROFESSORS

Susan Lederer, Naomi Rogers

ASSISTANT PROFESSORS

Cynthia Connolly (*School of Nursing*), Jennifer Klein (*History*), Ole Molvig, Bruno Strasser

LECTURERS

Bettyann Kevles (*History*), Rebecca Tannenbaum (*History*)

SENIOR LECTOR

Ann Ellis Hanson (*Classics*)

History of Science, History of Medicine is an interdisciplinary program of studies leading toward an understanding of the development of science and medicine and their impact on society. It explores intellectual and cultural

traditions, institutions, techniques, and practices; the social uses of science and medicine; the creation of science-based technologies; and the relations of science, medicine, and public health to the state. The program offers students considering a career in medicine, public health, or other fields of health care a way of combining the requirements of their preprofessional training with a broad liberal education. It also provides excellent preparation for many other careers in which a contextualized understanding of science and medicine is essential, including areas of law, industry, journalism, museum work, public policy, and government.

The major in History of Science, History of Medicine requires completion of at least thirteen courses in addition to the prerequisites. The prerequisites for the major are one yearlong course in science, including laboratory work, and one term course chosen from MATH 112a or b or STAT 101a–106a or equivalent. Beyond the prerequisites, the program requires four term courses in History of Science, History of Medicine; the junior seminar HSHM 328a or b, Methods and Literature in the History of Science and Medicine; and six additional term courses chosen in consultation with the Adviser for History of Science, History of Medicine. These six courses normally include at least one term course in science at an intermediate level and at least one History junior seminar (HIST 400–493) or History of Science, History of Medicine seminar (HSHM 400–469). Other courses may be drawn from history, the natural and social sciences, and other areas. Examples of other subjects often counted toward the major are medical anthropology, bioethics, philosophy of science, and medical sociology. Students also write a senior essay for two course credits taken as HSHM 490a or b, 491a or b. See under History in the text above for details of preregistration for junior seminars; see under HSHM 490a or b, 491a or b for requirements for the senior essay. The thirteen courses must form a coherent whole, designed in consultation with the Adviser for the major.

Library orientation. All majors are required to take a library resource and methods colloquium in the fall term of the senior year. Students planning to begin work on their senior essay in January should attend the colloquium in the previous September.

The undergraduate major is administered by the Department of History in cooperation with the Section of the History of Medicine in the School of Medicine. Questions about the History of Science, History of Medicine major should be directed to the Adviser for the major.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 112a or b or one term from STAT 101a–106a or equivalent, one year science course with lab

Number of courses: Thirteen term courses beyond prerequisites (including the senior essay)

Specific course required: HSHM 328a or b

Distribution of courses: Four term courses in HSHM; six addtl term courses chosen in consultation with HSHM Adviser, including one in science at intermediate level and one history or HSHM sem (HIST 400–493 or HSHM 400–469)

Senior requirement: Senior essay (HSHM 490a or b, 491a or b)

★HSHM 005a/★HIST 006a, MEDICINE AND SOCIETY IN AMERICAN HISTORY. Rebecca Tannenbaum.

For description see under History.

HSHM 217a/HIST 236a, HISTORY OF THE MODERN SCIENCES IN SOCIETY.
Ole Molvig.
For description see under History.

HSHM 230b/AMST 130b/HIST 125b, A HISTORY OF AMERICAN BODIES.
Susan Lederer.

MW 1.30-2.20, I HTBA II Hu (36)

A survey of the search for the healthy body in American culture in the nineteenth and twentieth centuries. Topics include the changing American food supply and the rise of “fast foods,” diets and dieting, medicine and nutrition science, steroids, cosmetic surgery, and the role of gender, race, and class in shaping expectations about the body.

HSHM 235b/HIST 234b, EPIDEMICS AND SOCIETY IN THE WEST SINCE
1600. Frank Snowden.
For description see under History.

★HSHM 320a^G/★HIST 176a^G, THE ENGINEERING AND OWNERSHIP OF
LIFE. Daniel Kevles.
For description see under History.

[HSHM 321b^G/HIST 233b, THE CULTURES OF WESTERN MEDICINE:
A HISTORICAL INTRODUCTION]

★HSHM 328a *or* b/★HIST 440a *or* b, METHODS AND LITERATURE IN THE
HISTORY OF SCIENCE AND MEDICINE.

II; Not CR/D/F Hu (○) Junior sem

328a: 2 HTBA Staff

328b: T 7-9.20 P.M. Ole Molvig

Introduction to recent literature in the history of science, medicine, and public health, to historiographic issues, and to methods used in historical research and writing. Members of the faculty in the Program in the History of Science and Medicine visit on a rotating basis to introduce the variety of approaches to the field. (Formerly HSHM 428a *or* b)

★HSHM 413a/★HIST 429a, X-RAY VISIONS: MEDICAL IMAGING
SINCE 1895. Bettyann Kevles.
For description see under History.

★HSHM 424b/★HIST 431b, SCIENCE, INVENTION, AND THE VISUAL ARTS.
Bettyann Kevles.
For description see under History.

★HSHM 433a^G/★AFAM 424a/★AMST 407a/★HIST 441a^G, RACE AND MEDICINE
IN AMERICA, 1800–2000. Susan Lederer.

Th 1.30-3.20 II; Not CR/D/F Hu (○)

An examination of the history of race and medicine in the United States, primarily but not exclusively focused on African Americans’ encounters with the health care system. Topics include slavery and health; doctors, immigrants, and epidemics; the Tuskegee Syphilis Study and the use of minorities as research subjects; and race and genetic disease.

★HSHM 447b^G/★HIST 483b, HISTORY OF CHINESE SCIENCE.
William Summers.
For description see under History.

★HSHM 451a/★HIST 444a^G/★INTS 340a, SCIENCE, ARMS, AND THE STATE.
Daniel Kevles.
For description see under History.

★HSHM 454a/★HIST 434a, SCIENCE, TECHNOLOGY, AND MODERNITY.
Ole Molvig.
For description see under History.

★HSHM 456b/★HIST 435b/★HUMS 405b, SCIENCE, DRAMA, AND THE NOVEL. Daniel Kevles.
For description see under Humanities.

★HSHM 457b^G/★AMST 408b/★HIST 447b, THE CULTURAL GROUNDING OF AMERICAN MEDICINE. John Warner.

M 1.30-3.20 II; Not CR/D/F Hu (o)

An exploration of the shaping of American medical culture during the late nineteenth and early twentieth centuries, focusing on the ways that healers' identities were constructed, perceived, and contested. Topics include the moral, social, political, technical, and epistemological grounding of orthodox and alternative professional authority; the fashioning of identities for the medical marketplace and more private constructions of self, with attention to gender, ethnicity, race, religion, and region; and medicine and modernity.

★HSHM 470a and 471b, DIRECTED READING. Susan Lederer.

HTBA II; Not CR/D/F (o)

Readings directed by members of the faculty in selected topics in the history of science or the history of medicine. Subjects depend on the interests of students and faculty. Weekly conferences; required papers.

★HSHM 490a or b and 491a or b, THE SENIOR ESSAY. Susan Lederer.

HTBA II; Not CR/D/F (o)

There will be a mandatory senior essay meeting on Monday, September 11, 2006, at 4 P.M. in SHM L221A.

Research and writing of the required senior essay under the supervision of HSHM or History faculty. Students expecting to graduate in May 2007 enroll in 490a in the fall and complete their essay in 491b in the spring term. Students expecting to graduate in December 2007 enroll in 490b in the spring term, and should notify the senior essay director by December 1, 2006. Each student majoring in HSHM must submit a completed Statement of Intention form signed by the faculty member who has agreed to supervise the essay to the HSHM administrator in 242 HGS no later than September 18, 2006 (for HSHM 490a), or January 23, 2007 (for HSHM 490b). Statement forms are available in 242 HGS and in the HSHM Senior Essay Handbook.

Students enrolled in 490a or b must submit to their advisers a prospectus, an annotated bibliography, and at least ten pages of the essay or a detailed outline of the entire project by December 11, 2006 (490a), or May 7, 2007 (490b). Those who meet the requirement receive a temporary grade of SAT, which will be changed to the grade received for the final essay. Failure to meet any requirement may result in the student's being asked to withdraw from HSHM 490a or b.

Students enrolled in HSHM 491a or b must submit a completed senior essay to 242 HGS no later than 5 P.M. on April 9, 2007, in the spring term, or no later than 5 P.M. on December 4, 2006, in the fall term. Essays submitted after 5 P.M. will be subject to grade penalties. In order to graduate from Yale College, a student majoring in HSHM must receive a passing grade on the senior essay. The essay should take the form of a substantial article (approximately 12,500 words or

40 double-spaced typed pages). Please note that 12,500 words is the maximum word limit; there is no minimum word limit. The word limit is significant insofar as precision, clarity, and conciseness are essential to good historical writing. More details about the senior essay requirement are available in the HSHM Senior Essay Handbook. Questions can also be directed to the HSHM senior essay director.

OTHER COURSES OF PARTICULAR INTEREST

College seminars of interest may be found on the Web at www.yale.edu/collegeseminar.

*ECON 467a or b/*EP&E 414a or b, ISSUES IN HEALTH ECONOMICS.

Howard Forman.

For description see under Economics.

EVST 255b/F&ES 255b/PLSC 215b, ENVIRONMENTAL POLITICS AND LAW.

John Wargo.

For description see under Environmental Studies.

G&G 465a^G/ARCG 465a^G/ENAS 381a, ARCHAEOMETALLURGY.

Robert Gordon.

For description see under Geology & Geophysics.

*HIST 427a/*WGSS 427a, WITCHCRAFT IN COLONIAL AMERICA.

Rebecca Tannenbaum.

For description see under History.

*MB&B 110a or b, CURRENT ISSUES IN BIOLOGICAL SCIENCE.

William Summers.

MCDB 150b^G, GLOBAL PROBLEMS OF POPULATION GROWTH.

Robert Wyman.

For description see under Biology.

PLSC 213b, HEALTH CARE IN THE UNITED STATES. Elizabeth Bradley.

WGSS 255b, BIOLOGY OF GENDER AND SEXUALITY. William Summers.

HUMANITIES

Director of undergraduate studies: Norma Thompson, Whitney Humanities Center, 53 Wall St., 432-1313, norma.thompson@yale.edu; director: María Rosa Menocal, 53 Wall St., 432-0670, maria.menocal@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF HUMANITIES

PROFESSORS

Dudley Andrew (*Comparative Literature, Film Studies*), R. Howard Bloch (*French*), Harold Bloom (*Humanities*), David Bromwich (*English*), Peter Brooks (*Comparative Literature*), John Darnell (*Near Eastern Languages & Civilizations*), Carlos Eire (*History, Religious Studies*), Margot Fassler (*Music*), Benjamin Foster (*Near Eastern Languages & Civilizations*), Paul Freedman (*History*), Kirk Freudenburg (*Classics*), Beatrice Gruendler (*Near Eastern Languages & Civilizations*), Karsten Harries (*Philosophy*), Carol Jacobs (*German, Comparative Literature*), Daniel Kevles (*History*), Ivan Marcus (*Religious Studies*), María Rosa Menocal (*Humanities*), Rainer Nägele (*German*), Robert Nelson (*History of Art*), Lee Patterson (*English*), Steven Pincus (*History*), Leon Plantinga (*Emeritus*) (*Music*), Claude Rawson (*English*), Joseph Roach (*English, Theater Studies*), William Summers (*Molecular Biophysics & Biochemistry*), Henry Sussman (*German*), Ivan Szelenyi (*Sociology, Political Science*), Harvey Weiss (*Near Eastern Languages & Civilizations, Anthropology*), Anders Winroth (*History*)

ASSOCIATE PROFESSORS

William Deresiewicz (*English*), Olivia Holmes (*Italian*), Pericles Lewis (*Comparative Literature, English*)

ASSISTANT PROFESSORS

Shannon Craigo-Snell (*Religious Studies*), Anne Dunlop (*History of Art*), Bryan Garsten (*Political Science*), Jonathan Gilmore (*Philosophy*), Karuna Mantena (*Political Science*), Kristin Phillips-Court (*Italian*), Elke Siegel (*German*), Elliott Visconsi (*English*), Kirk Wetters (*German*)

SENIOR LECTURER

Norma Thompson (*Humanities*)

LECTURERS

Cynthia Farrar (*Political Science*), Elizabeth Foster (*Humanities*), Karen Foster (*Near Eastern Languages & Civilizations*), Marie-Hélène Girard (*Humanities*), Charles Hill (*International & Area Studies*), Virginia Jewiss (*Humanities*), Jane Levin (*Humanities*), Kathryn Slanski (*Humanities, Near Eastern Languages & Civilizations*)

The interdisciplinary program in Humanities is designed to contribute to an integrated understanding of the Western cultural tradition. Selected works of European literature, music, philosophy, and visual arts are studied in relation to each other and to the history of ideas and political institutions. The varied program of study offers a wide range of options for students in all years interested in interdisciplinary and broad-based work in the humanities, from special seminars for freshmen to the Franke and Shulman Seminars for senior majors. Most courses are open to nonmajors.

The major in Humanities offers three areas of concentration: the arts in the humanities, intellectual history, and the West and its encounters. It is intended to emphasize breadth and interdisciplinary effort without sacrificing depth. The major brings together traditional disciplines in the humanities such as history, literature, history of art, philosophy, and history of music in a manner that is both broadly based and intensively rigorous.

Prerequisite. There is a prerequisite in ancient civilization, which students are encouraged to meet before entering the major in Humanities. The prerequisite can be satisfied by Directed Studies or by two courses in classical civilization or in ancient Near Eastern civilization.

Requirements of the major. In addition to the prerequisite, thirteen term courses are required for the major, including two core seminars in one of the areas of concentration; any five Humanities electives (including Franke and Shulman Seminars), with at least one in each of the three areas of concentration; five additional electives selected to complement the student's area of concentration, with approval of the director of undergraduate studies; and the senior essay, normally written in the spring term of the senior year. Majors in Humanities are strongly encouraged to enroll in at least one term course on literature in a foreign language. Students are expected to declare their intent to major in Humanities in a meeting with the director of undergraduate studies before their junior year.

Core courses. Two core seminars must be selected from one area of specialization: the arts in the humanities, intellectual history, or the West and its encounters. All seminars listed under these subheads are core seminars.

The Franke Seminar and the Shulman Seminar. Sponsored by the Whitney Humanities Center and designed to speak across disciplinary lines and to broad public and intellectual issues, the Franke Seminar and the Shulman Seminar each include 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 or a Shulman Seminar with permission of the director of undergraduate studies and the instructor.

Summer program in Rome. Humanities majors who take the spring-term course HUMS 224b, *The City of Rome*, and develop individual research topics to be pursued in Rome may apply for enrollment in a two-credit summer course offered by Yale Summer Session. Museums, archaeological sites, churches, piazzas, libraries, and the city itself are part of the classroom for the summer course, which addresses key issues relevant to all three areas of concentration in the Humanities major. Further information is available on the Web at www.yale.edu/wbc and www.yale.edu/summer.

REQUIREMENTS OF THE MAJOR

Prerequisite: Directed Studies, or two courses in classical civilization or in ancient Near Eastern civilization

Number of courses: Thirteen term courses beyond prerequisite (including the senior essay)

Distribution of courses: Two core seminars in one area of concentration; five Humanities electives, with at least one in each of the three areas of concentration; five adtl electives

Senior requirement: Senior essay (HUMS 491a or b)

SEMINARS FOR FRESHMEN

The seminars below are designed for freshmen who are interested in the Humanities program but are not enrolled in Directed Studies. Enrollment in each seminar is limited to 18.

*HUMS 076a, EPIDEMICS IN GLOBAL PERSPECTIVE. William Summers.

MW 2.30-3.45 Hu, So (o) Fr sem

Interaction of epidemic diseases and society. The response of government, medicine, and the public to the threat or actual presence of widespread contagious diseases. The notion of major epidemics as one of the key contingencies of history, critically examined through contemporary medical, political, and literary accounts. Consideration of the changing responses of societies and governments to epidemics as well as the reasons for those responses. *Enrollment limited to freshmen.*

*HUMS 077a/*LITR 091a, MODERNISM IN LITERATURE AND ARTS.

Pericles Lewis.

For description see under Literature.

*HUMS 078b/*MUSI 022b, MUSIC, LOVE, AND SEXUAL DESIRE IN MEDIEVAL EUROPE. Margot Fassler.

For description see under Music.

*HUMS 079a/*HIST 009a, THE VIKING AGE. Anders Winroth.

For description see under History.

*HUMS 080a/*HIST 008a/*RLST 001a, ESSENTIAL HERESIES. Carlos Eire.

For description see under History.

*HUMS 081b/*HSAR 005b, MEDIEVAL CATHEDRALS PAST AND PRESENT.

Robert Nelson.

For description see under History of Art.

THE ARTS IN THE HUMANITIES

HUMS 104a/ARCG 239a/HSAR 239a^G/NELC 104a, ART OF THE ANCIENT NEAR EAST AND AEGEAN. Karen Foster.

For description see under History of Art.

★HUMS 221a, CLASSICAL TO ROMANTIC EPIC. Jane Levin.

TTh 1-2.15 II Hu (26)

A study of the epic as it was used first in Greece, then in Rome, and finally in England to express ideas about the nature of human life and culture. Topics include conceptions of the divine and natural order and the role of poetry in human culture. Poets include Homer, Hesiod, Vergil, Milton, Pope, and Wordsworth.

★HUMS 224b, THE CITY OF ROME. Virginia Jewiss.

TTh 2.30-3.45 II; Not CR/D/F Hu (o)

An interdisciplinary study of Rome from its legendary origins through its evolving presence at the crossroads of Europe and the world. Exploration of the city's rich interweaving of history, theology, literature, philosophy, and the arts in significant moments of Roman and world history.

HUMS 231a/ENGL 189a/FREN 241a, WORD AND IMAGE IN THE MIDDLE AGES. R. Howard Bloch, Lee Patterson.

TTh 11.30-12.20, I HTBA II; Not CR/D/F Hu (24)

A study of written texts as they relate to visual artifacts throughout medieval Europe. Topics include the warrior epic and the aesthetics of booty; the Norman Conquest and the Bayeux Tapestry; a theological treatise and the great cathedrals; an Arthurian romance and an illuminated manuscript housed in the Beinecke Library; the visual world generated by the mission of Francis of Assisi; and the artistic analogues to several of the Canterbury Tales.

★HUMS 258a, SHAKESPEARE AND THE CANON: HISTORIES, COMEDIES, AND POEMS. Harold Bloom.

W 1.30-3.20 I; Not CR/D/F Hu (o)

A reading of Shakespeare's histories, comedies, and poems, with an emphasis on their originality in regard to tradition and their influence on Western representation since the seventeenth century. Secondary readings included.

★HUMS 259b, SHAKESPEARE AND THE CANON: TRAGEDIES AND ROMANCES. Harold Bloom.

W 1.30-3.20 I or II; Not CR/D/F Hu (o)

A reading of Shakespeare's tragedies and romances, with an emphasis on their originality in regard to tradition and their influence on Western representation since the seventeenth century. Secondary readings included.

HUMS 260a/HIST 223a/RNST 223a, RENAISSANCE ITALY. Brian Noell.
For description see under History.

HUMS 285a/ENGL 301a, THE MODERN BRITISH NOVEL.
William Deresiewicz.

For description see under English Language & Literature.

★HUMS 353b/★GMAN 352bG/★GMST 352b/★LITR 442b, THOMAS MANN:
THE MAGIC MOUNTAIN. Rainer Nägele.

For description see under Germanic Languages & Literatures.

HUMS 355a/PHIL 334a, PHILOSOPHY OF ARCHITECTURE.
Karsten Harries.

For description see under Philosophy.

HUMS 363b/PHIL 343b, PHILOSOPHY OF ART. Jonathan Gilmore.
For description see under Philosophy.

★HUMS 364a, ART OF READING A POEM. Harold Bloom.
Th 1.30-3.20 I; Not CR/D/F Hu (o)

Selections from the entire procession of poetry in English from the sixteenth century to the twenty-first.

★HUMS 366b, FOUR TWENTIETH-CENTURY POETS: W. B. YEATS, WALLACE STEVENS, D. H. LAWRENCE, HART CRANE.
Harold Bloom.

th 1.30-3.20 I; Not CR/D/F Hu (o)

A discussion group for poetry of Yeats, Stevens, Lawrence, and Crane, also involving their most relevant prose: Yeats's *A Vision*, Stevens's *Necessary Angel*, Lawrence's polemics, and Crane's letters.

HUMS 371b/ITAL 342b/LITR 187b/RNST 342b, LITERATURE OF THE ART OF THE RENAISSANCE. Staff.

For description see under Italian.

★HUMS 384b/★ENGL 351b, SATIRE. Claude Rawson.

For description see under English Language & Literature.

★HUMS 388a/★FILM 473a/★FREN 448a/★LITR 448a, FRENCH-AMERICAN FILM RELATIONS. Dudley Andrew, David Bromwich.

For description see under Film Studies.

INTELLECTUAL HISTORY

★HUMS 223b, ORATORY IN STATECRAFT. Charles Hill.

TTTh 2.30-3.45 II; Not CR/D/F Hu (o)

A seminar and practicum in oratory, the first tool of leadership. A study of oratory as it provides direction, builds support, and drives action on a strategic agenda. Analysis of speeches in antiquity, the early modern era, and the unique American voice: Edwards to Lincoln to King.

HUMS 240a/PLSC 284a^G, DEMOCRATIC RHETORIC: DEMAGOGY, PERSUASION, AND DELIBERATION. Bryan Garsten.

For description see under Political Science.

HUMS 284a *or* b/SOCY 151a *or* b, FOUNDATIONS OF MODERN SOCIAL THEORY. Ivan Szelenyi [F], Ron Eyerman [Sp].

For description see under Sociology.

★HUMS 292a/★EP&E 366a/★PHIL 452a^G, FREEDOM OF EXPRESSION.

Jonathan Gilmore.

For description see under Philosophy.

HUMS 338b/ARCG 163b/CPSC 209b/NELC 163b^G, FROM PICTOGRAPH TO PIXEL: CHANGING WAYS OF HUMAN COMMUNICATION.

John Darnell, Michael Fischer, Beatrice Gruendler.

For description see under Near Eastern Languages & Civilizations.

★HUMS 351b/★GMAN 353b/★GMST 353b^G/★LITR 424b, DIALECTIC OF ENLIGHTENMENT: KANT AND SADE. Rainer Nägele.

For description see under German Studies.

★HUMS 352a/★GMAN 297a/★GMST 297a^G/★LITR 313a, FRIENDSHIP IN LITERATURE AND PHILOSOPHY. Elke Siegel.

For description see under German Studies.

★HUMS 358a/★GMST 311a/★LITR 455a^G, PLATO'S LEGACY. Carol Jacobs.

For description see under Literature.

- ★HUMS 368a/★GMAN 315a/★GMST 315a^G/★LITR 431a, SYSTEMS AND THEIR THEORY. Henry Sussman.
For description see under German Studies.
- ★HUMS 369a/★GMAN 296a/★GMST 296a^G/★LITR 229a, SOVEREIGNTY: POWER AND REPRESENTATION. Kirk Wetters.
For description see under German Studies.
- ★HUMS 372a/★ITAL 201a^G/★LITR 303a^G/★RNST 201a^G, LITERARY CRITICISM AND RHETORIC FROM PLATO TO VICO. Staff.
For description see under Italian.
- ★HUMS 376a/★PLSC 327a, DIRECT DEMOCRACY, MODERN AND ANCIENT. Cynthia Farrar.
For description see under Political Science.
- ★HUMS 378a/★ENGL 424a, SHAKESPEARE'S POLITICAL PLAYS. Elliott Visconsi.
For description see under English Language & Literature.
- ★HUMS 380a/★EP&E 339a/★PLSC 324a^G, REPRESENTATION. Bryan Garsten.
For description see under Political Science.
- ★HUMS 381b/★PHIL 457b^G, BIOLOGY, EVOLUTION, AND CULTURE. Jonathan Gilmore.
For description see under Philosophy.
- ★HUMS 383a/★FREN 357a/★LITR 415a, ROUSSEAU, FREUD, PROUST. Peter Brooks.
For description see under Literature.
- HUMS 386a/RLST 163a^G, REASON, FAITH, AND FEELING: EARLY MODERN CHRISTIAN THOUGHT. Shannon Craigo-Snell.
For description see under Religious Studies.
- HUMS 387b/RLST 164b^G, HISTORY, HOPE, AND THE SELF: MODERN CHRISTIAN THOUGHT. Shannon Craigo-Snell.
For description see under Religious Studies.

THE WEST AND ITS ENCOUNTERS

HUMS 100a/ANTH 150a/ARCG 100a/NELC 100a, THE GENESIS AND COLLAPSE OF OLD WORLD CIVILIZATIONS. Harvey Weiss.

TTH 11.30-12.45 II or III; Not CR/D/F Hu, So (24)

The archaeology of Mesopotamia, Egypt, and the Indus Valley from early agriculture to class formation and the early cities and empires. How did these societies develop and why did they collapse? Earliest epics and contemporary ideologies, including the Bushes in Baghdad, examined in literature and film. *Readings in translation.*

HUMS 101b/NELC 101b, ORIGINS OF WESTERN CIVILIZATION: THE NEAR EAST FROM ALEXANDER TO MUHAMMAD. Benjamin Foster.

MW 9-10.15, I HTBA II Hu (32)

Cultural and historical survey of Hellenistic, eastern Roman, Parthian, Byzantine, and Sassanian empires in the Near East. Emphasis on mutual influences of Near Eastern and classical worlds, the rise of Christianity and Islam in Near Eastern contexts, and the division of East and West between conflicting ideas of unity.

HUMS 220a, PARIS AND MODERNITY. Marie-Hélène Girard.

MW 2.30-3.45 II Hu (37)

Examination of the artistic debates that took place in mid-nineteenth-century France, with an emphasis on the controversies that surrounded the universal exhibitions of 1855 and 1867. A wide range of literary texts and works of art studied in conjunction with a variety of aesthetic topics, including the relationships of French thinkers, writers, and artists with those of other European countries, especially Great Britain. Authors include Delacroix, Ingres, Courbet, Manet, Baudelaire, Gautier, and Zola. *Readings and discussion in English; texts available in French.*

★HUMS 227b/★LITR 182b/★SPAN 375b, TOLEDO: THE THREE FAITHS AND THE FOUNDATIONS OF MEDIEVAL EUROPE. María Rosa Menocal.

M 1.30-3.20 II; Not CR/D/F Hu (0)

Toledo as a city of philosophical and scientific translations, of legendary religious tolerance, and of startling admixtures in the arts and letters. A broadly interdisciplinary approach explores the dramatic transformations of European culture in multiple art forms and in intellectual life triggered by this crossroads city between East and West.

HUMS 229a/HIST 210a, THE EARLY MIDDLE AGES, 284–1000.

Anders Winroth.

For description see under History.

HUMS 230b/HIST 211b, THE BIRTH OF EUROPE, 1000–1500.

Paul Freedman.

For description see under History.

★HUMS 238a/★ENGL 292a, DREAMING NEW ORLEANS. Joseph Roach.

For description see under English Language & Literature.

HUMS 320a/NELC 102a, INTRODUCTION TO THE MIDDLE EAST.

Benjamin Foster.

For description see under Near Eastern Languages & Civilizations.

HUMS 331a/NELC 121a, THE HERO IN THE ANCIENT NEAR EAST.

Kathryn Slanski.

For description see under Near Eastern Languages & Civilizations.

★HUMS 373a/★EP&E 338a/★PLSC 288a^G, POSTCOLONIAL POLITICAL THOUGHT. Karuna Mantena.

For description see under Political Science.

★HUMS 374b/★EP&E 354b/★PLSC 322b^G, EMPIRE AND MODERN POLITICAL THOUGHT. Karuna Mantena.

For description see under Political Science.

★HUMS 377b/★NELC 123b, EUROPE AND THE ANCIENT NEAR EAST.

John Darnell, Kathryn Slanski.

Th 2.30-4.20; *screenings* HTBA II; Not CR/D/F Hu (0)

Exploration of the rediscovery and reception of the ancient civilizations of Egypt and the Near East. Topics include representation of Egypt and the Near East in classical Greek, Hellenistic, and medieval Arabic historiography; seventeenth- and eighteenth-century explorers and their journals; eighteenth-century decipherment of hieroglyphic and cuneiform writing and its impact on biblical and historical studies; the role of early photography in conveying images of the East to the

West; the race for archaeological finds and history of the museum; eighteenth- and nineteenth-century orientalism in art, music, and literature; and Edward Said and the question of orientalism today.

★HUMS 379b/★HSAR 438b/★RNST 421b, SILK ROAD RENAISSANCE.
Anne Dunlop.

For description see under History of Art.

★HUMS 382a/★CLCV 143a, ANCIENT ROME: ETHNIC ASSIMILATION AND XENOPHOBIA. Kirk Freudenburg.

For description see under Classical Languages & Literatures.

HUMS 385b/HIST 225b, ENGLAND'S AGE OF REVOLUTIONS, C. 1640–1776.
Steven Pincus.

For description see under History.

★HUMS 390b, COLONIALISM IN THE MODERN ERA. Elizabeth Foster.

W 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of modern European colonialism from a variety of perspectives, with a focus on European colonialism in Africa and South Asia. Exploration of the nature of European colonial endeavors, the experience of colonial rule for the colonizers and colonized peoples, and the legacies of colonialism. Sources from history, theory, literature, and film.

★HUMS 432a/★HIST 432a/★JDST 270a/★RLST 201a, MEDIEVAL JEWS, CHRISTIANS, AND MUSLIMS IMAGINING EACH OTHER.

Ivan Marcus.

T 1.30-3.20 II; Not CR/D/F Hu (o)

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Topics include the cultural grids and expectations each imposed on the other; the rhetoric of otherness such as 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. *For History majors, counts toward either European or Middle Eastern distributional credit, upon application to the director of undergraduate studies.*

THE FRANKE SEMINAR

★HUMS 435b/★MUSI 435b, MUSIC IN EUROPEAN THOUGHT: THREE MOMENTS IN THE MODERN ERA. Leon Plantinga.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

An inquiry into the role of music—thought about music—at three central moments in the intellectual and cultural history of modern Europe: the birth of modernity and opera; the Enlightenment and the classical style; and German romanticism and Beethoven.

THE SHULMAN SEMINAR

★HUMS 405b/★HIST 435b/★HSHM 456b, SCIENCE, DRAMA, AND THE NOVEL. Daniel Kevles.

T 1.30-3.20 II; Not CR/D/F Hu (o)

An analysis of selected plays and novels that center on issues and events in the history of science, technology, and medicine; comparison of these fictional treatments with historical reality. Works include Brecht's *Galileo*, Frayn's *Copenhagen*, Wells's *Island of Dr. Moreau*, and Huxley's *Brave New World*.

INDIVIDUAL RESEARCH AND SENIOR ESSAY COURSES

★HUMS 470a *and* 471b, SPECIAL STUDIES IN THE HUMANITIES. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (o)

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 491a *or* b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (o)

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 by November 17, 2006, if the essay is to be submitted during the spring term, by April 23, 2007, for yearlong or fall-term essays. A rough draft of the essay is due at noon on March 26, 2007, for spring-term essays or on November 3, 2006, for fall-term essays. The final essay is due at noon on April 6, 2007, for spring-term essays or on November 17, 2006, for fall-term essays; late essays will be penalized by a lower grade.

INDO-EUROPEAN

(*See under Linguistics.*)

INDONESIAN

(*See under Southeast Asia Studies.*)

INTERNATIONAL STUDIES

Director of undergraduate studies: Pierre Landry, 210 LUCE, 432-3418,
pierre.landry@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF INTERNATIONAL STUDIES

PROFESSORS

Gerald Baier (*International Affairs*) (*Visiting*), Paul Bracken (*Political Science*), Deborah Davis (*Sociology*), Robert Evenson (*Economics*), John Gaddis (*Chair*) (*History*), Stathis Kalyvas (*Political Science*), Boris Kapustin (*Political Science*) (*Visiting*), Paul Kennedy (*History*), Daniel Kevles (*History*), Ilona Kickbusch (*School of Medicine, Political Science*), Benedict Kiernan (*History*), William Odom (*Adjunct*) (*Political Science*), Charles Perrow (*Emeritus*) (*Sociology*), Patricia Pessar (*Adjunct*) (*American Studies, Anthropology*), Frances Rosenbluth (*Political Science*), Bruce Russett (*Political Science*), T. Paul Schultz (*Economics*), Ian Shapiro (*Political Science*), Gaddis Smith (*Emeritus*) (*History*), Frank Snowden (*History*), Susan Stokes (*Political Science*), Alec Stone Sweet (*Political Science, Law School*), Elisabeth Wood (*Political Science*)

ASSOCIATE PROFESSORS

Elizabeth Kassab (*Near Eastern Languages & Civilizations*), Nicholas Sambanis (*Political Science*), James Vreeland (*Political Science*)

ASSISTANT PROFESSORS

Keith Darden (*Political Science*), Thad Dunning (*Political Science*), Seth Fein (*History*), Beverly Gage (*History*), Susan Hyde (*Political Science*), Pierre Landry (*Political Science*), Nikolay Marinov (*Political Science*), Ole Molvig (*History*), Rohini Pande (*Economics*), Vivek Sharma (*Political Science*)

LECTURERS

Jasmina Beširević-Regan, Molly Beutz, Theodore Bromund (*History*), Robert Brubaker (*South Asian Studies*), Faisal Devji (*History*), Cheryl Doss (*Associate Chair*) (*Economics*), Mine Eder, Stuart Gottlieb (*Political Science*), Charles Hill (*Political Science*), Adam Jones (*Political Science*), Isam Khafaji, Jean Krasno (*Political Science*), Shaul Mishal, Natalia Sobrevilla Perea (*Political Science*), Nancy Ruther (*Political Science*), James Silk (*Law School*), James Sutterlin (*Political Science*), Amy Young

The program in International Studies is designed for students who seek to combine the discipline-based requirements of a first major with an understanding drawn from several disciplines of the transformations occurring on this planet in their interconnected socioeconomic, environmental, political, and cultural dimensions. No student may major in International Studies by itself; it must be a second major. The number of students accepted into this major is limited.

The interdisciplinary nature of the International Studies major requires mastery at an advanced level in one modern foreign language or intermediate-level proficiency in two foreign languages; courses in introductory economics (both macro- and microeconomics); and familiarity with the history, society, or politics of at least one country or region other than the United States. Students are also required to take one 300-level course in each of five areas that provide alternative lenses for analyzing international affairs: analytic and research methods, statecraft and power, ethnicity and culture, political economy, and science and technology. The capstone of the International Studies major is the two-term senior seminar course, in which a group of students and a faculty member study topics connected to a single broad theme and/or a region of the world.

Students contemplating applying to the International Studies major should elect courses during the freshman and sophomore years with an awareness of the foreign language and economics requirements of the major. Admission to the major takes place during the sophomore year. Application forms are available in the office of the undergraduate registrar, 210 LUCE, and on line at www.yale.edu/ycias/iac/bainternational.htm.

International Studies and the student's first major should have a coherent relationship expressive of well-conceived concentrations of interest. Close and continuous consultation among the student, the director of undergraduate studies, and appropriate faculty members is extremely important. Students should note that, in accordance with the academic regulations concerning two majors (see "Two Majors" in chapter III, section K), each major must be completed independently of the other, with no more than two term courses overlapping. Although senior essays or projects may, with permission of both directors of undergraduate studies, be coordinated, they may not overlap in course credits earned.

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. Forms must be submitted prior to the student's final term.

Requirements of the major. In addition to fulfilling the requirements of the primary major, a student choosing International Studies as a second major

must complete eleven term courses, including the senior seminar, *and* meet the major's language requirement. Up to two courses in the major may be taken on a Credit/D/Fail basis. Students are expected to choose their courses from the following categories:

1. One term course chosen from either INTS 171a, International Ideas and Institutions: Foundations, or 172b, International Ideas and Institutions: Contemporary Challenges.

2. Five 300-level term courses, one in each of the following lens areas: analytic and research methods, statecraft and power, ethnicity and culture, political economy, and science and technology. Only specifically designated courses, announced at the beginning of each term, will be accepted as fulfilling this requirement. Substitutions may be accepted under special circumstances and with the approval of the director of undergraduate studies.

3. One term course in microeconomics and one in macroeconomics.

4. One term course in the history, culture, or politics of a region or country other than the United States.

5. One two-term senior seminar course (the senior requirement).

Language requirement. Majors in International Studies must demonstrate advanced ability in one, or intermediate-level ability in two, modern languages other than English. This requirement is normally met by the completion of two terms of advanced courses in one language or courses in two languages at the intermediate level. Grades in language courses do not count toward Distinction in the Major.

Senior requirement. Each student takes a two-term senior seminar course. Senior seminars are yearlong working groups of about fifteen students directed by a faculty member and organized around a unifying theme or topic selected to reflect student and faculty interests. Each group produces a set of closely related, article-length research papers, with each student's paper comprising the senior essay. Senior essays should draw on foreign language as well as English sources.

Senior seminars vary from year to year. The topics for 2006–2007 are indicated in the titles of the senior seminars below.

REQUIREMENTS OF THE MAJOR

International Studies can be taken only as a second major. Specific course selection and choices of linked majors should be made in consultation with the student's International Studies faculty adviser and the director of undergraduate studies.

Prerequisites: None

Number of courses: Eleven (including senior sem; excluding language requirement)

Distribution of courses: One term course each in micro- and macroeconomics; either INTS 171a or 172b; one course in the history, culture, or politics of a country or region other than the U.S.; one course from each of five lens areas

Language requirement: Advanced ability in one, or intermediate-level ability in two, modern languages other than English

Senior requirement: Two-term senior sem

GENERAL COURSES IN INTERNATIONAL STUDIES

INTS 171a, INTERNATIONAL IDEAS AND INSTITUTIONS: FOUNDATIONS.

Charles Hill.

TT1 I-2.15, 1 HTBA II or III; Not CR/D/F Hu, So (26)

Essential texts, concepts, events, and developments in international relations across the centuries. Topics include balance of power, sovereignty, diplomacy and negotiation, revolution, collective security, and culture. (Formerly INTS 101a)

INTS 172b, INTERNATIONAL IDEAS AND INSTITUTIONS: CONTEMPORARY CHALLENGES. Paul Kennedy.

MW 11.30-12.45, 1 HTBA III So (34)

Introduction to the contemporary study of international relations. Topics include reasons why countries go to war and why they enter into alliances; the effectiveness of international peacekeeping efforts; the determinants of consequences of international trade; and the role of international organizations such as the World Trade Organization, the World Bank, and the International Monetary Fund. (Formerly INTS 102b)

INTS 200a/PLSC 188a, INTERNATIONAL HUMAN RIGHTS. Molly Beutz.

MW 1-2.15 II or III So Meets RP (36)

Introduction to human rights issues in theory and practice. Concepts, instruments, and mechanisms of international law, including human rights treaties and regional systems; international enforcement dilemmas such as the use of force and humanitarian intervention; issues of accountability through international and domestic prosecutions and truth commissions; and critical issues such as women's rights, cultural relativism, NGO advocacy, corporate accountability, and social and economic rights. *Limited enrollment.*

INTS 232a/PLSC 168a, LAW AND POLITICS OF GLOBALIZATION.

Alec Stone Sweet.

For description see under Political Science.

INTS 252a/PLSC 156a, INTERNATIONAL ORGANIZATIONS. Susan Hyde.

For description see under Political Science.

★INTS 270b/★PLSC 397b, CANADIAN GOVERNMENT AND POLITICS.

Gerald Baier.

For description see under Political Science.

★INTS 294a/★EP&E 416a/★PLSC 305a, CRITIQUE OF POLITICAL VIOLENCE.

Boris Kapustin.

For description see under Ethics, Politics, & Economics.

★INTS 297b/★PLSC 312b/★RSEE 385b, MORAL VALUES IN CIVIL SOCIETY.

Boris Kapustin.

T 1.30-3.20 II or III; Not CR/D/F So (o)

An exploration of the role of ethics in shaping different and competing conceptions of civil society as they evolved from early modernity to the present. An analytical and historical approach to the idea of civil society as well as the methodology of civil society practices in diverse cultural contexts.

★INTS 315b/★EP&E 315b/★PLSC 177b, EMERGENCE OF THE MODERN STATE.

Vivek Sharma.

For description see under Political Science.

★INTS 316a/★EP&E 316a/★PLSC 178a, WAR AND PEACE IN THEORY AND HISTORY. Vivek Sharma.

For description see under Political Science.

★INTS 317b/★PLSC 160b^G, AMERICAN NATIONAL SECURITY POLICY.

William Odom.

For description see under Political Science.

INTS 319b/HIST 196b, **TERRORISM IN AMERICA, 1865–2001.** Beverly Gage.
For description see under History.

★INTS 321b/★PLSC 143b, **CITIZENSHIP AND THE MILITARY IN LATIN AMERICA.** Natalia Sobrevilla Perea.
For description see under Political Science.

INTS 323a/PLSC 195a, **CIVIL WAR.** Nicholas Sambanis.
For description see under Political Science.

INTS 324a/PLSC 359a, **VIOLENCE AND CIVIL STRIFE.** Stathis Kalyvas.
For description see under Political Science.

INTS 325b, **GENOCIDE: AN INTERDISCIPLINARY PERSPECTIVE.**
Adam Jones.

TTh 11.30–12.45 III So (24)

A conceptual and historical overview of genocide within a broadly interdisciplinary framing. Perspectives from the social sciences and the humanities are combined with diverse case studies of genocide in the modern age.

★INTS 328a/★EP&E 412a/★PLSC 158a^G, **NATIONALISM AND IDENTITY.**
Keith Darden.
For description see under Political Science.

INTS 334a/PLSC 149a, **ECONOMIC SANCTIONS.** Nikolay Marinov.
For description see under Political Science.

★INTS 335a/★PLSC 151a^G, **INTERNATIONAL DIMENSIONS OF DEMOCRATIZATION.** Nikolay Marinov.
For description see under Political Science.

INTS 336a/PLSC 445a, **THE POLITICAL ECONOMY OF GREATER CHINA.**
Pierre Landry.
For description see under Political Science.

★INTS 339b/★PLSC 377b, **POLITICAL ECONOMY OF THE MIDDLE EAST.**
Isam Khafaji.

MW 11.30–12.45 III; Not CR/D/F So (0)

Critical examination of the relationship among social structures, states, and economic development in the Middle East. Political economy of the Middle East placed within the wider context of the international economy.

★INTS 340a/★HIST 444a^G/★HSHM 451a, **SCIENCE, ARMS, AND THE STATE.**
Daniel Kevles.
For description see under History.

★INTS 346a, **CONFRONTING CATASTROPHE.** Charles Perrow.
T 2.30–4.20 III; Not CR/D/F So (0)

Analysis of U.S. vulnerabilities to natural, industrial, and terrorist catastrophes. Consideration of the causes of catastrophe, prevention and remediation, and recovery. A systems approach, at the levels of individuals, organizations, and society.

★INTS 350a/★PLSC 448a, **CONTEMPORARY POLITICAL ECONOMY OF TURKEY AND THE MIDDLE EAST.** Mine Eder.

T 1.30–3.20 III So Meets RP (26)

Examination of current problems and prospects faced by the economies of Turkey and other Middle Eastern countries. Exploration of the links between

state building, economic development, and democratization in the region. Comparative discussion of how the Turkish economy diverges from others in the Middle East.

INTS 352a/ECON 325a, ECONOMICS OF DEVELOPING COUNTRIES.

Rohini Pande.

For description see under Economics. (Formerly INTS 211a)

★INTS 353b/★PLSC 190b, RETHINKING INTERNATIONAL RELATIONS THEORY THROUGH THE MIDDLE EAST. Mine Eder.

T 1.30-3.20 III So (26)

Examination of various debates and approaches in international relations theory through cases drawn from the Middle East. Evaluation of selected issues in international politics of the Middle East, including Islam, terrorism, Arab unity, and oil.

INTS 373b/PLSC 187b, TERRORISM AND COUNTERTERRORISM.

Stuart Gottlieb.

MW 11.30-12.45 III; Not CR/D/F So (34)

Examination of the origins and evolution of modern terrorism, and of strategies employed to confront and combat terrorism. Assessment of a variety of terrorist organizations and the multidimensional causes of terrorist violence. Analysis of the strengths and weaknesses of counterterrorism strategies, with a particular focus on ways in which the threat of global terrorism might affect the healthy functioning of democratic states. *Enrollment limited to juniors and seniors.*

INTS 376a/PLSC 148a, CENTRAL ISSUES IN AMERICAN FOREIGN POLICY.

Stuart Gottlieb.

MW 11.30-12.45 III; Not CR/D/F So (34)

Examination of the sources, substance, and enduring themes of American foreign policy. Overview of America's rise to global power in the nineteenth and twentieth centuries and American foreign policy decision making during the Cold War and the post-Cold War era. Focus on current challenges in American foreign policy, including the war on terrorism, the proliferation of weapons of mass destruction, the conflict in Iraq, and America's role in global institutions and the world economy. *Enrollment limited to juniors and seniors.*

★INTS 378a/★PLSC 184a, THE UNITED NATIONS AND THE MAINTENANCE OF INTERNATIONAL SECURITY. Jean Krasno.

For description see under Political Science. (Formerly INTS 184a)

INTS 382a/PLSC 393a, ETHNIC POLITICS IN COMPARATIVE PERSPECTIVE.

Thad Dunning.

TTh 10.30-11.20, 1 HTBA III So (23)

Ethnic politics in comparative perspective, with special attention to the developing world. Case studies are used to compare different approaches to understanding the sources of ethnic identity and the political consequences of sectarian divisions.

★INTS 383b^G/★PLSC 391b^G, RESEARCHING ETHNIC POLITICS.

Thad Dunning.

T 1.30-3.20 III So (0)

Assessment of the sources of ethnic identity and the political consequences of sectarian divisions. Analysis of the effects of political institutions and economic development on ethnic conflict. Attention to methods of research design. *Preference to majors in International Studies or Political Science.*

INTS 385a/ANTH 275a/PLSC 438a/WGSS 385a, MEN, WOMEN, AND FAMILY IN THE MUSLIM MIDDLE EAST. Amy Young.

For description see under Anthropology.

SENIOR SEMINARS

Unless otherwise specified, senior seminars are limited to International Studies majors.

★INTS 401a and 402b, INTERNATIONAL COOPERATION.

James Vreeland.

T 3.30-5.20 II or III; Not CR/D/F So (o)

An examination of the reasons governments enter into international arrangements, such as World Bank and IMF agreements, trade arrangements, alliances, and treaties. Study of the effects of these arrangements on measures of material well-being such as economic growth, income distribution, infant mortality rates, and the environment.

★INTS 409a and 410b, U.S. GRAND STRATEGIC TRADITION.

John Gaddis.

W 1.30-3.20 II or III; Not CR/D/F Hu Meets RP (o)

The United States has made the transition, over the past two centuries, from a marginal regional power to a global hegemon. Examination of the extent to which grand strategies existed in the minds of American leaders for making this transition.

★INTS 413a and 414b, OCEANS, SECURITY, AND GLOBALIZATION IN HISTORY. Gaddis Smith.

T 3.30-5.20 II or III; Not CR/D/F Hu (o)

Maritime aspects since the fifteenth century of international security, trade, and limits on national autonomy. Attention to naval policies and strategies, economic growth and inequality, free and unfree labor, technology, law of the sea, and environmental change.

★INTS 415a and 416b, DEMOCRACY IN WORLD POLITICS. Ian Shapiro.

M 3.30-5.20 III; Not CR/D/F So (o)

Discussion of challenges to, and possibilities for, democracy in the twenty-first century. The fall term is devoted to classic and contemporary literature and the design of student research projects. The spring term focuses on the completion of research projects.

★INTS 494a/★AMST 434a/★ER&M 452a, INTERNATIONAL MIGRATION AND REFUGEE MOVEMENTS I. Patricia Pessar.

W 1.30-3.20 II or III; Not CR/D/F So (o)

An examination of contemporary labor migration and refugee movements worldwide in light of such global trends as the destabilization of peripheral economies, industrial restructuring, and state-building and ethnic separatism. Focus on the Americas, Africa, and Europe. *Open to majors in International Studies, American Studies, and Ethnicity, Race, and Migration.*

★INTS 495b, INTERNATIONAL MIGRATION AND REFUGEE MOVEMENTS II. Patricia Pessar.

W 1.30-3.20 II or III; Not CR/D/F So (o)

Continuation of INTS 494a. *Open only to majors in International Studies. Prerequisite:* INTS 494a.

ISIZULU

(See under African Studies)

ISLAMIC STUDIES

(See under History, under History of Art, under Near Eastern Languages and Civilizations, and under Religious Studies.)

ITALIAN

Director of undergraduate studies: Risa Sodi, Rm. 410, 82-90 Wall St.,
432-0596, risa.sodi@yale.edu

FACULTY OF THE DEPARTMENT OF ITALIAN

PROFESSORS

Francesco Casetti, Millicent Marcus, Giuseppe Mazzotta (*Chair*)

ASSISTANT PROFESSORS

Francesca Cadel, Kristin Phillips-Court

SENIOR LECTORS

Monica Georgeo, Risa Sodi

LECTORS

Laura Chiesa, Michael Farina, Anna Iacovella

The major in Italian is a liberal arts major designed to explore Italy's vital role in the development of the humanistic values and disciplines that have infused Western culture over several centuries. Central to the major in Italian is the conviction that study of another language yields the important benefit of enlightening students about their own culture while instructing them about a foreign one. Core courses provide students with a solid linguistic, literary, and historical background in Italian. Additional offerings range across several disciplines, including the study of film, philosophy, comparative literature, history, political theory, art, religious studies, theater, architecture, and music.

Requirements of the major. Candidates for the major should have completed a course in Italian at the level of 130 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.

The major normally consists of eleven term courses. Eight term courses in the Italian department numbered 146a or above (including graduate courses) are required, at least five of which must be conducted in Italian. The eight courses must include either ITAL 146a or 147b and a course on Dante's *Divine Comedy* as well as four courses covering different periods in Italian literature: one in the Middle Ages (in addition to the one on Dante's *Divine Comedy*), one in the Renaissance, and two in Italian literature after 1600. The aim of these six foundation courses is to provide students with both a broad acquaintance with the major works of Italy's literary tradition and a more detailed knowledge of specific periods in Italian literature. Students are also strongly encouraged to use their elective courses to expand their knowledge of either the *Trecento* (fourteenth century) or the *Cinquecento* (sixteenth century). Three Italian department courses taught in English may count toward the major. Students intending to major in Italian should consult the director of undergraduate studies.

In completing their programs, students are required to elect two courses in other languages and literatures, history of art, history, or philosophy that are related to their field of study and approved by the director of undergraduate studies. Any graduate course in another national literature or in linguistics may be substituted for one of these two courses. Some knowledge of Latin is especially desirable.

Senior requirement. In the spring of the senior year all students majoring in Italian must present a departmental essay, written in Italian and completed under the direction of a faculty adviser in ITAL 491a or b. The essay should demonstrate careful reading and research on a particular topic approved by the adviser in consultation with the director of undergraduate studies. A recommended length for the essay is thirty pages. Prospectus and draft deadlines are determined by the adviser; the final deadline is determined by the director of undergraduate studies. The senior requirement culminates in an oral interview with department faculty that not only covers the thesis, but also touches upon the range of periods and subjects the student has studied.

Related majors. In addition to the major in Italian literature, the department will support the applications of qualified students who wish to pursue a course in Italian studies under the provisions of a Special Divisional Major, in which students may choose to combine courses in Italian literature and culture with a number of subjects from other departments. 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 director of undergraduate studies 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 in this chapter.

In the comparative literature track of the Literature major, the study of Italian may be combined with study of English literature or of another foreign literature in the departments of Classical Languages and Literatures, French, Germanic Languages and Literatures, Slavic Languages and Literatures, or Spanish. For details, see the comparative literature track under The Literature Major.

Students planning to major in Italian or those interested in a Special Divisional Major that includes Italian or a study of Italian culture in general should consult the director of undergraduate studies.

From year to year the department's course offerings in literature vary greatly. Students interested in planning course work in Italian culture that extends beyond the current academic year should consult the director of undergraduate studies.

For the Junior Year or Term Abroad, see chapter III.

Placement. All students who have not yet taken Italian at Yale are expected to take the departmental placement test, with the exception of students who have no previous knowledge of Italian. The departmental placement examination will be given at the beginning of the fall term on Tuesday, September 5, at 10 A.M.

- *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language

distributional requirement by successful completion of ITAL 130, Intermediate Italian, or any Italian course numbered higher than 130 that is conducted in Italian. They may also satisfy the requirement by scoring above the intermediate level on a written and oral placement examination. The written portion tests reading comprehension, writing skills, and knowledge of Italian grammar at the level of ITAL 130. The oral portion is a brief conversation with the professor administering the examination. The departmental examination will be given at the beginning of the fall term on Tuesday, September 5, at 10 A.M.

Foreign language requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisite: ITAL 130 or equivalent

Number of courses: Eleven term courses beyond prerequisite

Distribution of courses: Eight term courses in Italian dept numbered 146a or above, including one in the Middle Ages (in addition to one on Dante’s *Divine Comedy*), one in the Renaissance, and two in Italian lit after 1600; at least five of these courses must be conducted in Italian. Two term courses in other langs or lits, history of art, history, or philosophy relevant to field of study and approved by DUS

Specific courses required: ITAL 146a or 147b; ITAL 310a or equivalent

Substitution permitted: Any graduate course in another natl lit or linguistics for one of the two courses in other depts, with permission of DUS

Senior requirement: Senior essay (ITAL 491a or b) and oral interview

GROUP A COURSES

★ITAL 115, ELEMENTARY ITALIAN. Staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L1–L2 3 C Credits (61) *Cr/Year only*

Emphasizes development of the four language skills (speaking, reading, writing, and listening) through the use of a textbook, a workbook, Web-based audio assignments, and video. In-class conversation and vocabulary building are stressed. Study of Italian culture, particularly in the second term, through authentic readings and film.

★ITAL 116a or b, INTENSIVE ELEMENTARY ITALIAN. Staff.

MTWThF 9.30–11.20 I; Not CR/D/F L1–L2 2 C Credits (32)

An accelerated beginning course in Italian that covers in one term the material taught in ITAL 115. Admits to ITAL 130 or 131b. *Enrollment limited to 15.*

[ITAL 120b, ITALIAN FOR READING]

★ITAL 126a, INTENSIVE ELEMENTARY AND INTERMEDIATE ITALIAN.

Monica Georgeo.

MTWThF 9.30–11.20 I; Not CR/D/F L2–L3 2 C Credits (32)

An intensive continuation of the first term of ITAL 115. Increased proficiency in the four language skills (speaking, reading, writing, and listening) through the use of a textbook, a workbook, Web-based audio assignments, and video. Emphasis on grammar, in-class conversation, and vocabulary building. Study of Italian culture through authentic readings, film, and opera. *Enrollment according to placement examination.*

★ITAL 130, INTERMEDIATE ITALIAN. Staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L3–L4 3 C Credits (61)

A continuation of ITAL 115, building on prior knowledge to increase proficiency in the four language skills. A textbook-based grammar review combined with workbook and Web-based audio assignments. Classroom emphasis includes speaking and vocabulary building. Selected authentic readings and films, as well as cultural topics, are presented throughout the two-term sequence. Prepares for and admits to all courses in Group B.

★ITAL 131a or b, INTENSIVE INTERMEDIATE ITALIAN. Staff.

MTWThF 9.30–11.20 I; Not CR/D/F L3–L4 2 C Credits (32)

An accelerated intermediate course in Italian that covers in one term the material taught in ITAL 130. Continues practice in the four basic skills begun at the elementary level. Emphasis on grammar review, vocabulary enrichment, and appreciation of literary texts. Prepares for and admits to all courses in Group B. *Enrollment limited to 15. Prerequisite:* ITAL 115 or 116a or b.

GROUP B COURSES

Group B courses are conducted in Italian and are open to students who have passed ITAL 130 or 131a or b and to others with the consent of the director of undergraduate studies and of the instructor.

ITAL 146a, ADVANCED COMPOSITION AND CONVERSATION. Risa Sodi.

MWF 9.30–10.20 I; Not CR/D/F L5 (○)

Intended to improve active command of the language through an exploration of social, political, and literary issues. Development of advanced reading and speaking skills through discussions of magazine and newspaper articles, essays, short stories, films, and a novel; perfection of writing skills through experiments with reviews, essays, creative writing, and business and informal Italian. Classroom emphasis on advanced speaking skills and vocabulary building.

★ITAL 147b, ITALIAN WORKSHOP: WRITING AND CONVERSATION.

Francesca Cadel.

TTh 4–5.15 I L5 (○)

Development of advanced writing and speaking skills. Close readings and extensive practice writing in a variety of genres, which may include autobiography, biography, the joke, letter, essay, poem, news article, comic strip, children's book, and short story. Popular narrative genres such as the *giallo* and *romanzo rosa*. Creation and performance of short dramatic texts.

★ITAL 149b, ITALIAN HISTORY FROM 1945. Risa Sodi.

T 9.30–11.20 I L5, Hu (○)

An examination of the major events in Italian history from 1945 to the present. Advanced grammar, writing, and speaking explored in the context of Italian history. Topics include World War II, the founding of the Italian Republic, post-war reconstruction, the major political parties, the protest movements of 1968, the collapse of the Left, and the rise of the Northern League and Berlusconi. Consideration also given to immigration, the environment, and cultural issues.

★ITAL 161a, SELECTED READINGS IN ITALIAN PROSE. Risa Sodi.

MWF 10.30–11.20 I; Not CR/D/F L5, Hu (○)

Study of representative prose works from the Middle Ages to the present. Among the selections considered are texts by Boccaccio, Machiavelli, Manzoni, Verga, and a variety of twentieth-century novelists and short-story writers.

[ITAL 202a, ITALIAN THROUGH OPERA AND FILM]

[ITAL 250b, TWENTIETH-CENTURY ITALIAN POETRY]

★ITAL 260a, IDENTITY AND THE SELF IN THE ITALIAN NOVEL.

Francesca Cadel.

Tth 4-5.15 I; Not CR/D/F L5, Hu (o)

An examination of the development of Italian narrative during the past century, with a focus on the representation of the self and memory after World War II and on hypothetical futures. Authors include Pavese, Pasolini, Morante, Ginzburg, Banti, Tondelli, and Villalta.

★ITAL 319b, TWENTIETH-CENTURY ITALIAN LITERATURE AND THE MEDITERRANEAN. Francesca Cadel.

Tth 2.30-3.45 I L5, Hu (o)

An examination of twentieth-century Italian literature from the point of view of multicultural and multinational Mediterranean unity. The relation between culture in Italy and in the rest of Europe, North Africa, and the Middle East. The role of Mediterranean cosmopolitan cities such as Alexandria, Genoa, Fiume (Rijeka), Naples, Palermo, Trieste, and Venice. Authors include Marinetti, Magris, Matvejevich, Pirandello, Stuparich, Ungaretti, and Verga.

[ITAL 333b/RNST 333b, DANTE, PETRARCH, AND BOCCACCIO]

ITAL 342b/HUMS 371b/LITR 187b/RNST 342b, LITERATURE OF THE ART OF THE RENAISSANCE. Staff.

MW 11.30-12.45 I; Not CR/D/F L5, Hu (o)

Exploration of Renaissance aesthetics through a study of fifteenth- and sixteenth-century literary production and its relation to the visual arts. Topics include artists' writings (e.g., Michelangelo's poetry); treatises on painting, sculpture, poetry, drama, and architecture (Alberti, Castiglione, Pacioli, Piero della Francesca, Leonardo, Varchi, Dolce); letters between artists; papal and princely commissions; art commentary and criticism (Aretino, Vasari); and the *paragone* debates.

[ITAL 343a, ITALIAN RENAISSANCE DRAMA]

ITAL 366a, THE ITALIAN BAROQUE. Staff.

MW 11.30-12.45 I Hu (o)

An examination of the literary, artistic, historical, and philosophical developments that characterize the Baroque period. Emphasis on Counter-Reformation debates, the relationship between theology and aesthetics, drama and spectacle, and developments in natural science. Cross-generic readings (tragedy, *commedia dell'arte*, poetry, philosophical writings) featured with an eye to transformations in the visual arts.

★ITAL 388b, ITALIAN THEATER FROM GOLDONI TO FO. Risa Sodi.

Tth 1-2.15 I; Not CR/D/F Hu (o)

Selected works by Goldoni, Alfieri, Manzoni, d'Annunzio, Pirandello, Betti, Patroni-Griffi, Ginzburg, and Fo. Emphasis on the ways in which these texts pose questions about the self, language, representation, and the Italian literary tradition. Some in-class staging.

★ITAL 470, SPECIAL STUDIES IN ITALIAN LITERATURE.

Giuseppe Mazzotta.

HTBA I; Not CR/D/F L5 (o)

A series of tutorials to direct students in special interests and requirements. Students meet regularly with a faculty member.

★ITAL 491a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F L5 (○)

A research essay on a subject selected by the student in consultation with the faculty adviser.

GROUP C COURSES

Group C courses are conducted in English and are open to students without previous study of Italian. Majors in Italian are required to read the material and write their papers in Italian.

★ITAL 201a^G/★HUMS 372a/★LITR 303a^G/★RNST 201a^G, LITERARY CRITICISM AND RHETORIC FROM PLATO TO VICO. Staff.

MW 1-2.15 I Hu (○) Tr

A survey of major works about literature and rhetoric, with special attention to the classical and Italian traditions. Questions considered include the definition, purpose, and value of literature. Historical views of figurative language as a dangerous seduction, a tool for teaching ethics, and a necessary first step in understanding reality. Authors include Plato, Aristotle, Horace, Augustine, Boccaccio, Sidney, and Vico.

[ITAL 233b/LITR 184b/RNST 233b, RENAISSANCE LITERATURE AND THOUGHT: PLACES, ROLES, AND TEXTS]

★ITAL 240a/★LITR 232a/★WGSS 240a, WOMEN INTELLECTUALS IN ITALY. Francesca Cadel.

TTh 2.30-3.45 I; Not CR/D/F Hu (○) Tr

The presence of women in Italian intellectual life from Renaissance to modern Italy. The representation of gender and social identity in art, literature, and science from Vittoria Colonna to Rita Levi Montalcini.

[ITAL 245b/LITR 234b, JEWISH ITALY IN LITERATURE AND FILM]

★ITAL 255b/★LITR 181b, SACRED AND PROFANE LOVE: FROM HUMANISM TO BAROQUE. Staff.

MW 2.30-3.45 I; Not CR/D/F Hu (○) Tr

An exploration of philosophical discussions as well as literary implementations of ideas about love. Authors include Lorenzo Valla, Marsilio Ficino, Giovanni Pico della Mirandola, Girolamo Savonarola, Leone Ebreo, Baldassare Castiglione, Michelangelo Buonarroti, Vittoria Colonna, Torquato Tasso, Giambattista Marino. Discussion of some modern spiritual and psychological theories of love.

[ITAL 303b/FILM 457b/LITR 359b, ITALIAN FILM FROM POSTWAR TO POSTMODERN]

ITAL 305b/FILM 328b/HSAR 342b, ITALIAN FILM, 1960–1975.

Noa Steimatsky.

For description see under History of Art.

ITAL 308b/FILM 456b, COMEDY IN ITALIAN CINEMA.

Francesco Casetti.

MW 9-10.15; screenings SU 7 P.M. I; Not CR/D/F Hu (○)

A survey of Italian film comedy from the 1950s and 1960s. Definition of a canon, from Fascist productions of light comedy to postmodern films. Comparison of comedy to other film genres such as parody, psychological drama, and the political essay.

ITAL 310a/LITR 183a, DANTE IN TRANSLATION. Giuseppe Mazzotta.

TH 1.30-2.20, 1 HTBA I; Not CR/D/F Hu (26) Tr
 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. *One discussion section conducted in Italian.*

ITAL 323a/FILM 460a/HIST 224a, MODERN ITALY: HISTORY AND FILM.

Millicent Marcus, Frank Snowden.
 For description see under History.

★ITAL 335b⁶, AT SCHOOL AND AT PLAY IN BOCCACCIO'S *DECAMERON*.
 Staff.

M 3.30-5.20 I; Not CR/D/F Hu (0) Tr
 Study of Boccaccio's collected stories within the context of both classical and medieval traditions, as well as of modern critical debates. Comparison of *Decameron* tales and other medieval Italian prose, such as collections of didactic *exempla* and the lives of saints, troubadors, and famous men.

★ITAL 341a/★LITR 186a/★RNST 341a, ITALIAN RENAISSANCE DRAMA IN TRANSLATION. Staff.

W 2.30-4.20 I; Not CR/D/F Hu (0) Tr
 A survey of Italian Renaissance drama in its various forms: pastoral, comedy, tragedy, and sacred drama. Examination of the classical (Greek and Roman) and medieval (liturgical) roots of Italian Renaissance drama and its later permutations. Close readings of plays with consideration of the courtly, academic/intellectual, and popular environments that produced them. Authors include Poliziano, Machiavelli, Ariosto, Tasso, Aretino, and Trissino.

[ITAL 364b/HUMS 273b/RNST 364b, LITERATURE AND ART OF TRANSFORMATION]

JAPANESE

(See under *East Asian Languages and Literatures.*)

JAPANESE STUDIES

(See under *East Asian Studies.*)

JUDAIC STUDIES

Director of undergraduate studies: Christine Hayes, 451 College St., 432-0843,
 christine.hayes@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF JUDAIC STUDIES

PROFESSORS

Leslie Brisman (*English*), Steven Fraade (*Religious Studies*), Benjamin Harshav (*Comparative Literature*), W. Zev Harvey (*Religious Studies*) (*Visiting*), Christine Hayes (*Religious Studies*), Paula Hyman (*History, Religious Studies*), Ivan Marcus (*Chair*) (*History, Religious Studies*), María Rosa Menocal (*Spanish & Portuguese*), Tessa Rajak (*Classics, History*) (*Visiting*), Steven Smith (*Political Science*), Laura Wexler (*Women's, Gender, & Sexuality Studies, American Studies*), Robert Wilson (*Religious Studies*)

ASSOCIATE PROFESSOR

Esther Chazon (*Religious Studies*) (*Visiting*)

ASSISTANT PROFESSOR

Marci Shore (*History*) (*Visiting*)

LECTURERS

Mara Benjamin (*Religious Studies*) (*Visiting*), Daniel Stein Kokin (*History*) (*Visiting*),
David Lambert (*Religious Studies*) (*Visiting*)

SENIOR LECTOR

Ayala Dvoretzky (*Near Eastern Languages & Civilizations*)

LECTORS

Shiri Goren (*Near Eastern Languages & Civilizations*), Robert Hawley (*Near Eastern
Languages & Civilizations*), Yechiel Schur (*Near Eastern Languages & Civilizations*)

Judaic Studies enables students to develop a substantial knowledge of the history, religion, literature, languages, and culture of the Jews. Jewish society, texts, ideologies, and institutions are examined in comparative perspective in the context of the history and culture of nations in which Jews have lived and created throughout the ages.

The program in Judaic Studies offers courses that encompass all the major epochs of Jewish history. These epochs are the biblical period, which includes biblical literature and archeology; the classical period, which includes the literature and history of rabbinic Judaism and its antecedents; the medieval period, which includes Jewish history and literature in both Christian and Islamic lands; the early modern period, which includes Jewish history from the fifteenth through the eighteenth centuries; and the modern period, which includes the history and literature of Jews and Judaism from the late eighteenth to the twenty-first centuries and the impact of different facets of modernization.

The Judaic Studies major, especially as a second major with Economics, Political Science, English, or History, offers intensive background training for those considering admission to graduate or professional schools and to those planning careers in journalism, international relations, foreign service, publishing, the rabbinate, international law, politics, or social work. The interdisciplinary character of the program provides students with both a broad liberal arts background and an intensive preparation in the historical and religious experience of the Jewish culture in its various contexts from antiquity to contemporary times.

Students considering the major in Judaic Studies should contact the director of undergraduate studies as soon as possible.

Requirements of the major. The major in Judaic Studies requires thirteen term courses, including the senior essay course. Prerequisite or corequisite to the major is a year of elementary modern Hebrew (HEBR 101) or its equivalent. The major consists of a Hebrew language and literature requirement, a set of core requirements, and two areas of concentration.

Hebrew language and literature. Each student majoring in Judaic Studies must attain the equivalent of the second year of modern Hebrew (HEBR 102). In addition, each student must take two term courses in which Hebrew literature is studied in Hebrew, for which HEBR 102 (but not HEBR 101) may count. Students who fulfill the Hebrew language requirement by passing an examination rather than by enrolling in HEBR 101, 102 must take two other term courses in which Hebrew literature is studied in Hebrew. Students concentrating in Hebrew Bible may, in consultation with the director of undergraduate studies, substitute two years of biblical Hebrew for the language and literature requirements.

Core requirements. Each student must elect at least three from the following: (1) one term course in Hebrew Bible (e.g., JDST 110a); (2) one term course in rabbinic literature; (3) JDST 200a, History of Jewish Culture to the Reformation; (4) JDST 201b, History of Jewish Culture, 1500 to the Present;

(5) JDST 202b, Judaism: Continuity and Change; (6) a term survey course in Hebrew and Jewish literature.

Areas of concentration. Students must select two areas of concentration. The standard areas are ancient Israel/Hebrew Bible; Judaism of Second Temple and Talmudic times; Jewish history and civilization of medieval and early modern times; modern Jewish history and civilization; and Jewish/Hebrew literature (requires study of literature in Hebrew). With the approval of the director of undergraduate studies, students may design their own areas of concentration.

In each of the two areas of concentration, students choose three term courses in consultation with the director of undergraduate studies. These are normally expected to include one introductory course; one seminar taken in junior year and requiring a final research paper; and one relevant course in an area outside Judaic Studies, such as a course relating to the larger historical context if the concentration is in a historical period, or a course in the theory or practice of literature if the concentration is in Jewish or Hebrew literature. Most seminars listed under "Electives within the Major" may be counted as junior seminars in a student's areas of concentration with permission of the director of undergraduate studies.

Senior requirement. Students are expected to write a one- or two-term senior essay (JDST 491a and 492b). If a one-term senior essay is chosen, the student must complete an additional seminar. The one-term essay normally relates to one of the student's areas of concentration, while the seminar relates to the other. A two-term essay should relate to both of the student's areas of concentration. The senior essay, whether one- or two-term, should build on one or both of the student's junior seminar papers.

Study in Israel. Students majoring in Judaic Studies should be aware of the numerous opportunities for study and travel in Israel. Those interested in either a summer or an extended stay in Israel should consult the director of undergraduate studies.

REQUIREMENTS OF THE MAJOR

Prerequisite: HEBR 101 or equivalent

Number of courses: Thirteen term courses (including the senior essay)

Specific courses required: HEBR 102 or equivalent

Distribution of courses: Three term courses from the following: (1) Hebrew Bible (e.g., JDST 110a); (2) rabbinic lit; (3) JDST 200a; (4) JDST 201b; (5) JDST 202b; (6) survey of Hebrew and Jewish lit. Two areas of concentration, in each of which three courses are required (normally one intro, one junior sem, one outside Judaic Studies related to the concentration), for a total of six

Substitution permitted: Two years of biblical Hebrew for HEBR 102 or equivalent for those students with one area of concentration in Hebrew Bible

Senior requirement: Two-term senior essay (JDST 491a, 492b) related to both areas of concentration, or one-term senior essay and addtl sem

CORE COURSES

JDST 200a^G/HIST 219a^G/RLST 148a^G, HISTORY OF JEWISH CULTURE TO THE REFORMATION. Ivan Marcus.

For description see under Religious Studies.

[JDST 201b^G/HIST 293b^G/RLST 149b^G, HISTORY OF JEWISH CULTURE, 1500 TO THE PRESENT]

JDST 202b/RLST 146b, JUDAISM: CONTINUITY AND CHANGE.

Christine Hayes.

For description see under Religious Studies.

SPECIAL PROJECTS

★JDST 471a *or* b, INDIVIDUAL TUTORIAL. Consult the director of undergraduate studies.

HTBA II or III; Not CR/D/F (○)

For students who wish, under faculty supervision, to investigate an area in Judaic Studies not covered by regular course offerings. May be used for research or for directed reading, but in either case a long essay or several short ones are required. To apply for admission, a student should present a prospectus with bibliography and a letter of support from the faculty member who will direct the work to the director of undergraduate studies.

THE SENIOR ESSAY COURSE

★JDST 491a *and* 492b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA II or III; Not CR/D/F (○)

The essay, written under the supervision of a faculty member, should be a substantial paper between 6,500 and 8,000 words for one term and between 12,500 and 15,000 words for two terms.

ELECTIVES WITHIN THE MAJOR

Biblical Period

JDST 110a/RLST 145a, INTRODUCTION TO THE OLD TESTAMENT (HEBREW BIBLE). Christine Hayes.

For description see under Religious Studies.

★JDST 115a^G/★RLST 150a^G, EXODUS AND EXILE IN THE HEBREW BIBLE.

David Lambert.

TTh 2.30-3.45 II; Not CR/D/F Hu (27)

A study of the theme of exodus in the Hebrew Bible. Examination of the political, historical, literary, and theological dimensions of key biblical narratives in their ancient Near Eastern, early Jewish, and early Christian contexts.

★JDST 116b^G/★RLST 151b^G, GOOD DEEDS IN JUDAISM AND CHRISTIANITY.

David Lambert.

MW 2.30-3.45 II; Not CR/D/F Hu (37)

Examination of the language used to depict ideal behavior in the Hebrew Bible and in works of early Judaism and Christianity. Readings focus on wisdom literature.

Classical Period

★JDST 230a^G/★CLCV 204a^G/★HIST 412a^G, NEW APPROACHES TO JOSEPHUS.

Tessa Rajak.

W 1.30-3.20 II; Not CR/D/F Hu (○)

A study of central issues and key passages in the writings of Flavius Josephus, with consideration of recent debates on the historian in relation to his environment. Some attention to issues of expression and style in the original text. *No knowledge of Greek required.*

★JDST 231b^G/★CLCV 239b^G/★HIST 413b^G, DIASPORA INTERACTION AMONG JEWS, GREEKS, AND ROMANS. Tessa Rajak.

TTh 11.30-12.45 II; Not CR/D/F Hu (○)

A study of the Mediterranean Jewish diaspora from the Hellenistic age to late antiquity. Attention to primary sources and to leading modern interpretations of them. Emphasis on understanding the relationships between Jews and pagans in a world of ethnic diversity and on exploring the connections among politics, society, culture, and religion.

★JDST 232bG/★RLST 222bG, THE DEAD SEA SCROLLS AND JEWISH PRAYER IN LATE ANTIQUITY. Esther Chazon.

Th 9.30-11.20 II; Not CR/D/F Hu (o)

An in-depth study of selected prayers from the Dead Sea Scrolls. The impact of the scrolls on major issues in Second Temple Judaism; the institution of the synagogue liturgy by the Rabbis and the authors of the first prayer books.

JDST 235b/RLST 147b, INTRODUCTION TO JUDAISM IN THE ANCIENT WORLD: FROM TEMPLE TO TALMUD. Steven Fraade.

For description see under Religious Studies.

JDST 255aG/RLST 194aG, THE DEAD SEA SCROLLS AND THE HISTORY OF ANCIENT JUDAISM. Steven Fraade.

For description see under Religious Studies.

★JDST 392aG/★RLST 405aG, MISHNAH SEMINAR: TRACTATE TA'ANIT ON FASTING. Steven Fraade.

For description see under Religious Studies.

★JDST 410b/★RLST 410bG, TALMUD SEMINAR: SOURCES OF JEWISH LAW AND RABBINIC AUTHORITY. Christine Hayes.

For description see under Religious Studies.

Medieval and Early Modern Periods

★JDST 270a/★HIST 432a/★HUMS 432a/★RLST 201a, MEDIEVAL JEWS, CHRISTIANS, AND MUSLIMS IMAGINING EACH OTHER.

Ivan Marcus.

For description see under Humanities.

★JDST 271aG/★RLST 207aG, JEWISH PHILOSOPHY FROM MAIMONIDES TO SPINOZA. W. Zev Harvey.

MW 2.30-3.45 II; Not CR/D/F Hu (o)

A discussion of the role of the intellect and the passions in the writings of major Jewish philosophers from Maimonides to Spinoza.

★JDST 272aG/★HIST 418aG, JEWISH INTELLECTUAL AND CULTURAL LIFE IN EARLY MODERN ITALY. Daniel Stein Kokin.

TTh 2.30-3.45 II; Not CR/D/F Hu (o)

Exploration of the intellectual and cultural life of Jews in Italy from the fifteenth through the early seventeenth centuries. Focus on Christian attitudes toward and interest in Judaism and Jewish sources. Topics include Jewish philosophy in the Humanist movement, Christian Hebraism, the rise of printing, the ghetto, censorship and anti-Semitism, and Jewish confraternities and preaching.

★JDST 273bG/★HIST 426bG, JEWISH MESSIANISMS IN HISTORICAL CONTEXT AND THEORY. Daniel Stein Kokin.

Th 1.30-3.20 II; Not CR/D/F Hu (26)

An exploration of the development and place of messianism in Jewish history and theology. Focus on major messianic figures such as Bar Kokhba, Shlomo Molkho, and Shabbetai Tzvi, and on influential theories of messianism, including those of Maimonides, Abraham Abulafia, and Avraham Yitzhak Kook. Evaluation of classic scholarly approaches to messianism.

*Modern Period****JDST 251a^G/★RLST 223a^G, WEIMAR GERMAN-JEWISH THOUGHT.**

Mara Benjamin.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

A study of early twentieth-century German-Jewish theology, with an emphasis on strategies for reading religious texts in light of nineteenth-century critiques of religion. Readings from the works of Martin Buber, Franz Rosenzweig, and other contemporaneous Jewish and Christian thinkers, as well as contemporary literature on religious hermeneutics.

JDST 282a^G/HIST 249a^G, JEWS AND MODERNITY IN EASTERN EUROPE AND RUSSIA. Marci Shore.

TTh 10.30-11.20, I HTBA II; Not CR/D/F Hu (23)

Exploration of the ways in which Jews and Jewish communities in Eastern Europe responded to a radically changing world in the nineteenth and twentieth centuries. How Jews engaged with new ideas about time and history, and about nation and class, that wreaked havoc with Jewish and non-Jewish traditional societies.

***JDST 283b^G/★HIST 417b^G, JEWS AND COSMOPOLITANISM IN MODERN EUROPEAN INTELLECTUAL HISTORY.** Marci Shore.

TTh 11.30-12.45 II; Not CR/D/F Hu (o)

Examination of Jewish contributions to cosmopolitan ideas in modern European intellectual history. Topics include Marxism, psychoanalysis, and deconstruction.

JDST 286a^G/HIST 269a^G/RLST 230a^G, HOLOCAUST IN HISTORICAL PERSPECTIVE. Paula Hyman.

For description see under History.

***JDST 290a/★AFAM 280a/★PLSC 268a, BLACK AND JEWISH COMMUNITY POLITICS.** Khalilah Brown-Dean.

For description see under Political Science.

***JDST 295b/★NELC 154b, ISRAELI IDENTITY AND CULTURE: 1948 TO THE PRESENT.** Shiri Goren.

For description see under Near Eastern Languages & Civilizations.

***JDST 390a^G/★HIST 422a^G/★RLST 217a^G, MEMORY, MEMOIRS, AND MODERN JEWISH HISTORY.** Paula Hyman.

For description see under History.

HEBREW LANGUAGE AND LITERATURE**JDST III/HEBR III, ELEMENTARY BIBLICAL HEBREW.** Staff.

For description see under Near Eastern Languages & Civilizations.

***JDST 112/★HEBR 112, INTERMEDIATE BIBLICAL HEBREW.**

Elitzur Bar-Asher.

For description see under Near Eastern Languages & Civilizations.

JDST 211/HEBR 101^G, ELEMENTARY MODERN HEBREW.

For description see under Near Eastern Languages & Civilizations.

JDST 212/HEBR 102^G, INTERMEDIATE MODERN HEBREW.

For description see under Near Eastern Languages & Civilizations.

- ★JDST 213a/★HEBR 103a^G, ADVANCED MODERN HEBREW: IDEOLOGICAL AND SOCIAL DISCOURSE. Shiri Goren.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 214b/★HEBR 109b, READING ACADEMIC TEXTS IN MODERN HEBREW. Yechiel Schur.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 260a/★HEBR 108a, READING MEDIEVAL HEBREW TEXTS. Yechiel Schur.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 261b/★HEBR 107b, MEDIEVAL HEBREW COMMENTARIES ON THE PENTATEUCH. Yechiel Schur.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 301b/★HEBR 104b^G, INTRODUCTION TO MODERN ISRAELI LITERATURE. Ayala Dvoretzky.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 305a/★HEBR 105a, CONTEMPORARY ISRAELI SOCIETY IN FILM. Shiri Goren.
For description see under Near Eastern Languages & Civilizations.
- ★JDST 310a/★LITR 226a, READINGS IN HEBREW POETRY. Benjamin Harshav.
For description see under Literature.
- ★HEBR 471a or b, DIRECTED READING AND RESEARCH. Consult the director of undergraduate studies.
For description see under Near Eastern Languages & Civilizations.

GRADUATE AND PROFESSIONAL SCHOOL COURSES OF INTEREST TO UNDERGRADUATES

Qualified students may elect relevant courses in the Graduate School with permission of the director of graduate studies, the director of undergraduate studies, and the instructor of the course. They may also offer as many as four courses taken in professional schools of the University with permission of the instructors, the director of undergraduate studies, and the dean or registrar of the schools involved. (See “Courses in the Yale Graduate and Professional Schools” in chapter III, section K.) A complete list and descriptions of relevant graduate and professional school courses are available from the director of undergraduate studies.

KISWAHILI

(See under African Studies.)

KOREAN

(See under East Asian Languages and Literatures.)

LATIN

(See under Classical Languages and Literatures.)

LATIN AMERICAN STUDIES

Director of undergraduate studies: Marcello Canuto, 51 Hillhouse Ave.,
432-6610, marcello.canuto@yale.edu; www.yale.edu/macmillan/lais

FACULTY ASSOCIATED WITH THE PROGRAM OF LATIN AMERICAN STUDIES

PROFESSORS

Rolena Adorno (*Spanish & Portuguese*), Mark Ashton (*Forestry & Environmental Studies*), Richard Burger (*Anthropology*), Hazel Carby (*African American Studies, American Studies*), Carlos Eire (*History, Religious Studies*), Eduardo Engel (*Economics*), Aníbal González (*Spanish & Portuguese*), Roberto González Echevarría (*Spanish & Portuguese*), K. David Jackson (*Spanish & Portuguese*), Gilbert Joseph (*History*), Enrique Mayer (*Anthropology*), Mary Miller (*History of Art*), Florencia Montagnini (*Forestry & Environmental Studies*), Patricia Pessar (*Adjunct*) (*American Studies*), Stephen Pitti (*History*), T. Paul Schultz (*Economics*), Stuart Schwartz (*History*), Susan Stokes (*Political Science*), Robert Thompson (*History of Art*), Noël Valis (*Spanish & Portuguese*), Elisabeth Wood (*Political Science*)

ASSOCIATE PROFESSORS

Richard Bribiescas (*Anthropology*), Lisa Curran (*Forestry & Environmental Studies*),
Nora Groce (*Epidemiology & Public Health*), Jaime Lara (*Divinity School*)

ASSISTANT PROFESSORS

Jennifer Bair (*Sociology*), Jennifer Baszile (*History*), Irene Brambilla (*Economics*), Alicia Schmidt Camacho (*American Studies*), Marcello Canuto (*Anthropology*), Jason Cortés (*Spanish & Portuguese*), Seth Fein (*History, American Studies*), Iván Fernández Peláez (*Spanish & Portuguese*), Lillian Guerra (*History*), Kellie Jones (*History of Art*), Jill Lane (*Theater Studies*), Oscar Martín (*Spanish & Portuguese*), Priscilla Meléndez (*Spanish & Portuguese*), Renzo Taddei (*Anthropology*)

LECTURERS

Paulo Da Luz Moreira (*Spanish & Portuguese*), Nancy Ruther (*Political Science*), Natalia Sobrevilla Perea (*Political Science*)

SENIOR LECTORS

Sybil Alexandrov, Teresa Carballal, Mercedes Carreras, Lissette Reymundi, Dina Rivera, Lourdes Sabé-Colom, Terry Seymour, Margherita Tórtora, Alicia van Altena

LECTORS

Marta Almeida, Yovanna Cifuentes, Sebastián Díaz, Oscar González Barreto, Isabel Jaén-Portillo, María Jordán, Beatriz Peña, Juliana Ramos-Ruano

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: 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. Though all students choose courses in both the humanities and the social sciences, they are expected to concentrate on one or the other.

Prerequisite to the major is knowledge of the two dominant languages of the region, Spanish and Portuguese. Depending on their interests, students select one language for two years of instruction and the other for one. Other languages necessary for research may in appropriate circumstances be substituted for the second language with the consent of the director of undergraduate studies. Students are encouraged to meet the language requirements as

early as possible. Courses used to satisfy the language prerequisite may not be counted toward the major.

The major itself requires twelve term courses: one introductory required course (ANTH 207a), eight courses related to Latin America from departmental offerings or the list of electives below, two further electives, and the senior essay (LAST 491a or b). In addition to ANTH 207a, students are required to take eight Latin American content courses as follows: two courses in the social sciences (anthropology, economics, political science, or sociology), two courses in history, two courses in Spanish American or Brazilian literatures beyond the language requirement, one course in history of art or theater studies, and a starred seminar. Recommended courses are HIST 355a, LAST 314b, SPAN 266a, and 267b. Students are also required to complete two elective courses, preferably seminars, and the senior essay.

Students must enroll in three seminars or upper-level courses during their junior and senior years. For a list of starred seminars students should consult the director of undergraduate studies. Elective seminars must be approved by the director of undergraduate studies.

The senior essay is a research paper written usually in one term (LAST 491a or b). 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, students may undertake field research in Latin America. Support for research is available to recipients of an Albert Bildner Travel Prize, for which application should be made in the spring of the junior year.

Students are strongly encouraged to take advantage of study abroad opportunities during summers or through the Junior Year or Term Abroad program.

REQUIREMENTS OF THE MAJOR

Prerequisites: Two years of one lang (Spanish or Portuguese), one year of the other lang

Number of courses: Twelve term courses beyond prerequisites (including the senior essay)

Distribution of courses: Eight courses related to Latin America in specified fields, of which one is a starred sem from approved list; two electives; three sems or upper-level courses in junior and senior years

Specific course required: ANTH 207a

Senior requirement: Senior essay (LAST 491a or b)

★LAST 314b, CONTEMPORARY ISSUES IN LATIN AMERICAN STUDIES.

Enrique Mayer.

W 2.30-4.20 III; Not CR/D/F Hu, So (o)

A seminar for juniors majoring in Latin American Studies, covering selected topics important to Latin America. *Conducted in Spanish.*

★LAST 471a or b, DIRECTED READING. Staff.

2 HTBA II or III; Not CR/D/F (o)

For students who wish to investigate an area of Latin American Studies not covered by regular offerings. The project must terminate with a term paper or its equivalent. No more than one term of credit may be earned. To apply for admission, a student should present a prospectus and a bibliography to the director of undergraduate studies no later than one day before the course selection period concludes. Written approval from the faculty member who will direct the student's reading and writing must accompany the prospectus.

★LAST 491a or b, THE SENIOR ESSAY. Staff.

HTBA II or III; Not CR/D/F (○)

Preparation of a research paper about forty pages long under the direction of a faculty adviser. The senior essay is written 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 with 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. For essays submitted in the fall term, the deadline for the outline is September 29; for those in the spring term, February 5. Senior essays written either term are due on the last day of classes. Three copies must be submitted to the director of undergraduate studies.

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.

ELECTIVES WITHIN THE MAJOR

Students wishing to count toward the major courses that do not appear on this list should consult with the director of undergraduate studies.

AFAM 161a/HIST 186a, AFRICAN AMERICAN HISTORY: FROM THE BEGINNING TO EMANCIPATION. Jennifer Baszile.

For description see under African American Studies.

★AFAM 347a, CARIBBEAN LIVES: PSYCHOSOCIAL ASPECTS. Ezra Griffith.

★AFAM 371a/★HIST 450a, THE EARLY MODERN ATLANTIC WORLD.

William Casey King.

For description see under African American Studies.

★AMST 349a/★ER&M 288a/★WGSS 434a, BORDER FEMINISM.

Alicia Schmidt Camacho.

For description see under American Studies.

ANTH 207a/ER&M 340a, PEOPLES AND CULTURES OF LATIN AMERICA.

Renzo Taddei.

For description see under Anthropology.

ANTH 232a/ARCG 232a^G, ANCIENT CIVILIZATIONS OF THE ANDES.

Richard Burger.

For description see under Anthropology.

ANTH 233a^G/ARCG 233a^G, ANCIENT CIVILIZATIONS OF MESOAMERICA.

Marcello Canuto.

For description see under Anthropology.

ANTH 262b, CLIMATE AND SOCIETY. Renzo Taddei.

★ANTH 354a^G, IDEAS OF DEVELOPMENT IN LATIN AMERICA.

Renzo Taddei.

★ANTH 367b^G, THE ANTHROPOLOGY OF UNCERTAINTY. Renzo Taddei.

★ANTH 369b^G, ECONOMIC ANTHROPOLOGY. Enrique Mayer.

- ECON 225b, LABOR ECONOMICS AND WELFARE POLICIES. Staff.
- ECON 300a, INTERNATIONAL TRADE THEORY AND POLICY.
T. N. Srinivasan, Ernesto Zedillo.
- *ECON 463a/*EP&E 437a, ECONOMIC PROBLEMS OF LATIN AMERICA.
Eduardo Engel.
For description see under Economics.
- *ECON 466a, TOPICS IN INTERNATIONAL TRADE. Staff.
- *ER&M 428a/*AMST 436a/*HIST 473a, LATINOS IN THE TWENTIETH CENTURY. Stephen Pitti.
For description see under Ethnicity, Race, & Migration.
- HIST 355a, COLONIAL LATIN AMERICA. Stuart Schwartz.
- HIST 358b/ER&M 341b, MEXICO IN THE NINETEENTH AND TWENTIETH CENTURIES. Gilbert Joseph.
For description see under History.
- HIST 361b, HISTORY OF BRAZIL. Stuart Schwartz.
- *HIST 470a/*WGSS 470a, GENDER, NATION, AND SEXUALITY IN MODERN LATIN AMERICA. Lillian Guerra.
For description see under History.
- *HIST 471a/*AMST 411a, THE IDEA OF THE WESTERN HEMISPHERE.
Seth Fein.
For description see under History.
- *HIST 472a/*ER&M 342a, REVOLUTIONARY CHANGE IN TWENTIETH-CENTURY LATIN AMERICA. Gilbert Joseph.
For description see under History.
- HSAR 202a/ARCG 202a^G, PRE-COLUMBIAN ARCHITECTURE.
Mary Miller.
For description see under History of Art.
- INTS 382a/PLSC 393a, ETHNIC POLITICS IN COMPARATIVE PERSPECTIVE.
Thad Dunning.
For description see under International Studies.
- *INTS 383b^G/*PLSC 391b^G, RESEARCHING ETHNIC POLITICS.
Thad Dunning.
For description see under International Studies.
- *LITR 420b/*SPAN 393b, THE JUNGLE BOOKS.
Roberto González Echevarría.
For description see under Literature.
- *LITR 449a/*SPAN 394a, DICTATOR NOVELS ACROSS THE AMERICAS.
Maira Fradinger.
For description see under Literature.
- *LITR 452b, WRITING AND POWER ACROSS THE AMERICAS.
Maira Fradinger.
- *PLSC 140a, THE LEGACY OF INEQUALITY: RACE AND ETHNICITY IN THE AMERICAS. Natalia Sobrevilla Perea.

- ★PLSC 143b/★INTS 321b, CITIZENSHIP AND THE MILITARY IN LATIN AMERICA. Natalia Sobrevilla Perea.
For description see under Political Science.
- PLSC 382a, COMPARATIVE POLITICS IN LATIN AMERICA. Susan Stokes.
- ★PLSC 406a^G/★AFST 406a^G, SEXUAL VIOLENCE AND WAR. Elisabeth Wood.
For description see under Political Science.
- ★PORT 001b, LATIN AMERICAN SHORT FICTION. Paulo Moreira.
- PORT 246a/SPAN 245a, LATIN AMERICAN FILM: BRAZIL, MEXICO, AND ARGENTINA. Paulo Moreira.
For description see under Portuguese.
- PORT 249a, INTRODUCTION TO BRAZILIAN CULTURE. Paulo Moreira.
- PORT 396b/LITR 292b, MODERN BRAZILIAN LITERATURE IN TRANSLATION. K. David Jackson.
For description see under Portuguese.
- PORT 410a^G/LITR 291a, THE BRAZILIAN SHORT STORY IN TRANSLATION. K. David Jackson.
For description see under Portuguese.
- ★SPAN 060a, FRESHMAN COLLOQUIUM: LITERARY STUDIES IN SPANISH. Jason Cortés.
- ★SPAN 223b, SPANISH IN FILM: AN INTRODUCTION TO THE NEW LATIN AMERICAN CINEMA. Margherita Tórtora.
- SPAN 246b, CULTURAL STUDIES: SPAIN. Oscar Martín.
- SPAN 247a, CULTURAL STUDIES: LATIN AMERICA. Jason Cortés.
- SPAN 266a, STUDIES IN LATIN AMERICAN LITERATURE I. Aníbal González.
- SPAN 267b, STUDIES IN LATIN AMERICAN LITERATURE II. Rolena Adorno.
- ★SPAN 345a, TWENTIETH-CENTURY SPANISH AMERICAN REVOLUTIONS. Priscilla Meléndez.
- SPAN 390b/LITR 290b/PORT 385b, LATIN AMERICAN POETRY: BRAZIL AND MEXICO. Paulo Moreira.
For description see under Spanish.

OTHER COURSES RELEVANT TO THE MAJOR

A list of courses intended as a guide to students in preparing their programs is available at the office of the director of undergraduate studies. 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 and of the director of undergraduate studies. All programs must have the approval of the director of undergraduate studies.

LESBIAN AND GAY STUDIES

Lesbian and gay studies courses are offered through the Women's, Gender, and Sexuality Studies program. For a listing of Yale College courses and a description of the track in lesbian, gay, bisexual, transgender, and queer studies (LGBTQ), see under Women's, Gender, and Sexuality Studies.

LINGUISTICS

Director of undergraduate studies: Laurence Horn, Rm. 208, 370 Temple St., 432-2457, laurence.horn@yale.edu

FACULTY OF THE DEPARTMENT OF LINGUISTICS

PROFESSORS

Stephen Anderson, Paul Bloom, Carol Fowler (*Adjunct*), Roberta Frank, Louis Goldstein (*Chair*), Laurence Horn, Stanley Insler, Frank Keil, Hugh Stimson, Zoltán Szabó

ASSOCIATE PROFESSORS

Ann Biersteker (*Adjunct*), Maria Piñango

ASSISTANT PROFESSORS

Maria Babyonyshev, Darya Kavitskaya

LECTURER

Ashwini Deo

Linguistics is the scientific study of language. The major in Linguistics is an interdisciplinary program of studies leading toward an understanding of phonological, grammatical, and semantic structure and of various approaches to descriptive, historical, and experimental linguistics. It also includes course work leading to proficiency in one or two foreign languages. Majors may concentrate on theoretical linguistics, on various aspects of comparative grammar, or on a particular family of languages. Interested students should consult the director of undergraduate studies.

Preparation for the Linguistics major during the freshman and sophomore years should include LING 110b or LING 117a with a grade of B+ or better, and the equivalent of one or two years' college study of at least one foreign language. Language-related courses in anthropology, computer science, mathematics, philosophy, psychology, and area studies programs are also considered valuable as preparation or as electives to accompany the major.

The major consists of fourteen term courses, as described below:

1. Six term courses in Linguistics above the level of 110b, including LING 490a, Research Methods in Linguistics, and LING 491b, The Senior Essay, the latter to be taken in the senior year. At least one course each in phonology and syntax must be taken by the end of the junior year. In addition, students must complete at least one course in two of the remaining core areas of phonetics, morphology, semantics/pragmatics, and historical linguistics.
2. Two years (or the equivalent) in one or two foreign languages and/or literatures beyond the elementary level; courses numbered 130 or higher in most language departments are normally accepted. A qualified student may fulfill this requirement in part as a freshman or sophomore. With permission from the director of undergraduate studies, an additional linguistics course may substitute for one term of the foreign language requirement.

3. Four term courses selected from: (a) additional course offerings in Linguistics; (b) another course in a foreign language or literature at the level of 140 or higher; (c) any other courses relevant to linguistics in Anthropology, Computer Science, Philosophy, Psychology, or other departments.

Graduate seminars in linguistics are normally open to qualified undergraduates; consult the director of undergraduate studies for an annual listing of such seminars.

REQUIREMENTS OF THE MAJOR

Prerequisites: LING 110b or 117a with appropriate grade; equivalent of one or two years' college study of one foreign lang

Number of courses: Fourteen term courses beyond LING 110b (including the senior requirement)

Specific course required: LING 490a

Distribution of courses: Six term courses in Linguistics (including 490a and 491b) above level of 110b chosen in at least four of six categories, including one each in syntax and phonology; three or four term courses in foreign lang and/or lit at level 130 or higher in one or two langs and/or lits or the equivalent; four or five term courses selected from ling, foreign lang or lit at level 140 or higher, or courses relevant to ling in other depts

Senior requirement: Senior essay (LING 491b)

INTRODUCTORY COURSES

LING 108a, STRUCTURE AND HISTORY OF ENGLISH WORDS.

Laurence Horn.

TTh 11.30-12.45 III Hu (0)

Sources and resources of the English lexicon. The development and internal structure of English words, especially those of classical origin. Application of linguistic principles to the study of etymology, word meaning, and semantic change. Focus on understanding the richness of the English vocabulary and its cultural roots while acquiring tools to analyze words and their elements.

LING 110b^G, LANGUAGE: INTRODUCTION TO LINGUISTICS.

Darya Kavitskaya.

MW 11.30-12.45 III; Not CR/D/F So (34)

The goals and methods of linguistics. Basic concepts in phonology, morphology, syntax, and semantics. Techniques of linguistic analysis and construction of linguistic models. Trends in modern linguistics. The relations of linguistics to psychology, logic, and other disciplines. *For students of linguistics, psychology, and philosophy.*

LING 112b^G, HISTORICAL LINGUISTICS. Ashwini Deo.

TTh 9-10.15 III Hu (22)

Types of change that a language undergoes over time: sound change, analogy, syntactic and semantic change, borrowing. Techniques for recovering earlier linguistic stages: philology, internal reconstruction, the comparative method. Language change and linguistic theory. The role of language contact in language change.

*LING 113a^G, INTRODUCTION TO INDO-EUROPEAN. Stanley Insler.

T 1.30-3.20 III So (26)

Location in space and time of the major branches of Indo-European; history of Indo-European studies, especially the development of methodology; sketch of the phonology, morphology, syntax, and lexicon of proto-Indo-European, with

main developments of these in the daughter languages. *After* LING 110b *or a year of Latin, Greek, German, Russian, or Sanskrit.*

LING 115^G, ELEMENTARY SANSKRIT. Stanley Insler [F], Ashwini Deo [Sp].

MWF 9.30-10.20 I or III; Not CR/D/F Meets RP (32) *Cr/Year only*
Careful study of Sanskrit grammar both in its historical development and as the synchronic system attested in classical Sanskrit. Comparisons with other Indo-European languages. Close reading of later Sanskrit texts.

LING 117a^G/PSYC 137a, LANGUAGE AND MIND. Maria Piñango.

TTh 11.30-12.45 III So (24)

Knowledge of language as a component of the mind: mental grammars, the nature and subdivisions of linguistic knowledge in connection with the brain. The logical problem of language acquisition. The “universal grammar hypothesis” according to which all humans have an innate ability to acquire language. The connection between language acquisition and general cognitive abilities.

LING 120a^G/PSYC 318a, GENERAL PHONETICS. Louis Goldstein.

TTh 4-5.15 III; Not CR/D/F So (27)

Investigation of possible ways of describing the speech sounds of human languages. Tools to be developed: acoustics and physiology of speech; computer synthesis of speech; practical exercises in producing and transcribing sounds.

LING 130b^G/PSYC 322b, EVOLUTION OF LANGUAGE. Stephen Anderson.

TTh 4-5.15 III So (0)

An exploration of the origin and evolution of human language from an interdisciplinary perspective. Topics include the design features of language, the structure of evolutionary theory, cognitive continuity and discontinuity with other species, domain specificity and generality of the language faculty, adaptationist and exaptationist approaches to language evolution, language learning in humans and other primates, and the evolution of particular languages with reference to linguistic typology.

LING 132a^G, INTRODUCTION TO PHONOLOGICAL ANALYSIS.

Darya Kavitskaya.

MW 1-2.15 III So (36)

The structure of sound systems in particular languages. Phonemic and morphophonemic analysis, distinctive-feature theory, formulation of rules, and problems of rule interpretation. Emphasis on problem solving. *Prerequisite:* LING 120a *or a grade of B or above in* LING 110b.

LING 135b^G, PHONOLOGICAL THEORY. Stephen Anderson.

MW 1-2.15 III; Not CR/D/F So (0)

Topics in the architecture of a theory of sound structure. Levels of representation; classical phonological rules and their interaction. Ordering paradoxes; cyclicity and lexical phonology. Motivations for replacing a system of rules with a system of constraints. Optimality theory: constraint types and their interactions. Correspondence theory. Opacity and stratal optimality theory. *Prerequisite:* LING 132a *or permission of instructor.*

[LING 149a/PSYC 149a, COMMUNICATION AND LANGUAGE ABILITIES IN ANIMALS]

LING 153a^G, SYNTAX I. Maria Babyonyshev.

TTh 1-2.15 III So (0)

An introduction to the syntax of natural language. Generative syntactic theory and key theoretical concepts. Syntactic description and argumentation. Topics include phrase structure, transformations, and the role of the lexicon.

LING 163b^G/PSYC 163b, LANGUAGE ACQUISITION. Maria Babyonyshev.

TTh 2.30-3.45 III So (27)

Language learnability, acquisition of the lexicon. Development of syntactic knowledge. Parameter-setting model of language acquisition and maturation. Experimental methods in developmental psycholinguistics.

*LING 180b^G, MORPHOLOGY. Maria Piñango.

MW 11.30-12.45 III So (0)

The theory of word structure within a formal grammar. Relation to other areas of grammar (syntax, phonology); basic units of word structure; types of morphology (inflection, derivation, compounding). *Prerequisites:* LING 132a and 153a, or permission of instructor.

*LING 183b/*ENGL 155b^G, READINGS IN OLD NORSE POETRY AND PROSE: CHRONICLES OF THE VIKINGS. Roberta Frank.

For description see under English Language & Literature.

[LING 193a^G, HISTORICAL MORPHOLOGY]

ADVANCED COURSES

[LING 202b^G, COMPARATIVE OLD GERMANIC]

LING 214b/AFST 162b, STRUCTURE OF YORÙBÁ. Oluseye Adesola.

For description see under African Studies.

*LING 221b^G/*PSYC 326b^G, THE RELATION OF SPEECH TO LANGUAGE. Carol Fowler.

TTh 11.30-12.45 III; Not CR/D/F So Meets RP (0)

A study of the relation between the speech signal and the linguistic message it conveys. Special attention to those characteristics of speech that fit it to humans and make it a uniquely efficient vehicle of communication. *Prerequisite:* LING 120a.

[LING 222b^G, TOPICS IN PHONETICS: THE PHONETICS-PHONOLOGY INTERFACE]

[LING 223b/PSYC 220b, RESEARCH METHODS IN PSYCHOLINGUISTICS]

LING 231b^G/PSYC 331b, NEUROLINGUISTICS. Maria Piñango.

TTh 1-2.15 III So (0)

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.

*LING 236b^G, ARTICULATORY PHONOLOGY. Louis Goldstein.

TTh 4-5.15 III So (0)

Introduction to phonology as a system for combining units of speech (constriction gestures of the vocal organs) into larger structures. Both theory (reading) and practice (analysis of articulatory movement data; modeling using techniques of dynamical systems) included. Emphasis on universal versus language-particular aspects of gestural combination and coordination.

★LING 240b^G, PROSODIC STRUCTURES. Darya Kavitskaya.

W 7-8.50 P.M. III So (○)

Topics in the prosodic systems of the world's languages. Discussion of stress, pitch accent, tone, and their interaction with intonation. Development and typology of prosodic systems and theoretical approaches to prosody. *Prerequisite: one course in phonology.*

[LING 242b^G, TOPICS IN PHONOLOGY: SCANDINAVIAN PHONOLOGY][LING 243a^G, TOPICS IN PHONOLOGY: PHONOLOGY AND PHONETICS OF CAUCASIAN LANGUAGES]★LING 248a^G/★TKSH 105a^G, STRUCTURE OF MODERN TURKISH.

Fatma-Nihan Ketzrez.

MW 11.30-12.20, 1 HTBA III; Not CR/D/F Hu, So Meets RP (○)

A study of the phonological and morphosyntactic properties of modern Turkish. Topics include the sound system, vowel harmony, word stress, word formation, argument structure, relative clauses, tense, aspect and modality, complex predicates, specificity, definiteness, and word order. Discussion of data from first and second language acquisition, with a focus on how such data contribute to an understanding of the structure of Turkish. *Prerequisite: LING 153a or TKSH 102, or permission of instructor.*

★LING 249b/★SLAV 210b, INTRODUCTION TO SLAVIC LANGUAGES.

Robert Greenberg.

For description see under Slavic Languages & Literatures.

LING 254b^G, SYNTAX II. Maria Babyonyshev.

TTh 11.30-12.45 III So (○)

Recent developments in syntactic theory: government and binding, principles and parameters, and minimalist frameworks. In-depth examination of the basic modules of grammar, including lexicon, X-bar theory, theta-theory, case theory, and movement theory. Comparison and critical evaluation of specific syntactic analyses. *Prerequisite: LING 153a.*

LING 256b^G, GRAMMATICAL RELATIONS. Laurence Horn.

MW 2.30-3.45 III So Meets RP (37)

Descriptive and theoretical approaches to grammatical relations (subject, object, etc.) and their role in syntax, argument structure, and universal grammar. Comparison of diverse models: traditional approaches, case grammar, relational grammar, lexical-functional grammar, GB and its developments. Grammatical relations and thematic roles (theta-roles). Grammatical relations in typological and historical perspectives. *Prerequisite: LING 153a or permission of instructor.*

★LING 260a^G, TOPICS IN SYNTAX: THE SYNTAX-SEMANTICS INTERFACE.

Maria Piñango.

Th 3.30-5.20 III So (○)

Exploration of the psychological reality of specific proposals regarding how syntactic structure and semantic structure come together (e.g., how meaning is derived from sentence organization). Attention to both experimental psycholinguistic (real-time parsing) and neurolinguistic (lesion studies and neuroimaging) perspectives. Topics include anaphora resolution, control, and argument and event structure. *Prerequisites: LING 132a and 153a or permission of instructor.*

[LING 261a^G, TOPICS IN SYNTAX: MINIMALISM]

***LING 263a^G, SEMANTICS.** Ashwini Deo.

MW 2.30-3.45 III; Not CR/D/F So (o)

Truth-conditional and lexical semantics. Survey of propositional, predicate, and modal logic. Compositional theories of sense and reference. Opacity, intensionality, and belief contexts; entailment and presupposition. The relation between semantics and pragmatics, and between semantics and syntax. Negative polarity.

***LING 270a, TOPICS IN SEMANTICS: VARIATION AND CHANGE IN TENSE-ASPECT CATEGORIES.** Ashwini Deo.

F 1.30-3.20 III So (o)

Cross-linguistic differences in the distribution and interpretation of tense and aspect from a comparative and historical perspective. Evaluation of descriptive and empirical accounts from the grammaticalization and typology literature as informed by formal semantic research on tense/aspect categories.

LING 275a^G, PRAGMATICS. Laurence Horn.

MW 11.30-12.45 III So Meets RP (o)

Context-dependent aspects of meaning and inference. Speech act theory, presupposition, implicature. Role of pragmatics in the lexicon and in meaning change. The semantics-pragmatics distinction from different perspectives; the position of pragmatics in linguistic theory.

***LING 276b^G, IMPLICATURE AND PRAGMATIC THEORY.**

Laurence Horn.

Th 3.30-5.20 III So Meets RP (o)

Diverse approaches to the characterization of what is said and what is meant. Pragmatic intrusion into truth-conditional meaning in neo-Gricean pragmatics and relevance theory. Experimental studies of scalar implicature and the grammar/pragmatics interface. The viability of conventional implicature. *Prerequisite: one course in semantics or pragmatics, or permission of instructor.*

***LING 471a and 472b, SPECIAL PROJECTS.** Staff.

HTBA III; Not CR/D/F (o)

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 of credit for a project may count toward the major; no more than two terms may count toward graduation.

***LING 490a^G/*PSYC 372a, RESEARCH METHODS IN LINGUISTICS.**

Darya Kavitskaya.

W 3.30-5.20 III; Not CR/D/F (o)

An introduction to research methods in linguistics. Observational and experimental approaches to research in the field. Topics include collection and organization of linguistic data, basic field methods, and use of language corpora and databases. Introduction to research in language acquisition and language change. Appropriate for students in Linguistics, Cognitive Science, and Psychology. *Prerequisites: one course in syntax and one course in phonology.*

***LING 491b, THE SENIOR ESSAY.** Laurence Horn.

F 1.30-3.20 III; Not CR/D/F (o)

A weekly colloquium in which senior Linguistics majors, in rotation, make presentations of research material that will culminate in the development of their senior essays. Under the guidance of departmental faculty (or in some cases supporting faculty in other departments), students select a topic, present material related to the research on that topic, give preliminary versions of their essay, and complete the essay. *Prerequisite: LING 490a.*

RELATED COURSES

ANTH 118a, LANGUAGE, CULTURE, AND SOCIETY. J. Joseph Errington.

★ANTH 298a/★ER&M 298a/★WGSS 298a, THE ANTHROPOLOGY OF ORATORY AND RHETORIC. Bernard Bate.

For description see under Anthropology.

★ANTH 333b^G, BILINGUALISM IN SOCIAL CONTEXT. J. Joseph Errington.

★ANTH 370b^G, LANGUAGE, POLITICS, AND SOCIETY IN COLONIAL INDIA. E. Annamalai.

★ANTH 413a^G, LANGUAGE, CULTURE, AND IDEOLOGY. J. Joseph Errington.

★ANTH 419a^G, LANGUAGE AND THE PUBLIC SPHERE. Bernard Bate.

CGSC 110a/PSYC 130a, INTRODUCTION TO COGNITIVE SCIENCE. Brian Scholl.

For description see under Cognitive Science.

★CGSC 201a/★PSYC 120a, BRAIN AND THOUGHT: AN INTRODUCTION TO THE HUMAN BRAIN. Amy Arnsten.

For description see under Cognitive Science.

PHIL 115a, FIRST-ORDER LOGIC. Sun-Joo Shin.

PHIL 267a^G, MATHEMATICAL LOGIC I. Sun-Joo Shin.

PHIL 272a, PHILOSOPHY OF MIND. Katalin Balog.

★PHIL 430a^G, PROPOSITIONS AND EVENTS. Zoltán Szabó.

PSYC 140a, DEVELOPMENTAL PSYCHOLOGY. Frank Keil.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate courses in linguistics and in related fields such as anthropology and psychology appear in the bulletin of the Graduate School. They require permission of the director of graduate studies as well as of the instructor.

THE LITERATURE MAJOR

Director of undergraduate studies: Ala Alryyes, Room 102, 451 College St., 432-4750, maryjane.stevens@yale.edu

FACULTY ASSOCIATED WITH THE LITERATURE MAJOR

PROFESSORS

Dudley Andrew (*Comparative Literature, Film Studies*), Harold Bloom (*Humanities*), Peter Brooks (*Comparative Literature, French*), Kang-i Sun Chang (*East Asian Languages & Literatures*), Katerina Clark (*Comparative Literature, Slavic Languages & Literatures*), Paul Fry (*English*), Roberto González Echevarría (*Spanish & Portuguese, Comparative Literature*), Benjamin Harshav (*Comparative Literature*), Carol Jacobs (*German, Comparative Literature*), Rainer Nägele (*German, Comparative Literature*), David Quint (*Chair*) (*English, Comparative Literature*), Haun Saussy (*Comparative Literature*), Galin Tihanov (*Visiting*) (*Comparative Literature*), Katie Trumpener (*Comparative Literature, English*)

ASSOCIATE PROFESSORS

Catherine Labio (*Comparative Literature, French*), Pericles Lewis (*Comparative Literature, English*)

ASSISTANT PROFESSORS

Ala Alryyes (*Comparative Literature, English*), Alexander Beecroft (*Comparative Literature, Humanities*), Moira Fradinger (*Comparative Literature*), Barry McCrea (*Comparative Literature*)

SENIOR LECTURER

Richard Maxwell (*Comparative Literature, English*)

The Literature Major allows students to address fundamental questions about the nature, function, and value of literature in a broadly comparative context. Majors read and write about a wide variety of literary works across periods, genres, and national traditions. They investigate traditional and contemporary approaches to literary study, ancient and modern literary theory, and the relationship of literature to film and to other branches of the arts and sciences.

The Literature Major offers students the freedom to construct a program of study that reflects their intellectual goals. All students planning to major in Literature should register with the director of undergraduate studies, who will work with them to develop a coherent, well-focused sequence of courses suited to their individual interests.

The major offers a number of its own courses, which constitute the core of the program. 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, Film Studies, French, German, Italian, Near Eastern Languages and Civilizations, Portuguese, Slavic Languages and Literatures, and Spanish. Courses in film studies count toward the major in the same way as courses in literature.

The experience of reading a foreign literature in the original language enables us to understand the nature of both language and literature more fully. Prospective Literature majors are strongly encouraged to begin the study of a foreign language as early as possible in their academic careers and to continue such study throughout their time at Yale. Students interested in graduate study in literature should be aware that many programs require reading knowledge of two or three foreign languages.

The major for the Classes of 2007 and 2008. Students in the Classes of 2007 and 2008 may fulfill the requirements of the Literature Major as described below for the Class of 2009 and subsequent classes. Alternatively, they may fulfill the requirements of the major that were in place when they entered the major, as described in previous editions of this bulletin and on the Web at www.yale.edu/complit/litmajor.html.

Prerequisites. Completion of the Yale College foreign language distributional requirement is a prerequisite for entry into the major. Two specific courses are also prerequisites, LITR 120a, Introduction to Narrative, and 122b, World Poetry and Performance. These courses may be taken in either order, but at least one of them must be completed in either the freshman or the sophomore year.

The major for the Class of 2009 and subsequent classes. The Literature Major requires fourteen term courses, including two prerequisites, one required course, two core seminars, and the senior requirement. Students must take LITR 300b, Introduction to the Theory of Literature, in the sophomore or junior year. Students take an additional three courses in a foreign literature, in which they read the texts in the original language. Students may also elect to include in their major two courses in a related discipline that has direct bearing on their study of literature, such as English, history of art, philosophy,

anthropology, music, or theater studies. One of these elective courses may be in creative writing. A third elective from a related discipline may be applied to the major with permission of the director of undergraduate studies.

Core seminars. In core seminars, LITR 400–480, students focus intensively on particular texts, films, literary and cultural issues, and theoretical problems. Students are required to take at least two core seminars, preferably one in the junior and one in the senior year. The seminars provide training in literary interpretation and theory, preparing students for the senior essay. Students in the intensive major are encouraged to take LITR 480a, Critical Practices: Advanced Topics in Comparative Literature, as one of their two seminars.

Pre-1800 course requirement. The Literature Major requires at least one course in literature before 1800. Because both genres and individual works of literature refer to, emulate, challenge, and even rewrite older works and generic conventions, students benefit from acquiring a degree of historical perspective. All courses listed under “The Ancient World” and “Medieval and Early Modern Literature to 1800” fulfill the pre-1800 requirement. Courses from other departments may also fulfill the requirement.

Poetry or drama requirement. In addition to LITR 122b and the pre-1800 course, all students must take one course in poetry or drama. The course may be one offered in a program other than Literature.

All majors are required to take at least three additional term courses, beyond the foreign language distributional requirement, in an ancient or modern foreign literature, in which the literature is read in the original language. One or more courses can be taken at a basic literature level (normally equivalent to the third year of language study); however, at least one course must be taken at an advanced level (normally equivalent to the fourth year of language study or higher). Students are encouraged to continue developing their foreign language skills by taking advanced language courses and may, with permission of the director of undergraduate studies, substitute one such course for one of the three required foreign literature courses.

A literature course in translation is sometimes suitable as a foreign literature course. In such cases, Literature majors are expected to request additional assignments from their instructors that enable them to work with texts in the original language. They should fill out a form, signed by the instructor, attesting to their intent to do so. This form is available in the department office in room 102, 451 College St.; students should submit it to the director of undergraduate studies along with their course schedule.

Nonnative speakers of English who are granted permission by Yale College to complete the foreign language distributional requirement by taking ENGL 114a or b, 120a or b, or 450b may take three additional English literature courses to fulfill the foreign literature requirement of the Literature Major, or they may fulfill the major requirements in a third language.

The senior essay. In the senior essay, required of all majors, students develop a research topic of their choice and work closely with a faculty adviser. Normally, the essay makes use of texts in the language of their original composition. Any exceptions must be approved by the director of undergraduate studies. Deadlines for the prospectus, the rough draft, and the completed essay are listed in the course descriptions of the senior essay course (LITR 491a or b and 492a or b, 493a or b).

The senior essay may be written over one term (LITR 491a or b) or over two terms (LITR 492a or b, 493a or b). Alternatively, students may fulfill the senior essay requirement within the context of a core seminar (the senior seminar essay). Because no more than five students per seminar may elect

this option, students should petition the instructor promptly at the beginning of the term. It is understood that students choosing the senior seminar essay will work closely with the instructor throughout the term and produce a substantial paper, approximately thirty pages.

Students with an especially well-developed project may petition to write a yearlong senior essay. Interested juniors must apply to the curriculum committee 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 492a during the fall term and complete their essays in 493b in the spring term. December graduates enroll in 492b in the spring term and complete their essays in 493a during the following fall term. Students planning to begin their essay in the spring term should notify the director of undergraduate studies by the last day of classes in the fall term.

Intensive major. Students in the intensive major complete three courses in a second literature, in which literature is read in the original language, in place of three electives. If the additional literature is in English, intensive majors must demonstrate proficiency at the intermediate (L4) level in a second foreign language. A recommended course for students in the intensive major is LITR 480a, Critical Practices: Advanced Topics in Comparative Literature.

Junior year or term abroad. The Literature Major encourages students to consider spending a summer, a term, or a year abroad. Courses taken on international programs may, with permission of the director of undergraduate studies, be applied to the Literature Major's foreign literature requirement.

The following table lists languages in which advanced literature instruction is available at Yale, specifying courses that fulfill the basic and advanced literature requirements for the major. Courses with numbers higher than those listed also normally fulfill the requirement, providing that they focus on literature (rather than language) and that the literature is read in the original language.

<i>Language</i>	<i>Basic Literature Course</i>	<i>Advanced Literature Course</i>
<i>Arabic</i>	ARBC 104	ARBC 105a or b or 106b
<i>Chinese</i>	CHNS 150	CHNS 160
<i>French</i>	FREN 160a or b	Courses in French numbered 200 or higher
<i>German</i>	Courses in German numbered 160 or higher	Courses in German numbered 200 or higher
<i>Ancient Greek</i>	GREK 300a or 301b	Ancient Greek courses numbered 400 or higher
<i>Biblical Hebrew</i>	HEBR 113a	HEBR 471a or b
<i>Modern Hebrew</i>	HEBR 103a or 104b	HEBR 103a or 104b
<i>Italian</i>	Courses in Italian numbered 200 or higher	Courses in Italian numbered 200 or higher
<i>Japanese</i>	JAPN 150	JAPN 160a or 161b
<i>Korean</i>	KREN 150	KREN 470 or 471b
<i>Latin</i>	LATN 300a or 301b	Latin courses numbered 400 or higher
<i>Persian</i>	PERS 103a	PERS 103a
<i>Portuguese</i>	By arrangement with instructor	By arrangement with instructor
<i>Russian</i>	RUSS 130	Courses in Russian numbered 160 or higher
<i>Spanish</i>	SPAN 261b, 262a, 266a, or 267b	Courses in Spanish numbered 300 or higher

Other ancient and modern languages, including those from Africa, South Asia, and the Middle East, may be suitable for the Literature Major if a qualified faculty adviser is available to supervise the major.

REQUIREMENTS OF THE MAJOR

Prerequisites: LITR 120a; LITR 122b; completion of the Yale College foreign language distributional requirement

Required course: LITR 300b

Number of courses: Twelve term courses beyond prerequisites (including the senior essay)

Distribution of courses: Three advanced courses in a single foreign lit; one course in lit before 1800; one course in poetry or drama; two core seminars; three electives in lit or film

Substitutions permitted: For two electives, two courses in another discipline; for one elective, a course in creative writing; with permission of DUS, a third course in another discipline for a lit elective

Senior requirement: One-term senior essay (LITR 491a or b); or two-term senior essay (LITR 492a and 493b, or 492b and 493a); or one core seminar (LITR 400-480) with senior seminar essay

Intensive major: Three addtl lit courses in a second language in place of three electives; demonstrated command of a second foreign language

PREREQUISITES AND REQUIRED COURSES

LITR 120a, INTRODUCTION TO NARRATIVE. Barry McCrea, Tobias Boes, Moira Fradinger, Richard Maxwell, Haun Saussy.

MW 2.30-3.45 I; Not CR/D/F WR, Hu (○)

A team-taught course that examines how narratives work and what they do. Emphasis on fictional form, the mechanics of plot, and questions of time and duration. Texts are drawn from a variety of periods and cultures, and include folktales, short stories, novels, case studies, graphic novels, and films.

LITR 122b, WORLD POETRY AND PERFORMANCE. Barry McCrea, Moira Fradinger, Richard Maxwell, Katie Trumpener.

MW 2.30-3.45 I; Not CR/D/F WR, Hu (○)

A team-taught course that examines lyric and epic poetry, drama, film, song, and performance. Texts are drawn from a broad range of cultures and time periods, from the ancient Near East to our own time. Emphasis on how poetic and dramatic forms shape the stories they tell, on the social and cultural uses to which these forms are put, on the relationship between text and performance, and on historical and cross-cultural connections among texts.

LITR 143b/FILM 240b, WORLD CINEMA. Dudley Andrew.

MWF 11.30-12.20; screenings M 6.30 P.M. I or II WR, Hu (34)

An examination of the varieties of films that have been produced around the globe. Different functions served by the medium, particularly since World War II; analysis and contextualization of selected films from four continents.

LITR 300b^G/ENGL 300b, INTRODUCTION TO THEORY OF LITERATURE.

Paul Fry.

TTh 11.30-12.20, 1 HTBA I; Not CR/D/F WR, Hu (24)

An examination of concepts and assumptions present in contemporary views of literature. Theory of meaning, interpretation, and representation. Critical analysis of formalist, psychoanalytic, structuralist, poststructuralist, Marxist, and feminist approaches to theory and to literature.

FRESHMAN SEMINAR

★LITR 091a/★HUMS 077a, MODERNISM IN LITERATURE AND ARTS.

Pericles Lewis.

TTh 11.30–12.45 WR, Hu (24) Fr sem

Survey of the modern movement in western European literature and art from the mid-nineteenth century to the mid-twentieth century. Writers include Baudelaire, Ibsen, Wilde, Yeats, Pound, Stein, Eliot, Gide, Proust, Mann, Joyce, Woolf, Pirandello, Kafka, and Beckett. Consideration of movements in the visual arts from impressionism to surrealism. *Enrollment limited to freshmen.*

THE ANCIENT WORLD

★LITR 154b/★ENGL 395b, THE BIBLE AS LITERATURE. Leslie Brisman.

For description see under English Language & Literature. (Formerly LITR 258a)

MEDIEVAL AND EARLY MODERN LITERATURE TO 1800

LITR 172a^G/CHNS 200a^G, MAN AND NATURE IN CHINESE LITERATURE.

Kang-i Sun Chang.

For description see under East Asian Languages & Literatures. (Formerly LITR 160a)

★LITR 174b/★CHNS 210b^G, CHINESE VISIONS OF VIOLENCE IN*THE OUTLAWS OF THE MARSH.* Paize Keulemans.

For description see under East Asian Languages & Literatures.

LITR 175a/JAPN 200a, THE JAPANESE CLASSICS. Edward Kamens.

For description see under East Asian Languages & Literatures.

LITR 178a/NELC 155a, CLASSICAL ARABIC LITERATURE IN TRANSLATION.

Beatrice Gruendler.

For description see under Near Eastern Languages & Civilizations.

★LITR 181b/★ITAL 255b, SACRED AND PROFANE LOVE: FROM HUMANISM TO BAROQUE. Staff.

For description see under Italian.

★LITR 182b/★HUMS 227b/★SPAN 375b, TOLEDO: THE THREE FAITHS AND THE FOUNDATIONS OF MEDIEVAL EUROPE. María Rosa Menocal.

For description see under Humanities. (Formerly LITR 252a)

LITR 183a/ITAL 310a, DANTE IN TRANSLATION. Giuseppe Mazzotta.

For description see under Italian.

★LITR 186a/★ITAL 341a/★RNST 341a, ITALIAN RENAISSANCE DRAMA IN TRANSLATION. Staff.

For description see under Italian.

LITR 187b/HUMS 371b/ITAL 342b/RNST 342b, LITERATURE OF THE ART OF THE RENAISSANCE. Staff.

For description see under Italian.

LITR 189a^G/SPAN 300a^G, CERVANTES' *DON QUIJOTE*.

Roberto González Echevarría.

For description see under Spanish.

★LITR 191b/★PORT 341b^G, CULTURAL ENCOUNTERS OF THE PORTUGUESE.
K. David Jackson.
For description see under Portuguese.

★LITR 199b/★GMAN 344b^G/★GMST 344b, GOETHE AND THE DEMONIC.
Kirk Wetters.
For description see under Germanic Languages & Literatures.

EUROPEAN LITERATURE SINCE 1800

★LITR 202a/★ENGL 249a, ENGLISH LITERATURE AND THE FRENCH
REVOLUTION. David Bromwich.
For description see under English Language & Literature.

LITR 204a/GMAN 255a^G/GMST 155a, IDEOLOGY, REVOLUTION, AND
RELIGION IN GERMAN THOUGHT. Henry Sussman.
For description see under German Studies.

LITR 206b/RSEE 255b/RUSS 255b, STUDIES IN THE NOVEL: TOLSTOY.
Vladimir Alexandrov.
For description see under Slavic Languages & Literatures.

LITR 208a/RSEE 256a/RUSS 256a, STUDIES IN THE NOVEL: DOSTOEVSKY.
Kate Holland.
For description see under Slavic Languages & Literatures.

★LITR 211b/★RUSS 317b, THE NOVEL AND THE FAMILY IN THE
NINETEENTH CENTURY. Kate Holland.
For description see under Slavic Languages & Literatures.

★LITR 220b/★CZEC 301b/★RSEE 300b, MILAN KUNDERA: THE CZECH
NOVELIST AND FRENCH THINKER. Karen von Kunes.
For description see under Slavic Languages & Literatures.

★LITR 226a/★JDST 310a, READINGS IN HEBREW POETRY.
Benjamin Harshav.

T 1.30-3.20 I; Not CR/D/F Hu (26)
Modernism in Hebrew poetry. Selected poets, depending on class preference.
Prerequisite: a high level of reading Hebrew texts in poetry and criticism. (Formerly
LITR 306b)

★LITR 229a/★GMAN 296a/★GMST 296a^G/★HUMS 369a, SOVEREIGNTY: POWER
AND REPRESENTATION. Kirk Wetters.
For description see under German Studies.

LITR 231a/PORT 393a, MODERN BRAZILIAN AND PORTUGUESE FICTION IN
TRANSLATION. K. David Jackson.
For description see under Portuguese.

★LITR 232a/★ITAL 240a/★WGSS 240a, WOMEN INTELLECTUALS IN ITALY.
Francesca Cadel.
For description see under Italian.

★LITR 235b/★RUSS 315b, PLACE AND TIME IN RUSSIAN LITERATURE.
Ilya Kliger.
For description see under Slavic Languages & Literatures.

★LITR 236b/★RUSS 319b, CRIMINALITY AND THE NOVEL.

Kate Holland.

For description see under Slavic Languages & Literatures. (Formerly LITR 332b)

★LITR 240a, TRANSNATIONAL CULTURE IN EUROPE OF THE 1920S AND 1930S. Katerina Clark.

HTBA I; Not CR/D/F Hu (50)

Review of a number of works produced in Europe during the 1920s and 1930s—fiction, films, art, architecture, opera—which either gesture toward a European culture “without borders” or which incorporate some reading of Chinese culture that has been made in the service of the European intellectuals’ own agendas. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

NON-EUROPEAN LITERATURE SINCE 1800

LITR 251b/JAPN 251b^G, JAPANESE LITERATURE AFTER 1970.

John Treat.

For description see under East Asian Languages & Literatures.

LITR 252b/JAPN 260b^G, IMAGINING SPACE IN JAPANESE FICTION AND FILM. Christopher Hill.

For description see under East Asian Languages & Literatures.

★LITR 255b/★EALL 210b, LITERARY MODERNIZATION IN JAPAN AND KOREA. John Treat.

For description see under East Asian Languages & Literatures.

LITR 260a/JAPN 250a^G, MODERN JAPANESE FICTION. Christopher Hill.

For description see under East Asian Languages & Literatures. (Formerly LITR 178a)

LITR 269a/AFST 343a/ENGL 343a, INTRODUCTION TO POSTCOLONIAL LITERATURES. Sara Suleri Goodyear.

For description see under English Language & Literature. (Formerly LITR 244a)

★LITR 270a/★ENGL 328a/★ER&M 310a, FICTION WITHOUT BORDERS.

Shameem Black.

For description see under English Language & Literature.

★LITR 275a/★ENGL 383a/★THST 348a, THE COMMON WEALTH OF DRAMA.

Murray Biggs.

For description see under Theater Studies.

★LITR 278a/★WGSS 307a, WHITE MASCULINITY AND SEXUALITY IN U.S. POPULAR CULTURE. David Agruss.

For description see under Women’s, Gender, & Sexuality Studies.

LITR 290b/PORT 385b/SPAN 390b, LATIN AMERICAN POETRY: BRAZIL AND MEXICO. Paulo Moreira.

For description see under Spanish.

LITR 291a/PORT 410a^G, THE BRAZILIAN SHORT STORY IN TRANSLATION. K. David Jackson.

For description see under Portuguese. (Formerly LITR 319a)

LITR 292b/PORT 396b, MODERN BRAZILIAN LITERATURE IN TRANSLATION. K. David Jackson.
For description see under Portuguese.

LITERARY THEORY AND SPECIAL TOPICS

[LITR 302a, TRANSLATION: THEORETICAL AND PRACTICAL ISSUES]

★LITR 303a^G/★HUMS 372a/★ITAL 201a^G/★RNST 201a^G, LITERARY CRITICISM AND RHETORIC FROM PLATO TO VICO. Staff.
For description see under Italian.

★LITR 304b, THEORIES OF CULTURE: NINETEENTH CENTURY THROUGH THE TWENTY-FIRST. Galin Tihanov.

Th 1-2.15 I; Not CR/D/F WR, Hu (o)

Exploration of the major approaches to culture since the early nineteenth century. Analysis of various definitions of culture and of the historical contexts in which they were formulated and gained currency.

★LITR 307a/★ENGL 288a, AMERICAN LITERATURE AND THE HISTORY OF PUNISHMENT. Caleb Smith.
For description see under English Language & Literature.

★LITR 308a/★ENGL 272a, GENRE AND GEOGRAPHY IN NINETEENTH-CENTURY U.S. LITERATURE. Hsuan Hsu.
For description see under English Language & Literature.

★LITR 313a/★GMAN 297a/★GMST 297a^G/★HUMS 352a, FRIENDSHIP IN LITERATURE AND PHILOSOPHY. Elke Siegel.
For description see under German Studies.

★LITR 320b/★GMST 381b/★MGRK 207b/★WGSS 207b, FAIRY TALES. George Syrimis.
For description see under Hellenic Studies.

★LITR 345b/★FREN 269b, FRANCO-BELGIAN COMIC STRIPS. Catherine Labio.
For description see under French. (Formerly LITR 274b)

★LITR 346a/★WGSS 296a, MAKING MODERN SEXUAL AND GENDER DIFFERENCE. David Agruss.
For description see under Women's, Gender, & Sexuality Studies.

★LITR 347b/★WGSS 430b, SCIENCE, HUMANS, AND ANIMALS IN THE LITERATURE OF THE NINETEENTH AND TWENTIETH CENTURIES. David Agruss.
For description see under Women's, Gender, & Sexuality Studies.

FILM

LITR 352b/FILM 340b, ISSUES IN CONTEMPORARY FILM THEORY. Thomas Elsaesser.
For description see under Film Studies.

★LITR 370a/★FILM 434a/★HSAR 496a, SURREALISM AND CINEMA. Noa Steimatsky.
For description see under History of Art.

- *LITR 379b/*FILM 466b^G/*GMST 370b, THE FILMS OF FASSBINDER, HERZOG, AND WENDERS. Brigitte Peucker.
For description see under Film Studies.

CORE SEMINARS

Two seminars are required for all Literature majors; nonmajors may be admitted with permission of the instructor.

- *LITR 403a/*FILM 442a, THE CITY IN LITERATURE AND FILM.
Katerina Clark.

HTBA I; Not CR/D/F Hu (50)

Consideration of the architecture, town planning, and symbolic functions of a variety of cities in Europe, Latin America, the United States, and East Asia. Discussion of the representation of these cities in literature and film. Texts include five films about Chinese cities, including older Soviet and Chinese films about Shanghai and contemporary films about Hong Kong and Beijing. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

- *LITR 415a/*FREN 357a/*HUMS 383a, ROUSSEAU, FREUD, PROUST.
Peter Brooks.

M 1.30-3.20 I; Not CR/D/F Hu (0)

The nature, development, potential, and limitations of the self, as articulated by Rousseau, Freud, and Proust. Discussion of each author's discovery of the importance of childhood and sexuality in determining character and identity. Creation of a conversation among the three writers. *Students competent in French and/or German are encouraged to read texts in the original language.*

- *LITR 417b/*FREN 356b, ROMANCE AND REALISM: THE NINETEENTH-CENTURY NOVEL. Peter Brooks.

M 1.30-3.20 I; Not CR/D/F Hu (0)

Consideration of the trend toward realism in novels of nineteenth-century England and France, and of resistance to the trend in the name of romance. Participation in the debate between realism and romance as manifested in selected novels by Austen, Stendhal, Flaubert, Brontë, Eliot, Zola, and James. *Students competent in French are encouraged to read texts in the original language.*

- *LITR 420b/*SPAN 393b, THE JUNGLE BOOKS.
Roberto González Echevarría.

TT 2.30-3.45, I HTBA I; Not CR/D/F WR, Hu (0) Tr

A study of novels, stories, and films about a journey to the jungle in search of personal fulfillment and the origins of history. Authors include Alvar Núñez Cabeza de Vaca, Sir Arthur Conan Doyle, Joseph Conrad, André Malraux, Alejo Carpentier, W. H. Hudson, Claude Lévi-Strauss, José Eustasio Rivera, and Mario Vargas Llosa.

- *LITR 424b/*GMAN 353b/*GMST 353b^G/*HUMS 351b, DIALECTIC OF ENLIGHTENMENT: KANT AND SADE. Rainer Nägele.
For description see under German Studies.

- *LITR 429b, FICTIONAL WORLDS. Benjamin Harshav.

T 1.30-3.20 I; Not CR/D/F Hu (0)

The construction of fictional worlds in literature, as exemplified in close readings of stories by Joyce, Gogol, and especially the fictions of interpretation in the work of Franz Kafka. All readings in English; papers may be written on texts in other languages.

★LITR 430a, THE NOVELLA. Richard Maxwell.

MW 11.30-12.45 I WR, Hu (○)

A study of the novella as a distinctive kind of prose fiction, originating in Renaissance Italy, elaborated by French writers during the seventeenth and eighteenth centuries, given a new form in German literature around the time of the French Revolution, and practiced since then in a number of other literary traditions from North America to Japan.

★LITR 431a/★GMAN 315a/★GMST 315aG/★HUMS 368a, SYSTEMS AND THEIR THEORY. Henry Sussman.

For description see under German Studies.

★LITR 437b, FIRST NOVELS. Barry McCrea.

T 9.30-11.20 I; Not CR/D/F WR, Hu (○)

The idea of the first novel examined in a variety of national traditions, with special attention to the ideas of “firstness” and beginnings. Topics include similarities among first novels, categories into which they may be placed, and special energies possessed by authors at the beginning of their careers.

★LITR 438b/★ENGL 432b, THE MODERN EUROPEAN NOVEL.

Pericles Lewis.

TTh 11.30-12.45 I; Not CR/D/F WR, Hu (○)

Reading and discussion of six major novels of European modernism: Conrad’s *Lord Jim*, Proust’s *Swann’s Way*, Joyce’s *Ulysses*, Svevo’s *Confessions of Zeno*, Mann’s *The Magic Mountain*, and Woolf’s *The Waves*.

★LITR 442b/★GMAN 352bG/★GMST 352b/★HUMS 353b, THOMAS MANN: *THE MAGIC MOUNTAIN*. Rainer Nägele.

For description see under Germanic Languages & Literatures.

★LITR 448a/★FILM 473a/★FREN 448a/★HUMS 388a, FRENCH-AMERICAN FILM RELATIONS. Dudley Andrew, David Bromwich.

For description see under Film Studies.

★LITR 449a/★SPAN 394a, DICTATOR NOVELS ACROSS THE AMERICAS. Moira Fradinger.

W 3.30-5.30 I Hu (○) Tr

A reading of six major novels that thematize the figure of the dictator and the systems of power generated around this figure. The novels are chosen from various countries in the Americas, including Colombia, Cuba, Paraguay, and the United States; they include canonical works such as García Márquez’s *The Autumn of the Patriarch*, Carpentier’s *Reasons of State*, and Roa Bastos’s *I, the Supreme*.

★LITR 452b, WRITING AND POWER ACROSS THE AMERICAS.

Moira Fradinger.

W 3.30-5.30 I Hu (○) Tr

An introduction to twentieth-century works from across the Americas that interrogate the issue of power. Selected narratives from fiction, poetry, and drama represent forms of resistance and revolution, oppression, torture, terror, and dictatorship. Authors include Arlt, Carpentier, Césaire, Timerman, Pizarnik, Arenas, Rulfo, William Faulkner, and Ariel Dorfman.

★LITR 455aG/★GMST 311a/★HUMS 358a, PLATO’S LEGACY. Carol Jacobs.

Th 1.30-3.20 I; Not CR/D/F WR, Hu (○)

Readings in Plato and in philosophic texts directly about Plato, as well as literary texts that follow in this tradition and that problematize similar issues. A meditation on the relationship between language and truth, and on broader questions of

epistemology, ethics, and the political. Readings include *Republic* and *Phaedrus* as well as Heidegger and Derrida on Plato.

★LITR 456b/★GMST 456b^G, INTERPRETATION AND AUTHORITY.
Carol Jacobs.

T 1.30-3.20 I Hu (o)

Close readings of works on problems of authority and interpretation by Sigmund Freud, Roland Barthes, Paul de Man, and Walter Benjamin. Exploration of their writing as a performance that questions simplistic notions of truth. Consideration of the problem of how to interpret texts that unsettle the very nature of interpretation.

★LITR 480a, CRITICAL PRACTICES: ADVANCED TOPICS IN COMPARATIVE LITERATURE. Catherine Labio.

W 2.30-4.20 I; Not CR/D/F Hu (o)

Critical, theoretical, and methodological issues of particular relevance to the discipline of comparative literature. Historical overview of changing definitions of literature and comparative literature, the role of theory, and key contemporary debates, including interdisciplinary approaches to the study of literature. In-depth analysis either of a specific theoretical approach, such as hermeneutics, structuralism, or postcolonialism, or of the problems and opportunities presented by the study of literature in conjunction with other disciplines in either the humanities or the social or natural sciences. Texts include works by such critics and philosophers as Plato, Aristotle, Saussure, Propp, Wellek, Foucault, Derrida, Irigaray, Eagleton, Culler, and Said.

★LITR 488a or b, DIRECTED READING AND/OR INDIVIDUAL RESEARCH.
Pericles Lewis.

HTBA I; Not CR/D/F (o)

Special projects in an area of the student's particular interest set up with the help of a faculty adviser and the director of undergraduate studies. Projects cover material not otherwise offered by the department, must terminate in at least a term paper or its equivalent, and must have the approval of the director of undergraduate studies. *Enrollment limited to Literature majors.*

SENIOR COURSES

★LITR 491a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

An independent writing and research project. The senior essay is due in the office of the director of undergraduate studies according to the following schedule: (1) by September 15 (for LITR 491a) or January 26 (for LITR 491b), a three-page prospectus signed by the student's adviser; (2) by October 27 (for LITR 491a) or March 2 (for LITR 491b), a full rough draft (not notes); (3) by December 8 (for LITR 491a) or April 20 (for LITR 491b), the completed essay. 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.

★LITR 492a or b and 493a or b, THE YEARLONG SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

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 492a or b. For students expecting to graduate in May, the senior essay is due in the office of the director of undergraduate studies according to the

following schedule: (1) by September 15, a three-page prospectus signed by the student's adviser; (2) by January 26, a full rough draft (not notes); (3) by April 20, the completed essay. December graduates should consult the director of undergraduate studies for required deadlines. The minimum length for a year-long senior essay is forty pages.

MANAGEMENT SCIENCES

(See under *Operations Research*.)

MATHEMATICS

(See also *Applied Mathematics*.)

Director of undergraduate studies: Gregg Zuckerman, 450 DL, 432-4198, gregg.zuckerman@yale.edu [F]; Yair Minsky, 448 DL, 432-4018, yair.minsky@yale.edu [Sp]

FACULTY OF THE DEPARTMENT OF MATHEMATICS

PROFESSORS

Donald Brown, Andrew Casson, Ronald Coifman, Igor Frenkel, Howard Garland, Roger Howe, Peter Jones, Ravindran Kannan, Mikhail Kapranov, Bruce Kleiner, Benoit Mandelbrot (*Emeritus*), Gregory Margulis, Yair Minsky, Vincent Moncrief, Steven Orszag, David Pollard, Vladimir Rokhlin, Peter Schultheiss (*Emeritus*), Katepalli Sreenivasan, Gregg Zuckerman

J. W. GIBBS ASSISTANT PROFESSORS

Baris Coskunuzer, Philip Gressman, Daniel Krashen, Triet Le, Yiqiang Li, Matvei Libine, Alina Marian, Karin Melnick, Kevin Wortman

ADJUNCT PROFESSORS

Michael Frame, Alex Lubotzky

OPERATIONS RESEARCH FACULTY

Eric Denardo

STATISTICS FACULTY

Andrew Barron, Joseph Chang, John Hartigan

Both the course offerings and the major in Mathematics reflect the many roles of mathematics itself: the language and tool of the sciences, a cultural phenomenon with a rich historical tradition, and a model of abstract reasoning. The Mathematics major provides a broad education in various areas of mathematics in a program flexible enough to accommodate many ranges of interest.

B.A. and B.S. degree programs. The prerequisite for each program is calculus through the level of MATH 120a or b, or the equivalent. Each program normally consists of ten term courses in Mathematics numbered 222 and higher, including MATH 480a or b. Each student is expected to take vector calculus and linear algebra through the level of MATH 230 or of MATH 250a, and one of MATH 222a or b or 225b. Beyond this, it is strongly recommended that the major include courses in real analysis (MATH 300b or 301a), in algebra (MATH 350a), and in complex analysis (MATH 310a), together with other courses to provide additional breadth and depth. Students are required to take at least two term courses in each of three of the following five categories: analysis, algebra and number theory, statistics and applied mathematics, geometry and topology, and logic and foundations. Specific courses in each category are listed below.

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, Operations Research, Physics, Statistics, 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 director of undergraduate studies.

A candidate for the B.S. degree must take at least two advanced term courses in the physical sciences, such as CHEM 328a, 332a, 333b, or PHYS 401a, 402b, in addition to the ten term courses required for the B.A. degree. Such courses require the approval of the director of undergraduate studies; written approval is advised.

Any student interested in pursuing further study in pure mathematics should include MATH 301a, 305b, 310a, 350a, 370b, and either 430b or 435b in his or her program, and should consider taking one or more graduate-level courses. Students interested in applications of mathematics should include MATH 300b or 301a, 310a, 350a, and a selection of courses among 241a, 242b, 244a, 246a or b, 251b, 260b, 435b, and CPSC 440b.

The intensive major. Candidates for a degree with an intensive major in Mathematics are expected to include at least two graduate term courses, or equivalent independent study, in their programs. Familiarity with the material of the following courses is prerequisite to graduate courses in each category: *algebra*: two courses between MATH 350 and 399; *analysis*: MATH 301a, 305b, 310a; *algebraic topology*: MATH 301a, 350a; *logic and foundations*: MATH 270a.

Senior requirement. During the senior year a student majoring in Mathematics must take the senior seminar (MATH 480a or b).

The following members of the department may be consulted by students through their residential college affiliation:

BK, P. Jones	MC, P. Jones
BR, to be announced	PC, to be announced
CC, S. Orszag	SY, to be announced
DC, R. Howe	SM, H. Garland
TD, G. Zuckerman	ES, to be announced
JE, R. Coifman	TC, G. Margulis

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 will be eligible to receive this degree at their Senior Commencement. Required are: (1) eight term courses numbered 500 or higher, most of which must be completed with grades of B or better; (2) a reading knowledge of mathematical literature in a foreign language of importance for mathematical research (normally French, German, or Russian); (3) satisfactory performance on a general oral examination.

The master's program is in no sense a substitute for the B.A. or B.S. program; rather, it is designed to accommodate a very few 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. During spring term of the sophomore year candidates must submit a proposal that foresees this level of achievement by the end of junior year to the director of undergraduate studies. If approved by the department this proposal will be forwarded to the Dean's Office; see "Simultaneous Award of the Bachelor's and Master's Degrees" in chapter III, section K. Students' status and

progress will be reviewed before they are permitted to continue in the program in the senior year.

Students take at least two graduate term courses in the junior year (normally courses in algebra or analysis are the first graduate courses taken). The general oral examination covers a list of topics available from the director of graduate studies and will be accepted in lieu of the usual senior oral presentation. Details concerning the requirements for the master's degree may be obtained from the director of graduate studies.

PLACEMENT IN COURSES

The department offers a three-term sequence in calculus, MATH 112a or b, 115a or b, and 120a or b. Students who have not taken calculus at Yale and who wish to enroll in calculus must take the online placement examination found on the department Web page (www.math.yale.edu). At the beginning of each term a calculus preregistration session is held in DL 432. To enroll in a calculus course a student must bring the results of the placement exam, as well as other pertinent information such as Advanced Placement test scores, to the preregistration session. Advisers will be on hand to assist each student in enrolling in the appropriate course.

MATH 112a or b is an introductory course that presupposes basic skills in high school algebra, geometry, and trigonometry. Enrolling students are expected to know the basic definitions of the trigonometric functions, synthetic division, factorization, and elementary area and volume formulas of plane and solid geometry. MATH 115a or b presupposes familiarity with the topics covered in MATH 112a or b. MATH 120a or b presupposes familiarity with the topics covered in MATH 115a or b.

MATH 230 is an advanced course in linear algebra and introductory analysis for students with exceptionally strong backgrounds in mathematics. Students who wish to enroll in MATH 230 should consult the instructor for the course. After MATH 115a or b, students with a strong interest in abstract mathematics should consider taking MATH 230.

REQUIREMENTS OF THE MAJOR

Prerequisite: MATH 120a or b or equivalent

Number of courses: *B.A. degree*—ten term courses numbered 222 or higher, including MATH 480a or b; *B.S. degree*—same, with two addtl courses in the physical sciences

Distribution of courses: *B.A. degree*—two courses in each of three categories chosen from (a) analysis, (b) algebra and number theory, (c) statistics and applied math, (d) geometry and topology, (e) logic and foundations; *B.S. degree*—same, with two addtl advanced courses in the physical sciences approved by DUS

Specific courses required: MATH 230 (counts as two courses) or MATH 250a, and one of MATH 222a or b or 225b

Substitution permitted: Certain relevant courses in Applied Math, Computer Science, Engineering and Applied Science, Economics, Operations Research, Physics, Statistics, with permission of DUS

Senior requirement: Senior sem (MATH 480a or b)

Intensive major: Two graduate courses or equivalent independent study counted among the required courses

Unless otherwise indicated, courses in Mathematics do not count toward the natural science requirement for the Class of 2008 and previous classes.

INTRODUCTORY COURSES: MATH 112a or b, 115a or b, 118a or b, 120a or b, 125b, 190a

ANALYSIS: MATH 230 (counts as one term course in this category), 246a or b, 250a, 300b, 301a, 305b, 310a, 315b, 320a, 325b

STATISTICS AND APPLIED MATHEMATICS: MATH 241a, 242b, 244a, 246a or b, 251b, 260b, 310a, 330b; CPSC 201a or b, 365b, 440b

ALGEBRA AND NUMBER THEORY: MATH 222a or b, 225b, 230 (counts as one term course in this category), 244a, 350a, 354b, 360a, 370b, 380a, 381b

GEOMETRY AND TOPOLOGY: MATH 228b, 290b, 430b, 435b

LOGIC AND FOUNDATIONS: MATH 270a; PHIL 267a, 268b

INTRODUCTORY COURSES

These courses do not count toward the requirements of a major in Mathematics. Students wishing to enroll in one of these courses are expected to preregister for a specific section. In the fall, preregistration is on Tuesday, September 5, 2006, from 9.30 A.M. to 4 P.M. in 432 DL; in the spring, preregistration is on Tuesday, January 16, 2007, from 9.30 A.M. to 4 P.M., also in 432 DL. Students who have not taken calculus at Yale must complete the online placement exam at www.math.yale.edu/public_html/placement.html before preregistering. Those who do not preregister may be excluded from sections that are full.

★MATH 101b, GEOMETRY OF NATURE. Michael Frame.

TTh 2.30-3.45 IV QR (27)

Geometric patterns in nature, including classical models of spirals in seashells and sunflowers, symmetry of honeycombs and snowflakes, and the curvature of soap films; the shape of the universe; ways to visualize the fourth dimension; and a brief introduction to fractal geometry. *Enrollment limited to freshmen and sophomores.*

★MATH 112a or b, CALCULUS OF FUNCTIONS OF ONE VARIABLE I.

Ronald Coifman [F], staff [Sp].

3 HTBA For sections see www.yale.edu/courseinfo

IV; Not CR/D/F QR (69)

Limits and their properties. Definitions and some techniques of differentiation and the evaluation of definite integrals, with applications. Students are instructed in use of the mathematical software package Mathematica, which is used in graphical, symbolic, and numerical methods and is required on some problem sets. *No prior acquaintance with calculus or computing assumed.*

★MATH 115a or b, CALCULUS OF FUNCTIONS OF ONE VARIABLE II.

Michael Frame [F], staff [Sp].

3 HTBA For sections see www.yale.edu/courseinfo

IV; Not CR/D/F QR (69)

A continuation of MATH 112a or b. Applications of integration, with some formal techniques and numerical methods. Improper integrals, approximation of functions by polynomials, infinite series. Exercises involve the mathematical software package Mathematica. *After MATH 112a or b or equivalent.*

★MATH 118a or b, INTRODUCTION TO FUNCTIONS OF SEVERAL VARIABLES.

IV; Not CR/D/F QR (69)

118a-1: TTh 9-10.15 Yiqiang Li

118a-2: TTh 11.30-12.45 Yiqiang Li

118b-1: TTh 9-10.15 Yoel Shkolnisky

118b-2: TTh 11.30-12.45 Amit Singer

Calculus of several variables and some linear algebra. Intended for students in the social sciences, especially Economics. Covers parts of MATH 120a or b and MATH 222a or b. *May not be taken after* MATH 120a or b or 222a or b. *Prerequisite:* MATH 112a or b.

★MATH 120a or b, CALCULUS OF FUNCTIONS OF SEVERAL VARIABLES.

Steven Orszag [F], Michael Frame [Sp].

3 HTBA For sections see www.yale.edu/courseinfo

IV; Not CR/D/F QR (69)

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. *After* MATH 115a or b, *or with permission of instructor.*

MATH 125b/AMTH 125b/OPRS 125b, INTRODUCTION TO MANAGEMENT SCIENCE: PROBABILISTIC MODELS. Eric Denardo.

For description see under Operations Research.

MATH 190a, FRACTAL GEOMETRY. Michael Frame.

Th 9-10.15 IV; Not CR/D/F QR (22)

A visual introduction to the geometry of fractals and the dynamics of chaos, accessible to students not majoring in science. Study of mathematical patterns repeating on many levels and expressions of these patterns in nature, art, music, and literature. *For the Class of 2008 and previous classes, counts toward the natural science requirement.*

INTERMEDIATE AND ADVANCED COURSES

These courses count toward the requirements of a major in Mathematics.

MATH 222a or b/AMTH 222a or b, LINEAR ALGEBRA WITH APPLICATIONS.

Hisham Sati [F], Peter Schultheiss [Sp].

MWF 10.30-11.20; *disc. 1* HTBA IV; Not CR/D/F QR (33)

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 equation and matrix differential equations. Symmetric and Hermitian matrices. Orthogonal and unitary transformations; similarity transformations. *May not be taken after* MATH 225b.

MATH 225b, LINEAR ALGEBRA AND MATRIX THEORY.

Howard Garland.

Th 9-10.15; *disc. 2* HTBA IV; Not CR/D/F QR (22)

An introduction to the theory of vector spaces, matrix theory and linear transformations, determinants, eigenvalues, and quadratic forms. Some relations to calculus and geometry are included. *After or concurrently with* MATH 120a or b. *May not be taken after* MATH 222a or b.

MATH 228b, FROM EUCLID TO EINSTEIN. Roger Howe.

MWF 9.30-10.20 IV QR (32)

An introduction to the fundamental role of symmetry in geometry. Transformational geometry and its relation to Euclidean geometry, to non-Euclidean geometries, and to Einstein's theory of relativity. Includes a geometric introduction to linear algebra.

★MATH 230, VECTOR CALCULUS AND LINEAR ALGEBRA. Yair Minsky.
MWF 9.30-10.20; *disc.* 1 HTBA IV; Not CR/D/F QR (32)

A careful study of the calculus of functions of several variables, combined with linear algebra.

MATH 235b/STAT 230b^G, INTRODUCTORY DATA ANALYSIS. Joseph Chang.
For description see under Statistics.

MATH 241a/STAT 241a^G, PROBABILITY THEORY. Harrison Zhou.
For description see under Statistics.

MATH 242b/STAT 242b^G, THEORY OF STATISTICS. Harrison Zhou.
For description see under Statistics.

MATH 244a/AMTH 244a, DISCRETE MATHEMATICS. Kevin Wortman.
TTh 11.30-12.45 IV; Not CR/D/F QR (24)

Basic concepts and results in discrete mathematics: graphs, trees, connectivity, Ramsey theorem, enumeration, binomial coefficients, Stirling numbers. Properties of finite set systems. *Recommended preparation:* MATH 115a or b or equivalent.

MATH 246a or b, ORDINARY DIFFERENTIAL EQUATIONS. Staff [F],
Hisham Sati [Sp].

TTh 9-10.15 IV; Not CR/D/F QR (22)

First-order equations, second-order equations, linear systems with constant coefficients. Numerical solution methods. Geometric and algebraic properties of differential equations. *After* MATH 120a or b or equivalent; *after or concurrently with* MATH 222a or b, or 225b, or equivalent.

MATH 250a, VECTOR ANALYSIS. Roger Howe.

MWF 9.30-10.20 IV; Not CR/D/F QR (32)

Calculus of functions of several variables, using vector and matrix methods. Inverse and implicit function theorems. Transformation of multiple integrals. Line and surface integrals of vector fields. Curl and divergence. Differential forms. Theorems of Green, Gauss, and Stokes. *After* MATH 120a or b, and 222a or b or 225b, or equivalents.

MATH 251b/STAT 251b^G, STOCHASTIC PROCESSES. Andrew Barron.
For description see under Statistics.

MATH 260b/AMTH 260b, BASIC ANALYSIS IN FUNCTION SPACES.
Ronald Coifman.

TTh 1-2.15 IV; Not CR/D/F QR (26)

The standard basic functional analytic tools needed by scientists and users of mathematics. MATH 260b is a natural continuation of PHYS 301a.

MATH 270a, SET THEORY. Gregg Zuckerman.

MWF 1.30-2.20 IV; Not CR/D/F QR (36)

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 120a or b or equivalent.

[MATH 290b, FRACTAL GEOMETRY: CONCEPTS AND APPLICATIONS]

MATH 300b, TOPICS IN ANALYSIS. Andrew Casson.

MWF 11.30-12.20 IV; Not CR/D/F QR (34)

An introductory course in analysis with topics to be chosen from infinite series, the theory of metric spaces, and fixed-point theorems with applications. *Students*

who have taken MATH 230 should take MATH 301A instead of this course. After MATH 250A or with permission of instructor.

★MATH 301A, INTRODUCTION TO ANALYSIS. Peter Jones.

TTh 1-2.15 IV; Not CR/D/F QR (26)

Foundations of real analysis, including metric spaces and point set topology, infinite series, and function spaces. After MATH 230 or equivalent.

MATH 305B, REAL ANALYSIS. Philip Gressman.

TTh 1-2.15 IV; Not CR/D/F QR (26)

The Lebesgue integral, Fourier series, applications to differential equations. After MATH 301A or with permission of instructor.

MATH 310A, INTRODUCTION TO COMPLEX ANALYSIS. Matvei Libine.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

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. After MATH 230 or 250A or equivalent.

★MATH 315b^G, INTERMEDIATE COMPLEX ANALYSIS. Staff.

MW 2.30-3.45 IV; Not CR/D/F QR Meets RP (37)

Continuation of MATH 310A. 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 310A.

★MATH 320a^G, MEASURE THEORY AND INTEGRATION. Howard Garland.

TTh 1-2.15 IV; Not CR/D/F QR Meets RP (26)

Construction and limit theorems for measures and integrals on general spaces; product measures; L_p spaces; integral representation of linear functionals. After MATH 305b or equivalent.

★MATH 325b^G, INTRODUCTION TO FUNCTIONAL ANALYSIS.

Gregory Margulis.

TTh 1-2.15 IV; Not CR/D/F QR Meets RP (26)

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 320A.

MATH 330b/STAT 330b^G, ADVANCED PROBABILITY. David Pollard.

For description see under Statistics.

MATH 350A, INTRODUCTION TO ABSTRACT ALGEBRA. Andrew Casson.

MWF 10.30-11.20 IV; Not CR/D/F QR (33)

Group theory, structure of Abelian groups, and applications to number theory. Symmetric groups and linear groups including orthogonal and unitary groups; properties of Euclidean and Hermitian spaces. Some examples of group representations. Modules over Euclidean rings, Jordan and rational canonical forms of a linear transformation. After MATH 222a or b or equivalent.

★MATH 354b, NUMBER THEORY. Igor Frenkel.

TTh 1-2.15 IV; Not CR/D/F QR (26)

Prime numbers; quadratic reciprocity law, Gauss sums; finite fields, equations over finite fields; zeta-functions. After MATH 350A.

[MATH 360a, INTRODUCTION TO LIE GROUPS]

MATH 370b, FIELDS AND GALOIS THEORY. Daniel Krashen.

TTh 11.30–12.45 IV; Not CR/D/F QR (24)

Rings, with emphasis on integral domains and polynomial rings. The theory of fields and Galois theory, including finite fields, solvability of equations by radicals, and the fundamental theorem of algebra. Quadratic forms. *After* MATH 350a.MATH 380a^G, MODERN ALGEBRA I. Alina Marian.

MW 2.30–3.45 IV; Not CR/D/F QR Meets RP (37)

A survey of algebraic constructions and theories at a sophisticated level. Topics include categorical language, free groups and other free objects in categories, general theory of rings and modules, artinian rings, and introduction to homological algebra. *After* MATH 350a *and* 370b.MATH 381b^G, MODERN ALGEBRA II. Mikhail Kapranov.

TTh 2.30–3.45 IV; Not CR/D/F QR Meets RP (27)

Topics in commutative algebra: general extension of fields; Noetherian, local, and Dedekind rings. Introduction to valuation theory. Rudiments of algebraic geometry. *After* MATH 380a.

[MATH 430b, INTRODUCTION TO ALGEBRAIC TOPOLOGY]

MATH 435b, DIFFERENTIAL GEOMETRY. Baris Coskunuzer.

TTh 1–2.15 IV; Not CR/D/F QR (26)

Applications of calculus to the study of the geometry of curves and surfaces in Euclidean space, intrinsic differential geometric properties of manifolds, and connections with non-Euclidean geometries and topology. *After* MATH 230 *or* 250a *or equivalent*.MATH 470a *or* b, INDIVIDUAL STUDIES. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (0)

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 480a *or* b, SENIOR SEMINAR: MATHEMATICAL TOPICS.

IV; Not CR/D/F (50)

480a–1: 3 HTBA Gregory Margulis

480a–2: 3 HTBA Donald Brown, Peter Jones

480b: TTh 2.30–3.45 Igor Frenkel

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 present several talks on the chosen topic.

COURSES RELEVANT TO THE MAJOR IN OTHER DEPARTMENTS

Normally two of the following courses may, with permission of the director of undergraduate studies, be counted with Mathematics courses toward the requirements of the major.

CPSC 201a *or* b, INTRODUCTION TO COMPUTER SCIENCE.

CPSC 365b, DESIGN AND ANALYSIS OF ALGORITHMS. Daniel Spielman.

CPSC 440b^G, NUMERICAL COMPUTATION I. Vladimir Rokhlin.

OPRS 235a/AMTH 235a, OPTIMIZATION I. Eric Denardo.
For description see under Operations Research.

PHIL 267a^G, MATHEMATICAL LOGIC I. Sun-Joo Shin.

★PHIL 268b^G, MATHEMATICAL LOGIC II. Sun-Joo Shin.

GRADUATE COURSES OF INTEREST

Each year the Mathematics and Statistics departments offer a large number of graduate courses, some of which are accessible to undergraduates with advanced preparation in mathematics. Further information may be obtained from the directors of undergraduate studies whose permission, with that of the relevant director of graduate studies, is required for admission.

MATHEMATICS AND COMPUTER SCIENCE

(See under *Computer Science and Mathematics*.)

MATHEMATICS AND ECONOMICS

(See under *Economics and Mathematics*.)

MATHEMATICS AND 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.

The prerequisite for the major is MATH 120a or b. The major requires twelve term courses including the prerequisite, at least five of which must be in mathematics at the level of MATH 120a or b or higher and five of which must be in philosophy. All philosophy courses are eligible for credit toward the major, with the exception of First-Order Logic (PHIL 115a). Required courses include Set Theory (MATH 270a), Mathematical Logic I (PHIL 267a), Mathematical Logic II (PHIL 268b), an advanced philosophy course (other than PHIL 267a or 268b) with a substantive logical component, and one seminar in either Mathematics or Philosophy that fulfills the senior requirement (see below). Set Theory (MATH 270a) and Mathematical Logic I (PHIL 267a) must be taken before the end of the junior year; it is strongly recommended that they be taken earlier.

Senior requirement. Each year certain seminars offered by the Mathematics and Philosophy departments are designated as fulfilling the senior requirement of this major. If such a seminar is taken in order 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 seminar fulfilling the senior requirement for 2006–2007 is MATH 480a or b, Senior Seminar: Mathematical Topics. For Philosophy seminars that fulfill the senior requirement, consult the director of undergraduate studies in Philosophy.

A typical program satisfying the major might consist of MATH 120a or b, 222a or b or 225b, 270a, 300b, 350a, and a designated seminar; PHIL 126b, 267a, 268b, 269b, a designated seminar, and one additional elective.

Majors should consult Gregg Zuckerman, 450 DL, 432-4198, gregg@math.yale.edu (adviser in Mathematics), and Michael Weber, 406A C, 432-1679, michael.weber@yale.edu (adviser in Philosophy).

REQUIREMENTS OF THE MAJOR

Prerequisite: MATH 120a or b
Number of courses: Twelve term courses (including prerequisite and senior sem)
Distribution of courses: At least five in mathematics and five in philosophy
Specific courses required: MATH 270a, PHIL 267a, 268b
Senior requirement: Senior sem

MATHEMATICS AND PHYSICS

A minimum of fourteen term courses in Mathematics and Physics above the sophomore level is required for the major, with at least six courses in each of the two subjects. A senior essay, or a project from PHYS 471a, 472b, on a topic appropriate for the combined major and acceptable to both the Physics and the Mathematics departments is also required. The student must present an oral report on this essay or project to the Mathematics department. Majors should consult Vincent Moncrief, 64 SPL, 432-6930.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 120a or b or the first term of 230 or equivalent; PHYS 180a, 181b, or 200a, 201b, or 260a, 261b; the PHYS 205La or Lb, 206La or Lb laboratory sequence
Number of courses: Fourteen term courses beyond prerequisites
Distribution of courses: Six in Mathematics at or above the level of MATH 222a or b, 225b, or the second term of 230; six advanced Physics courses selected in consultation with DUS
Senior requirement: Senior essay or project from PHYS 471a, 472b on topic acceptable to both depts; oral report on essay or project to Mathematics dept

MECHANICAL ENGINEERING

Director of undergraduate studies: Mitchell Smooke, 205 BECTON, 432-4344, mitchell.smooke@yale.edu

FACULTY OF THE DEPARTMENT OF MECHANICAL ENGINEERING

PROFESSORS

Ira Bernstein (*Emeritus*), Boa-Teh Chu (*Emeritus*), Juan Fernández de la Mora, Alessandro Gomez, Amable Liñan-Martinez (*Adjunct*), Marshall Long, Mitchell Smooke (*Chair*), Peter Wegener (*Emeritus*), Forman Williams (*Adjunct*)

ASSOCIATE PROFESSORS

Jerzy Blawdziewicz, † Jacek Cholewicki, Corey O'Hern, Jan Schroers, Udo Schwarz

ASSISTANT PROFESSORS

Eric Dufresne, David LaVan, John Morrell, Ainissa Ramirez

LECTURERS

Beth Anne Bennett, Kailasnath Purushothaman

†A joint appointment with primary affiliation in the School of Medicine.

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 CFD design, data acquisition, control, and manufacturing), the interfacing of MEMS and actuators via microprocessors to measure and control (e.g., in flow control, robot control, and optimization of automobile performance), and the advent of new materials (composite, shape-memory alloy, ceramic, superconducting) for new applications (e.g., prosthetic devices, biomaterials, stealth aircraft). These new 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–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 be constantly aware both of the finiteness of the Earth's resources and its environment and of the burden that engineering works place on them.

The educational mission of the Department of Mechanical Engineering 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 goals: 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 goals, the following educational objectives have been established for the Department of Mechanical Engineering: to provide a comprehensive introduction to basic science and mathematics, which form the foundation of mechanical engineering; to provide a thorough training in methods of analytical, experimental, and 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; to instill in students an understanding of their professional and ethical responsibilities, which affect society and their profession.

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 115a or b) by the end of their freshman year.

A student's undergraduate engineering program usually culminates in one or more special project courses (MENG 471a, 472b), in which the student pursues a particular 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, preferably no later than the beginning of the sophomore year.

B.S. degree program in Mechanical Engineering. This is the most technically intensive mechanical engineering degree program and is accredited by the Accreditation Board for Engineering and Technology (ABET). 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.

The prerequisites in mathematics are MATH 112a or b, 115a or b, and 120a or b, or the equivalent. The basic science prerequisites are PHYS 200a, 201b, or 180a, 181b; one laboratory from PHYS 165La or 205La or Lb, and one from PHYS 166Lb or 206La or Lb, or equivalents.

Eighteen term courses beyond the prerequisites are required as follows:

1. *Advanced mathematics:* ENAS 194a or b and MATH 222a or b or 225b
2. *Mechanical engineering and related:* MENG 211a, 280a, 285b, 286Lb, 361a, 363Lb, 383a, 389b, 471a or 472b (the senior requirement), 489a, ENAS 130b, EENG 226a and 227a, and at least one term course in chemistry (e.g., one term of CHEM 113 or 114, or CHEM 118a)
3. *Technical electives:* Three approved technical electives chosen in consultation with the director of undergraduate studies.

The curriculum in this program is arranged in prescribed patterns, but some departures from it are possible with approval of the director of undergraduate studies.

B.S. degree program in Engineering Sciences (Mechanical). This 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. The major requires twelve approved term courses in engineering, which can cover a broad array of topics within the subject provided that they contribute to a coherent program. Students should consult with the director of undergraduate studies at the beginning of their sophomore year.

The prerequisites in mathematics are MATH 112a or b, 115a or b, and 120a or b, or the equivalent. The basic science prerequisites are PHYS 180a, 181b, or 200a, 201b; one laboratory from PHYS 165La or 205La or Lb, and one from PHYS 166Lb, 206La or Lb, or MENG 286Lb.

The program requires twelve approved term courses beyond the prerequisites, including the senior project.

B.A. degree program in Engineering Sciences (Mechanical). In a society with increasing levels of technical sophistication, a truly well-rounded individual must have some background in science and technology. The B.A. program is designed for students who may be planning careers in business, law, 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 prerequisites in mathematics are MATH 112a or b and 115a or b. The basic science prerequisite is physics at least to the level of PHYS 150a, 151b.

The program requires eight approved term courses beyond the prerequisites, including the senior project.

Senior requirement. In all B.S. and B.A. degree programs, students must successfully complete a project (MENG 471a or 472b) during their senior year.

Courses for majors in the humanities and social sciences. Mechanics and mechanical engineering content can be found in several courses intended for those not majoring in science. See under Engineering and Applied Science.

Select Program in Engineering. Qualified students majoring with a B.S. degree in Mechanical Engineering or Engineering Sciences (Mechanical) may be eligible to apply for a special program that includes industry research experience. See under Engineering.

REQUIREMENTS OF THE MAJOR

MECHANICAL ENGINEERING, B.S.

Prerequisites: MATH 112a or b, 115a or b, 120a or b; PHYS 200a, 201b, or 180a, 181b, and two labs (one from PHYS 165La, 205La or Lb, and one from PHYS 166Lb, 206La or Lb, or equivalents)

Number of courses: Eighteen term courses beyond prerequisites (including the senior project)

Specific courses required: ENAS 130b and 194a or b; EENG 226a and 227a; one from MATH 222a or b or 225b; MENG 211a, 280a, 285b, 286Lb, 361a, 363Lb, 383a, 389b, 489a

Distribution of courses: Three technical electives chosen in consultation with DUS; one term course in chemistry

Substitutions permitted: With DUS approval

Senior requirement: Senior project (MENG 471a or 472b)

ENGINEERING SCIENCES (MECHANICAL), B.S. AND B.A.

Prerequisites: *B.S. degree*—MATH 112a or b, 115a or b, 120a or b or equivalent; PHYS 180a, 181b (or 200a, 201b), and two labs (one from PHYS 165La, 205La or Lb, and one from PHYS 166Lb, 206La or Lb, or MENG 286Lb); *B.A. degree*—MATH 112a or b, 115a or b; Phys at least at level of 150a, 151b

Number of courses: *B.S. degree*—twelve term courses beyond prerequisites (including the senior project); *B.A. degree*—eight term courses beyond prerequisites (including the senior project)

Substitutions permitted: With DUS approval

Senior requirement: *Both degrees*—senior project (MENG 471a or 472b)

Unless otherwise indicated, courses in Mechanical Engineering count toward the natural science requirement for the Class of 2008 and previous classes.

MENG 185b, MECHANICAL DESIGN. David LaVan.

MW 12.30-1.20; lab HTBA IV; Not CR/D/F Meets RP (35)

A course designed for potential majors in mechanical engineering, with units on creativity and design, utilization of a machine shop, mechanical dissection, and computers in mechanical engineering. A key part of the course is a design project competition. *Prerequisite:* physics at the level of PHYS 180a, or permission of instructor.

MENG 211a, THERMODYNAMICS FOR MECHANICAL ENGINEERS.

Eric Dufresne.

MWF 10.30-11.20, I HTBA IV; Not CR/D/F QR, Sc Meets RP (33)

Study of energy and its transformation and utilization. Topics include 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. Applications focus on the efficiency of engineering devices, power and refrigeration systems, and psychrometrics. *Prerequisites:* PHYS 180a or 200a, and MATH 115a or b.

MENG 280a, MECHANICAL ENGINEERING I: STRENGTH AND DEFORMATION OF MECHANICAL ELEMENTS. Jan Schroers.

MWF 9.30-10.20; *prob sess* I HTBA IV; Not CR/D/F QR, Sc
Meets RP (32)

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 180a or 200a, and MATH 115a or b.

MENG 285b, INTRODUCTION TO MATERIALS SCIENCE.

Ainissa Ramirez.

TTh 1-2.15 IV QR, Sc Meets RP (26)

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; corrosion; thermal and electrical conduction. *Prerequisites:* MATH 120a or b and PHYS 180a, 181b.

MENG 286Lb, SOLID MECHANICS AND MATERIALS SCIENCE LABORATORY. Udo Schwarz.

TTh 10.30-11.20 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit Meets RP (0)

Experiments that involve either structural mechanics or materials science. Comparisons between structural theories and experimental results. Relationships among processing, microstructure, and properties in materials science. Introduction to a variety of techniques for the examination of the structure of materials.

CENG 315b/ENVE 315b, TRANSPORT PHENOMENA. Michael Loewenberg.

For description see under Chemical Engineering.

MENG 361a, MECHANICAL ENGINEERING II: FLUID MECHANICS.

Alessandro Gomez.

MWF 10.30-11.20; *prob sess* I HTBA IV; Not CR/D/F QR, Sc
Meets RP (33)

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 194a or b or equivalent, and physics at least at the level of PHYS 150a.

***MENG 363Lb, FLUID MECHANICS AND THERMODYNAMICS LABORATORY.** Alessandro Gomez.

4 HTBA IV; Not CR/D/F Sc Meets RP (0)

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. *Prerequisite:* MENG 361a.

[MENG 365b, PROPULSION AND ENERGY CONVERSION]

MENG 383a, MECHANICAL ENGINEERING III: DYNAMICS.

Udo Schwarz.

MWF 9.30-10.20; *prob sess* 1 HTBA IV; Not CR/D/F QR, Sc
Meets RP (32)Kinematics and dynamics of particles and systems of particles. Relative motion; systems with constraints. Rigid body mechanics; gyroscopes. *Prerequisites*: PHYS 180a or 200a, and MATH 120a or b.

[MENG 386b, FORENSIC ENGINEERING: VEHICLE AND ACCIDENT DYNAMICS]

MENG 389b, MECHANICAL ENGINEERING IV: FLUID AND THERMAL ENERGY SCIENCE. Kailasnath Purushothaman.

MWF 9.30-10.20; *prob sess* 1 HTBA IV; Not CR/D/F QR, Sc
Meets RP (32)Development of 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 211a, 361a, and ENAS 194a or b; or *permission of instructor*.MENG 400a^G, COMPUTER-AIDED ENGINEERING. Marshall Long.

TTh 9-10.15, 1 HTBA IV; Not CR/D/F QR Meets RP (22)

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 130b or *permission of instructor*.MENG 440a/ENAS 440a^G, APPLIED NUMERICAL METHODS I.

Beth Anne Bennett.

For description see under Engineering & Applied Science.

MENG 457b^G/BENG 457b^G, BIOMECHANICS. Jacek Cholewicki.

For description see under Biomedical Engineering.

MENG 463a^G, THEORETICAL FLUID DYNAMICS.

Juan Fernández de la Mora.

TTh 11.30-12.45 IV; Not CR/D/F QR, Sc Meets RP (24)

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 361a or *equivalent*.

MENG 469b, AERODYNAMICS. Juan Fernández de la Mora.

MWF 11.30-12.20 IV; Not CR/D/F QR, Sc (34)

Review of fluid dynamics. Potential flows over airfoils; finite wing theory; boundary layer theory. Compressible aerodynamics: normal and oblique shock waves and expansion waves. Linearized compressible flows; elements of computational aerodynamics. *Prerequisite*: MENG 361a or *permission of instructor*.

★MENG 471a and 472b, SPECIAL PROJECTS. Consult the director of undergraduate studies.

HTBA IV; Not CR/D/F (○)

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design (required for the accredited program), or tutorial study. Students are expected to consult the director of undergraduate

studies and appropriate faculty members to discuss ideas and suggestions for topics. These courses may be taken at any time during the student's career when appropriate and may be taken more than once. *Permission of adviser and director of undergraduate studies required.*

[MENG 485a^G, MICROSTRUCTURAL DEVELOPMENT IN MATERIALS]

MENG 489a^G, MECHANICAL DESIGN: PROCESS AND IMPLEMENTATION.

John Morrell.

MW 2.30-3.20; *lab* F 1.30-4.20 IV; Not CR/D/F Sc Meets RP (o)

Study of the design process, including concept generation, project management, teamwork, detail design, and communication skills. Student teams implement real-world design projects, each of which has a customer who provides feedback, a hardware objective that can be achieved in a term, and a problem definition that allows room for creative solutions. *Prerequisite:* MENG 280a, 361a, or *permission of instructor.*

MOLECULAR BIOPHYSICS AND BIOCHEMISTRY

Director of undergraduate studies: Michael Koelle, CE 28A SHM, 785-5808, madeline.cavanaugh@yale.edu, www.mbb.yale.edu

FACULTY OF THE DEPARTMENT OF MOLECULAR BIOPHYSICS AND BIOCHEMISTRY

PROFESSORS

†Ronald Breaker, †Gary Brudvig, Donald Engelman, Alan Garen, †Sankar Ghosh, Nigel Grindley, †Andrew Hamilton, Mark Hochstrasser, William Konigsberg, †Richard Lifton, †I. George Miller, †Peter Moore, Thomas Pollard, Anna Marie Pyle, Lynne Regan, †Michael Snyder, Dieter Söll, Joan Steitz, Thomas Steitz, Scott Strobel, †William Summers, Patrick Sung, Kenneth Williams (*Adjunct*)

ASSOCIATE PROFESSORS

Susan Baserga, Mark Gerstein, Lise Heginbotham, Michael Koelle, Anthony Koleske, Andrew Miranker, Mark Solomon, Vinzenz Unger, †Sandra Wolin

ASSISTANT PROFESSORS

Thomas Biederer, João Morais Cabral, Enrique de la Cruz, Yorgo Modis, Yong Xiong

LECTURERS

Carol Bascom-Slack, Aruna Pawashe

† A joint appointment with primary affiliation in another department.

The programs offered by the Department of Molecular Biophysics and Biochemistry are planned for students interested in the molecular and chemical basis of biological processes and are well suited to students hoping to attend medical school or pursue graduate studies in biochemistry, molecular biology, genetics (prokaryotes, eukaryotes, and viruses), or biophysics (including structural studies, energetics, molecular design, computational chemistry, and genomics). The B.S. major, designed for those with a strong commitment to research, provides an intensive introduction to laboratory techniques in biochemistry and biophysics. Students in this program usually carry out research projects in faculty laboratories during their junior and senior years. The B.A. major provides the intellectual discipline of biochemistry and biophysics for students who also wish to have sufficient time to pursue in-depth studies outside the major or who are interested in molecular biology as a liberal education; they, too, may engage in research during their junior and senior years.

Basic science prerequisites. The basic science courses required of all majors include one term of introductory biology (MCDB 120a or E&EB 122b); a general chemistry course with laboratory (CHEM 113 or 114, and 116L; or 118a and 119La); a year course in organic chemistry with laboratory (CHEM 125 and 126L; or either 220a, 221b or 225b, 227a, and the two-term sequence 222La or Lb, 223La or Lb); one term of physical chemistry (CHEM 328a); two terms of calculus (MATH 112a or b and 115a or b); and one year of physics with laboratory (either PHYS 180a, 181b and 165La, 166Lb, or 200a, 201b and 205La or Lb, 206La or Lb; 150a, 151b are allowed only with permission of the director of undergraduate studies). The B.A. major also requires one term of biology laboratory (MCDB 121La or E&EB 123Lb). Any of these prerequisites may also be satisfied by receiving scores on Advanced Placement tests sufficient to earn acceleration credits in the particular subjects (see chapter II), even if the student does not choose to accelerate.

B.S. degree. Ten courses are required beyond the prerequisites: MB&B 300a, 301b, 302b, 360Lb, and 490b; two additional upper-level MB&B electives, one of which must be a lecture course; one quantitative reasoning elective (MATH 120a or b or above, STAT 105a or above, CPSC 201a or b or above, or ENAS 130b or above); one biology elective at the 200 level or higher; and one elective in the natural sciences at a level higher than required in the prerequisites. Students choose the elective courses in consultation with a faculty adviser (see below). Only two course credits of MB&B 470a, 471b, and 478a, 479b may count toward these electives. Students may substitute CHEM 333b for MB&B 302b. The quantitative reasoning requirement may not be fulfilled by Advanced Placement test scores.

B.A. degree. Seven courses are required beyond the prerequisites: MB&B 251La, 300a, 301b, 302b, and 490b; one additional upper-level MB&B elective; and one quantitative reasoning elective (MATH 120a or b or above, STAT 105a or above, CPSC 201a or b or above, or ENAS 130b or above). Students choose the elective courses in consultation with a faculty adviser (see below). Students may substitute CHEM 333b for MB&B 302b. The quantitative reasoning requirement may not be fulfilled by Advanced Placement test scores.

Senior requirement. The senior requirement for both the B.S. and the B.A. is fulfilled by successful completion of MB&B 490b, The Senior Project. Students enrolled in this course prepare a written report and make an oral presentation of a laboratory or literature project. Students meet with faculty members in charge of the colloquium during the first two weeks of the spring term to agree on a topic and an approach. It is appropriate for students who took research for credit earlier in their training to update and revise the research report for that course to complete their senior project. It is inappropriate for students to resubmit a literature paper prepared for another course. The literature project for the senior requirement should be original work approved by the faculty member overseeing the senior colloquium.

The written report is expected to be 15–25 pages in length (double-spaced, twelve-point font exclusive of figures). A first draft of the paper is due two weeks prior to the date of the oral presentation. Faculty in charge of the program will review the draft and return it to the student with suggestions. A final draft of the paper is due the first day of the reading period in the student's final term.

Students make a fifteen-minute oral presentation during the last three weeks of their final term in a general scientific forum open to the public. Other students in the series are expected to attend all presentations.

Credit/D/Fail option. Courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

Recommended courses. All B.S. majors are encouraged to include MB&B 470a or 471b among their MB&B electives. The prerequisites in either general or organic chemistry should be taken in the freshman year.

Students with a strong interest in biophysics, including those planning to attend graduate school, are strongly encouraged to take courses beyond the basic requirements of the major. Such students are advised to take mathematics through differential equations (MATH 246a or b) and a full year of physical chemistry (CHEM 328a or 332a, and 333b). In place of one term of biophysics (MB&B 302b) they may elect a full year of upper-level biophysics (MB&B 420a and 421b). Such revisions to the basic curriculum must be made in consultation with the faculty adviser.

Typical programs. Programs with the minimal number of science courses required of B.A. and B.S. majors are shown below. Students whose scores on the Advanced Placement tests make them eligible for advanced courses are urged to replace the elementary science courses by more advanced ones in their freshman year, and to complete the required biochemistry and physics courses by the end of their sophomore and junior years respectively. Students are permitted to take the biochemistry sequence (MB&B 300a, 301b) after one term of organic chemistry (CHEM 220a or 225b).

<i>Freshman</i>	<i>Junior</i>	<i>Senior</i>
MCDB 120a or E&EB 122b	MB&B 300a, 301b	CHEM 328a
CHEM 113 or 114; 116L	One quantitative	MB&B 302b
<i>And, for B.A. major:</i>	reasoning elective	One MB&B elective
MCDB 121La or	PHYS 180a, 181b;	MB&B 490b
E&EB 123Lb	165La, 166Lb	<i>And, for B.S. major:</i>
	<i>And, for B.A. major:</i>	One biology elective
<i>Sophomore</i>	MB&B 251La	One science elective
CHEM 220a, 221b;	<i>And, for B.S. major:</i>	A second MB&B elective
222La, 223Lb	MB&B 360Lb	
MATH 112a, 115b		

Combined B.S./M.S. degree program. A program leading to the simultaneous award of the B.S. and M.S. degrees is offered to exceptionally able undergraduates. Candidates for the combined degrees normally have entered Yale as freshmen with advanced placement equivalent to the first year of the B.S. curriculum in Molecular Biophysics and Biochemistry as described in “Typical programs” above. Potential candidates must apply to the director of undergraduate studies for admission to the program no later than the first week of their sixth term, having achieved at the time of application grades of A or A– in at least two-thirds of all course credits as well as in at least two-thirds of all credits in courses directly related to the B.S. major program. B.S./M.S. candidates must complete all the biology, mathematics, physics, and chemistry prerequisites of the B.S. major, as well as the 300-level biochemistry requirements (MB&B 300a, 301b, 302b or CHEM 333b, and MB&B 360Lb) and the quantitative reasoning elective. Prior to acceptance into the program, candidates must complete at least one term of Research in Biochemistry and Biophysics (MB&B 470a or 471b) in the laboratory where the thesis research will be completed. In lieu of the MB&B, biology, and science electives required of B.S. majors, B.S./M.S. candidates must complete two MB&B graduate-level lecture

electives and four graduate-level electives that may be in MB&B or in other biological or physical sciences. During the senior year, candidates must complete two terms of Intensive Research in Biochemistry and Biophysics (MB&B 570a and 571b). In lieu of the senior colloquium required of B.S. majors, the B.S./M.S. candidate prepares a master's thesis based on his or her research results and makes a public oral defense of the thesis to a thesis committee and the director of undergraduate studies. The thesis committee is comprised of the candidate's adviser and a second faculty member, at least one of which must be a member of the MB&B department. During the last four terms of enrollment the candidate must take six course credits outside the major (and preferably outside the sciences). Course schedules during the seventh and eighth terms must be approved by the director of undergraduate studies. The master's thesis must be submitted by the last day of the reading period in the eighth term; it is evaluated by the research committee and the director of undergraduate studies. Further information about the program may be obtained from the MB&B undergraduate studies registrar.

MB&B Faculty Committee on the Undergraduate Major. Committee members are available for consultation throughout the year and are the only faculty advisers eligible to approve and sign MB&B majors' course schedules at the beginning of each term. Members acting as faculty advisers are:

Class of 2007: W. Konigsberg, CE 14A SHM (785-4599)
N. Grindley, 336 BASS (432-3104)

Class of 2008: L. Regan, 322 BASS (432-9843)
T. Biederer, C 127 SHM (785-5465)

Class of 2009: J. Morais Cabral, 434 BASS (436-4893)
M. Gerstein, 432A BASS (432-6105)

Class of 2010: D. Söll, 238 BASS (432-6200)
Y. Modis, 430 BASS (432-4330)

Director of B.S./M.S. degree program:

M. Koelle, CE 28A SHM (785-5808)

REQUIREMENTS OF THE MAJOR

Prerequisites and corequisites: *B.S. degree*—MCDB 120a of E&EB 122b; CHEM 113 or 114, 116L (or 118a, 119La); a year course in organic chemistry (CHEM 125, or 220a, 221b, or 225b, 227a, with labs); one term of physical chemistry (CHEM 328a); MATH 112a or b, 115a or b; PHYS 180a, 181b (or 200a, 201b) and associated labs; *B.A. degree*—same, with MCDB 121La or E&EB 123Lb

Number of courses: *B.S. degree*—ten term courses beyond pre- and corequisites, including the senior requirement, all for letter grades; *B.A. degree*—seven term courses beyond pre- and corequisites, including the senior requirement, all for letter grades

Specific courses required: *B.S. degree*—MB&B 300a, 301b, 302b, 360Lb; *B.A. degree*—MB&B 251La, 300a, 301b, 302b

Distribution of courses: *B.S. degree*—two addtl MB&B electives, as specified; one quantitative reasoning elective, as specified; one biology elective, as specified; and one science elective, as specified; *B.A. degree*—one addtl MB&B elective, as specified; one quantitative reasoning elective, as specified

Substitutions permitted: CHEM 333b for MB&B 302b

Senior requirement: Senior project (MB&B 490b)

Unless otherwise indicated, courses in Molecular Biophysics and Biochemistry count toward the natural science requirement for the Class of 2008 and previous classes.

[MB&B 100a, LIFE AT THE MOLECULAR LEVEL]

★MB&B 110a or b, CURRENT ISSUES IN BIOLOGICAL SCIENCE.

William Summers.

T 1.30-3.20 IV; Not CR/D/F Sc (0)

Students identify a scientific problem and then plan and execute a program of individualized learning aimed at the particular scientific knowledge required to understand and analyze the chosen problem. Intended to help students develop self-education skills as applied to scientific understanding, apply those skills to acquire some specific scientific knowledge, and understand the process by which scientific knowledge and understanding are achieved. *For non-science majors.*

MB&B 200a/MCDB 300a^G, BIOCHEMISTRY. L. Nicholas Ornston,
Donald Engelman.

For description see under Biology.

★MB&B 230b, RAIN FOREST EXPEDITION AND LABORATORY.

Scott Strobel, Carol Bascom-Slack.

MW 10.30-11.20, 1 HTBA IV; Not CR/D/F Sc (0)

Preparation for a two-week expedition to one of the world's rain forests during spring break and for a ten-week summer laboratory experience using samples collected during the expedition. Integrated topics draw on the fields of ecology, microbiology, chemistry, pharmacology, molecular biology, and bioinformatics. Historical description of the destination country. Students participate in an original scientific project from field biology to natural product characterization. *After one year of introductory biology or equivalent; after or concurrently with one term of organic chemistry. Limited enrollment.*

MB&B 251La/MCDB 301La, LABORATORY FOR BIOCHEMISTRY.

William Konigsberg, Aruna Pawashe.

Lab and disc. TTh 1-5 IV; Not CR/D/F Sc $\frac{1}{2}$ C Credit (0)

An introduction to current experimental methods in molecular biology. *After or concurrently with MB&B 200a or 300a. Limited enrollment. Preregistration required; e-mail William Konigsberg prior to the first week of classes.*

MB&B 300a^G, PRINCIPLES OF BIOCHEMISTRY I. Michael Koelle,
Thomas Biederer.

TTh 11.30-12.45; disc. 1 HTBA IV Sc (24)

Discussion of the physical, structural, and functional properties of proteins, lipids, and carbohydrates, three major classes of molecules in living organisms. Energy metabolism, hormone signaling, and muscle contraction as examples of complex biological processes whose underlying mechanisms can be understood by identifying and analyzing the molecules responsible for these phenomena. *After CHEM 125, 220a, or 225b.*

MB&B 301b^G, PRINCIPLES OF BIOCHEMISTRY II. Scott Strobel,
Nigel Grindley, Anthony Koleske.

TTh 11.30-12.45; disc. 1 HTBA IV Sc (24)

A continuation of MB&B 300a that considers the chemistry and metabolism of nucleic acids, the mechanism and regulation of protein and nucleic acid synthesis, and selected topics in macromolecular biochemistry. *Prerequisite: MB&B 300a or permission of instructor.*

MB&B 302b, PRINCIPLES OF BIOPHYSICS. Yorgo Modis,
Andrew Miranker.

MWF 9.30-10.20 IV; Not CR/D/F Sc (32)

An introduction to the theoretical basis of biophysical concepts and approaches with selected examples and applications of these principles. *Prerequisites:* MB&B 300a and CHEM 328a.

★MB&B 360Lb^G, LABORATORY FOR BIOCHEMISTRY AND BIOPHYSICS.

Alan Garen, William Konigsberg, Aruna Pawashe.

TTh 1-5 IV; Not CR/D/F Sc (0)

An intensive introduction to the principles and applications of experimental techniques currently used in biochemistry, biophysics, and molecular biology. *Recommended to be taken with or directly after MB&B 301b. Limited enrollment. Preregistration required; e-mail Alan Garen by the end of reading period in the fall term.*

MB&B 405a^G, MOLECULAR GENETICS OF PROKARYOTES. Nigel Grindley,
Patrick Sung, Joann Sweasy.

MW 11.30-12.45 IV; Not CR/D/F Sc Meets RP (34)

Molecular aspects of storage, replication, evolution, and expression of genetic material in prokaryotes. *After MB&B 200a, or 300a and 301b, or with permission of instructor.*

MB&B 420a^G, MACROMOLECULAR STRUCTURE AND BIOPHYSICAL
ANALYSIS. Andrew Miranker, João Morais Cabral, Anna Marie Pyle.

TTh 11.30-12.45 IV; Not CR/D/F Sc (24)

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:* MB&B 301b and 302b.

MB&B 421b^G, MACROMOLECULAR INTERACTIONS AND DYNAMIC
PROPERTIES. Anna Marie Pyle, Enrique de la Cruz, Donald Engelman.

MW 11.30-12.45, 1 HTBA IV; Not CR/D/F Sc (34)

Examination of the dynamic properties, interactions, and catalytic activities of macromolecules. Topics include macromolecular folding; binding interfaces; ligand interactions; the properties of membrane proteins, enzymes, ribozymes, and molecular motors; and modern methods for analysis of macromolecular associations and dynamic properties. *Prerequisites:* MB&B 301b and 302b.

MB&B 425a^G/MCDB 425a^G, BASIC CONCEPTS OF GENETIC ANALYSIS.

Tian Xu, Michael Koelle, and staff.

TTh 1-2.15 IV; Not CR/D/F Sc (0)

An examination of the universal principles of genetic analysis in eukaryotes. Reading and analysis of primary papers illustrating the best of genetic analysis in the study of a variety of biological issues. Focus on the concepts and logic underlying modern genetic analysis. *Prerequisite:* MCDB 200a or equivalent.

MB&B 443b^G, ADVANCED EUKARYOTIC MOLECULAR BIOLOGY.

Mark Hochstrasser, Anthony Koleske, Patrick Sung.

TTh 11.30-12.45 IV; Not CR/D/F Sc Meets RP (24)

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 300a and 301b, or permission of instructor.

MB&B 449a^G, MEDICAL IMPACT OF BASIC SCIENCE. Lynne Regan,
Mark Hochstrasser, Andrew Miranker, Patrick Sung.
TTh 1-2.15; *disc. 1* HTBA IV; Not CR/D/F Sc (26)

Consideration of 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 300a and 301b or equivalent, or permission of instructor.

MB&B 452a^G/CPSC 452a/MCDB 452a^G, GENOMICS AND BIOINFORMATICS.

Dieter Söll, Mark Gerstein, Michael Snyder.

MW 1-2.15 IV; Not CR/D/F Sc (○)

Genomics describes the determination of the nucleotide sequence as well as many further analyses used to discover functional and structural gene information about all the genes of an organism. Topics include the methods and results of analysis on a genome-wide scale as well as a discussion of the implications of this research. Bioinformatics describes the computational analysis of gene sequences and protein structures on a large scale. Topics include sequence alignment, biological database design, geometric analysis of protein structure, and macromolecular simulation. *Prerequisites:* MB&B 301b and MATH 115a or b, or permission of instructor.

MB&B 465b^G, ENZYME MECHANISMS. Enrique de la Cruz, Gary Brudvig,
Anna Marie Pyle, Thomas Steitz.

MW 1-2.15 IV; Not CR/D/F Sc (36)

An advanced course on the structures, functions, and reaction mechanisms of protein and nucleic acid enzymes. Study of theoretical and practical aspects of steady-state and transient kinetic methods, kinetic isotope effects, and transition-state theory, with emphasis on how these methods in combination with high-resolution structures provide molecular understanding of the catalytic strategies of enzymes. Topics include mechanisms of the classic metabolic enzymes; molecular motors, polymerases, and machines; electron transfer, redox enzymes, and their higher-order complexes; and ribozymes and DNA enzymes. *Prerequisites:* MB&B 300a and CHEM 328a.

*MB&B 470a and 471b, RESEARCH IN BIOCHEMISTRY AND BIOPHYSICS.

Alan Garen, Dieter Söll, and staff.

HTBA IV; Not CR/D/F (○)

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. A required organizational meeting will be held at the beginning of each term. Students are expected to commit at least ten hours per week working in a laboratory. Written assignments for the course 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 junior and senior MB&B majors.* *Prerequisite:* MB&B 251La or 360Lb.

*MB&B 472a and 473b, LITERATURE PROJECTS IN BIOCHEMISTRY AND BIOPHYSICS. Michael Koelle and staff.

HTBA IV; Not CR/D/F (○)

Individual 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. A required organizational meeting will be held at the

beginning of each term. The project should center on an area not covered in MB&B lecture courses. Students are expected to commit at least ten hours per week exploring the literature on the project. A report summarizing the literature findings must be submitted to both the instructor in charge and the project supervisor before the beginning of the final examination period. No more than one course credit in this series counts as an elective toward the B.A. or B.S. degree. *Prerequisites:* MB&B 300a and 301b.

★MB&B 478a and 479b, INTENSIVE RESEARCH IN BIOCHEMISTRY AND BIOPHYSICS. Alan Garen, Dieter Söll, and staff.

HTBA IV; Not CR/D/F 2 C Credits per term (○)

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. A required organizational meeting will be held at the beginning of each term. Students are expected to commit at least twenty hours per week working in a laboratory. Written assignments for the course 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. Prerequisites:* MB&B 251La or 360Lb.

★MB&B 490b, THE SENIOR PROJECT. Patrick Sung, William Konigsberg, Lynne Regan, and staff.

1 HTBA IV; Not CR/D/F (○)

Colloquium for fulfillment of the senior requirement. The course involves a written and an oral presentation of a senior paper in an area of biochemistry or biophysics. The topic is selected in consultation with the faculty members in charge of the course.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate courses in molecular biophysics and biochemistry, biology, and the biomedical sciences that may be of interest to undergraduates are listed in the bulletin of the Graduate School, and many are posted at <http://info.med.yale.edu/bbs>. Additional information is available from the directors of undergraduate and graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY

Director of undergraduate studies: Douglas Kankel, 754 KBT, 432-3839, catherine.blackmon@yale.edu, www.biology.yale.edu

Students interested in the area of molecular, cellular, and developmental biology may find courses and major requirements listed under Biology, Area II. Students should consult an adviser from the appropriate list in that section.

The faculty roster for the Department of Molecular, Cellular, and Developmental Biology may be found under Biology. The department offers undergraduate courses in an area of concentration in the Biology major. See under Biology, Area II.

MUSIC

Director of undergraduate studies: Michael Veal, 143 Elm St., 432-2986,
 dus.music@yale.edu

FACULTY OF THE DEPARTMENT OF MUSIC

PROFESSORS

Richard Cohn, Margot Fassler, Daniel Harrison, James Hepokoski, Patrick McCreless
 (*Choir*), Leon Plantinga (*Emeritus*), Ellen Rosand, Craig Wright

ASSOCIATE PROFESSORS

Kathryn Alexander, David Clampitt, Robert Fink (*Visiting*), Michael Friedmann
 (*Adjunct*), Richard Lalli (*Adjunct*), Toshiyuki Shimada (*Adjunct*), Michael Veal

ASSISTANT PROFESSORS

Seth Brodsky, Gundula Kreuzer, Ian Quinn, Sarah Weiss

LECTURERS

Joel Fram, Craig Harwood, Michael Klingbeil, Sarah Kohane, Joshua Rosenblum,
 Wendy Sharp, Joseph Thalken

The Department of Music offers introductory and advanced instruction in the history of music, the theory of music, composition, music technology, and performance. Level I courses, which are introductory courses numbered below 200, are open to all undergraduates and require no previous experience in music. Level II courses, numbered in the 200s, require at least a minimal proficiency in reading music notation. Intermediate courses, Level III, are numbered in the 300s; they have as prerequisite MUSI 211a or b or the equivalent. Advanced courses, Level IV, are numbered in the 400s and are for seniors and qualified juniors. Level III and IV courses are intended primarily for students majoring in Music, but they may be elected by others with permission of the instructor.

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 (MUSI 360a or b, 361a or b, and 460a or b, 461a or b). Of these four credits, only two may be applied to the major in Music. See "Individual Instruction in Performance" below for course descriptions.

The major. The Music major provides a general music program in the humanities, as well as preparation for graduate studies or for careers in music. For the Class of 2009 and subsequent classes, the standard major consists of twelve term courses, eleven of which must be numbered 300 or above, excluding the prerequisites, MUSI 210a or b, 211a or b, 218a or b, and 219a or b. To gain a comprehensive familiarity with the history and theory of music, a student majoring in Music completes a survey covering music history from the medieval period to the present as well as a two-term music theory sequence. Students may choose two courses from MUSI 310a, 311b, or 410a to satisfy the music theory requirement. The three survey courses in music history are MUSI 350a, 351a, and 352b. A fourth survey course in world music is required, MUSI 353a. Also required is one course designated "Major Sem" during the junior year and one course designated "Senior Sem" during the senior year. Prospective majors are advised to begin the required courses by their sophomore year. Four additional term courses in music chosen from Levels II, III, and IV (only one of which is from Level II) complete the major.

For the Classes of 2007 and 2008, the major consists of eleven term courses. The requirements are the same as those listed above, except for MUSI 353a, which is not required.

Students intending to go on to graduate work are advised to study German and French to achieve at least a reading knowledge of those languages. All Music majors are urged to undertake regular studies in musical performance.

The intensive major. The intensive major is for students of high standing who are qualified to do independent and original work in the history or theory of music or in composition. Those admitted to this major elect MUSI 490 as one of their courses for the senior year.

Senior requirement. Each student majoring in Music must satisfy a senior departmental requirement by electing a senior seminar (designated “Senior Sem” in the course listing) during one of the final two terms. The final essay, composition, or other project completed for the senior seminar should provide an appropriate culmination to the student’s work in the major and in Yale College. In exceptional circumstances, a graduate seminar in the Music department may substitute for the senior seminar; this requires written permission both from the director of graduate studies and from the director of undergraduate studies. Senior seminars are also open to interested juniors with the permission of the instructor and the director of undergraduate studies, but one seminar must be taken in the senior year to fulfill the senior requirement.

B.A./M.M. PROGRAM

Students in Yale College possessing outstanding ability in performance or composition may anticipate, through their undergraduate programs, one year of the Master of Music program in the School of Music, provided they have completed four terms of performance (MUSI 360a or b, 361a or b, 460a or b, and 461a or b) and MUSI 210a or b and 211a or b by the end of the junior year.

The program is open to majors both in Music and in other subjects. Majors in subjects other than Music may present four courses toward the M.M. degree in addition to four terms of performance. These courses normally include two from MUSI 310a, 311b, and 410a, and two from MUSI 350a, 351a, 352b, and 353a, taken by the end of the junior year.

Candidates admitted to the B.A./M.M. program are expected to sit for placement examinations and juries in the School of Music at the beginning of their senior year. They must take lessons and MUS 544, the School of Music Seminar in the Major, in that year and they are advised to take two terms of a performance ensemble if their schedules permit. Students seeking the B.A./M.M. degree in an orchestral instrument are required to participate in the Yale Symphony or the School of Music Philharmonia during their senior year. Composers, singers, and keyboard players should consult their principal teacher about requirements in the senior year beyond the lessons and seminar.

Interested students should consult their principal teacher at the beginning of the first term of their junior year and file an application in the Office of Student Affairs at the School of Music.

Students who have accelerated the undergraduate program are ineligible to apply for the B.A./M.M. program.

REQUIREMENTS OF THE MAJOR

Prerequisites: MUSI 210a or b, 211a or b, 218a or b, and 219a or b, or equivalents

Number of courses: *Class of 2008 and previous classes*—eleven term courses beyond prerequisites, ten numbered 300 or above; *Class of 2009 and subsequent classes*—twelve term courses beyond prerequisites, eleven numbered 300 or above

Specific courses required: *Class of 2008 and previous classes*—MUSI 350a, 351a, 352b, and two from 310a, 311b, or 410a; *Class of 2009 and subsequent classes*—the same, plus MUSI 353a

Distribution of courses: One major sem; four addtl courses from Levels II, III, IV, of which only one is from Level II

Senior requirement: One senior sem

Intensive major: Senior sem and senior essay or project (MUSI 490)

★MUSI 001a, EXPLORING THE NATURE OF GENIUS. Craig Wright.

MW 11.30-12.45 Hu (34) Fr sem

Manifestations of genius explored in the works of selected creators: Hildegard (of Bingen), Brunelleschi, Leonardo da Vinci, Shakespeare, Mozart, Picasso, and Stravinsky. A rudimentary introduction to medieval chant; Renaissance art, architecture, and drama; music of the classical period; and avant-garde painting and dance of the twentieth century. Introductory studies in cognitive psychology, focusing on the phenomenon of the prodigy and the nature of exceptional artistic creativity. Historical readings reveal the “what” of genius, while psychological studies may shed light on the “why” and the “how.” *Recommended preparation: ability to read musical notation. Enrollment limited to freshmen.*

★MUSI 022b/★HUMS 078b, MUSIC, LOVE, AND SEXUAL DESIRE IN MEDIEVAL EUROPE. Margot Fassler.

TTh 9-10.15 Hu (22) Fr sem

Exploration of the ways that music and young musicians in the Middle Ages reflected cultural issues such as friendship, courtship, gender, relationships to authority figures, sexuality and homoerotic love, spirituality, the “sickness” of love, and models of chastity. *Enrollment limited to freshmen.*

LEVEL I

MUSI 110a or b, INTRODUCTION TO THE ELEMENTS OF MUSIC. Staff.

3 HTBA For sections see www.yale.edu/courseinfo II Hu (50)

A survey of 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.*

MUSI 112a, LISTENING TO MUSIC. Craig Wright.

TTh 10.30-11.20, 1 HTBA II Hu (23)

Development of aural skills that lead to an understanding of Western music. The musical novice is introduced to the ways in which music is put together and is taught how to listen to a wide variety of musical styles, from Bach and Mozart, to Gregorian chant, to the blues.

MUSI 130a, INTRODUCTION TO THE HISTORY OF WESTERN MUSIC: 900 TO 1800. Seth Brodsky.

MW 11.30-12.45 II Hu (34)

An introduction to the principal styles of Western art music through an examination of works by outstanding composers, beginning with Gregorian chant and ending with the music of Haydn and Mozart. *No prerequisites.*

MUSI 131b, INTRODUCTION TO THE HISTORY OF WESTERN MUSIC: 1800 TO THE PRESENT. Gundula Kreuzer.

MW 2.30-3.45 II Hu (37)

A survey of nineteenth- and twentieth-century composers, genres, and styles of music in Europe and America, with an emphasis on ways of listening. *No prerequisites.*

MUSI 150a, MUSIC CULTURES OF THE WORLD. Sarah Weiss.

MW 11.30-12.45 II Hu (0)

An introductory survey of selected musical traditions from around the world. Structure, content, materials, and performance contexts of local musics, as well as the broader role music plays in society.

LEVEL II

★MUSI 209a or b, ELEMENTARY STUDIES IN ANALYSIS AND COMPOSITION I. Staff.

3 HTBA For sections see www.yale.edu/courseinfo II; Not CR/D/F Hu Meets RP (50)

Investigation of the basic principles of harmony and composition through exercises in ear training, composition, and analysis. Study of two- and three-voice counterpoint; examination of basic tonal harmony. *The first course for students who have proficiency in reading music. Students who have not taken MUSI 110a or b must take the Music Theory Placement test at 3 P.M. on Monday, September 4, or 6 P.M. on Tuesday, September 5, 2006, in 119 WLH, or 6.30 P.M. on Tuesday, January 16, 2007, in 119 WLH. To be followed by MUSI 210a or b.*

★MUSI 210a or b, ELEMENTARY STUDIES IN ANALYSIS AND COMPOSITION II. Ian Quinn and staff.

3 HTBA For sections see www.yale.edu/courseinfo II; Not CR/D/F Hu Meets RP (0)

Investigation of further applications in tonal harmony, with emphasis on the style of the Viennese classical composers. Exercises in analysis, harmony, motive, phrase rhythm, and form. Essays in idiomatic and stylistically accurate writing for piano. *Recommended to be taken concurrently with MUSI 218a or b or 219a or b. Admission after MUSI 209a or b or by the Music Theory Placement test, given at 3 P.M. on Monday, September 4, or 6 P.M. on Tuesday, September 5, 2006, in 119 WLH, or 6.30 P.M. on Tuesday, January 16, 2007, in 119 WLH. To be followed by MUSI 211a or b.*

★MUSI 211a or b, ELEMENTARY STUDIES IN ANALYSIS AND COMPOSITION III. Ian Quinn and staff.

3 HTBA For sections see www.yale.edu/courseinfo II; Not CR/D/F Hu Meets RP (0)

Continuation of MUSI 210a or b. Investigation of further applications in tonal harmony, with an emphasis on nineteenth-century practices. Exercises in analysis, harmony, motive, phrase rhythm, and form. Essays in idiomatic and stylistically accurate writing in the string quartet and *lied* (song) formats. *Prerequisite:* MUSI 210a or b. *Recommended to be taken concurrently with MUSI 218a or b or 219a or b.*

★MUSI 213a, THE COMPOSITION OF MUSICAL THEATER I. Joseph Thalken.

F 1.30-3.20 II; Not CR/D/F Hu Meets RP (0)

Introduction to elements of music- and lyric-writing for theater songs. Focus on the development of compositional proficiency in the musical theater idiom and on the refinement of each student's compositional voice. *Prerequisite:* MUSI 209a or b or equivalent. *Admission by audition only. Enrollment limited to 12. To audition, students should submit one or two scores and recordings to Elaine Lincoln at the Department of Music, 143 Elm Street, by September 7, 2006.*

★MUSI 218a or b, ELEMENTARY MUSICIANSHIP I. Ian Quinn and staff.

3 HTBA For sections see www.yale.edu/courseinfo II; Not CR/D/F $\frac{1}{2}$ C Credit Meets RP (50)

Exercises in melodic and harmonic dictation, sight-singing, keyboard harmony, and aural analysis. *Recommended to be taken concurrently with MUSI 210a or b or 211a or b.*

***MUSI 219a or b, ELEMENTARY MUSICIANSHIP II.** Ian Quinn and staff.

3 HTBA II; Not CR/D/F $\frac{1}{2}$ C Credit Meets RP (50)

Continuation of MUSI 218a or b. Exercises in melodic and harmonic dictation, sight-singing, keyboard harmony, and aural analysis. *Prerequisite:* MUSI 218a or b. *Recommended to be taken concurrently with* MUSI 210a or b or 211a or b.

***MUSI 221, THE PERFORMANCE OF CHAMBER MUSIC.** Wendy Sharp.

3 HTBA II 1 C Credit Meets RP (0) *Cr/Year only*

Coached chamber music emphasizing the development of ensemble skills, familiarization with the repertory, and musical analysis through performance. *Admission by audition only. May be repeated for credit. Students should sign up for an audition at the Department of Music, 143 Elm Street, by Wednesday, September 6. Preference is given to already formed chamber music groups.*

***MUSI 222a or b, THE PERFORMANCE OF VOCAL MUSIC.** Richard Lalli.

T 7-8.50 P.M. II; Not CR/D/F Hu Meets RP (0)

A course for singers and pianists that emphasizes the analysis and musical preparation of classical solo song and operatic repertoire. Examination of structure (poetic, harmonic, motivic), discussion of style, exploration of vocal techniques and performance practice, introduction to the International Phonetic Alphabet, and exercises in sight-singing. In the fall term the focus is on English and German repertoire; the spring term concentrates on Italian and French music. Students are strongly encouraged to supplement the course with individual voice instruction. *Admission by audition only. May be repeated for course credit, but not for distributional credit. Students should sign up for an audition at the Department of Music, 143 Elm Street, by Friday, September 8, 2006. Auditions for the fall term will take place on Saturday, September 9, 2006, from 2 to 5 P.M. in WLH 201. Auditions for the spring term will take place on Tuesday, January 16, 2007, from 6 to 9 P.M.*

***MUSI 223a or b, THE PERFORMANCE OF EARLY MUSIC.** Richard Lalli.

W 4-5.20 and 6-7.30 P.M. II; Not CR/D/F Hu (0)

A study of musical styles of the twelfth through early eighteenth centuries, including examination of manuscripts, musicological research, transcription and score preparation, and performance. Students in this class form the nucleus of the Yale Collegium Musicum. *For intermediate and advanced singers and instrumentalists with strong music reading skills. Admission by audition only. May be repeated for course credit, but not for distributional credit. Students should sign up for an audition at the Department of Music, 143 Elm Street, by Tuesday, September 5, 2006. Auditions will take place during the first class session on Wednesday, September 6, 2006, and Wednesday, January 17, 2007, in WLH 209.*

***MUSI 224a or b, THE PERFORMANCE OF MUSICAL THEATER.**

Joel Fram [F], Staff [Sp].

T 7-10 P.M. II; Not CR/D/F Hu Meets RP (0)

A course for singers and pianists that emphasizes both practical performance and structural analysis. Study of the structure and composition of traditional and contemporary musical theater material in order to improve the comprehension and performance of representative songs. *Admission by audition only. May be repeated for course credit, but not for distributional credit. Students should sign up for an audition at the Department of Music, 143 Elm Street, by Friday, September 8, 2006. Auditions will take place on Saturday, September 9, 2006, from 2 to 5 P.M. in WLH 201. Auditions for spring term will be held Tuesday, January 16, 2007, from 7 to 10 P.M. in WLH 201; students should sign up for an audition by 4:30 P.M. on that day at the Department of Music, 143 Elm Street.*

***MUSI 225b, JAVANESE GAMELAN PERFORMANCE.** Sarah Weiss.

M 2.30-4.20, 2 HTBA II Hu (0)

A study of Javanese musical genres from the eighteenth century to the twenty-first. Introduction to the playing techniques of multiple instruments. Survey of theoretical and aesthetic discourses on gamelan and other Indonesian performance. Members of the class form the nucleus of the Yale Javanese Gamelan Ensemble. *No previous experience in gamelan performance required. May be repeated for course credit, but not for distributional credit.*

★MUSI 254b, KLEZMER MUSIC. Craig Harwood.

F 1.30-3.20 II Hu (36)

An overview of klezmer music, history, and culture. Topics include the roots of klezmer, the lifestyle of klezmer musicians, early klezmer instrumentation, the first klezmer recordings, Russian klezmer ensembles during the Soviet period, Eastern European wedding rituals, klezmer in America, the klezmer revival, and current trends in research.

MUSI 265a/AFAM 253a, JAZZ IN TRANSITION, 1960-1980. Michael Veal.

TTh 2.30-3.45 II Hu (0)

An examination of the stylistic currents in jazz that evolved during the 1960s and 1970s, as jazz was influenced by various popular, experimental, and world musics. Focus on the work of Miles Davis, John Coltrane, Ornette Coleman, and Sun Ra.

MUSI 276a, AFRICAN AMERICAN POPULAR MUSIC OF THE 1960S:

MOTOWN AND SOUL. Robert Fink.

MW 11.30-12.45 II Hu (34)

A survey of developments in African American popular music after World War II. Special attention to the musical achievements of Motown Records, Stax, and other production centers of rhythm and blues, funk, and soul music.

MUSI 280a/GMST 380a, MUSIC IN NAZI GERMANY. Gundula Kreuzer.

TTh 1-2.15 II Hu (0)

An exploration of the interrelations between music and politics under the extreme conditions of a totalitarian regime. Examination of how the National Socialists sought to police all aspects of Germany's musical life between 1933 and 1945 and why they often failed. Topics include aesthetic, political, and administrative prerequisites for the Nazis' efforts; consequences of Nazism for musical culture during the Third Reich and beyond; and the vulnerability of music to ideological appropriation.

★MUSI 295a, PRACTICAL APPLICATIONS IN MUSIC, MULTIMEDIA ART, VIDEO, AND TECHNOLOGY I. Staff.

T 1.30-3.20, I HTBA II; Not CR/D/F (0)

A study of practical software and hardware applications in music, multimedia art, and video. Topics include digitizing from and archiving to media; sample editing and digital signal processing; digital mixing; digital synthesis; digital sampling; MIDI and digital sequencing; programming; design; graphics; video; and the Internet.

LEVEL III

All courses numbered 300 and above have as a prerequisite MUSI 211a or b or equivalent.

★MUSI 310a, INTERMEDIATE STUDIES IN ANALYSIS AND COMPOSITION I. II; Not CR/D/F Hu (0)

310a-1: MW 11.30-12.45 Michael Klingbeil

310a-2: TTh 2.30-3.45 Daniel Harrison

Intermediate studies in the theory, analysis, and composition of the music of the early and mid-eighteenth century. *May be followed by MUSI 311b or 410a. Prerequisite: MUSI 211a or b. Preference given to Music majors according to class.*

***MUSI 311b, INTERMEDIATE STUDIES IN ANALYSIS AND COMPOSITION II.** David Clampitt.

MW 11.30-12.45 II; Not CR/D/F Hu (○)

Intermediate studies in the theory, analysis, and composition of the music of the late eighteenth and nineteenth centuries. *Prior completion of MUSI 310a not required. May be followed by MUSI 310a or 410a. Prerequisite: MUSI 211a or b. Preference given to Music majors according to class.*

***MUSI 312, COMPOSITION SEMINAR I.** Kathryn Alexander, Michael Klingbeil.

Th 1.30-3.20 II (○)

Intermediate project-oriented studies in music composition, either acoustic or technological. *Prerequisite: MUSI 211a or b or 295a. Admission by audition only. May be repeated for credit. Enrollment limited to 10. To audition, students should submit one or two scores and recordings to the Department of Music by September 13, 2006.*

***MUSI 313b, THE COMPOSITION OF MUSICAL THEATER II.**

Joshua Rosenblum.

F 1.30-3.20 II; Not CR/D/F Hu Meets RP (○)

Intermediate and advanced studies in composition of musical theater and opera. *After or concurrently with MUSI 310a or 311b. Admission by audition only. Enrollment limited to 12. To audition, students should submit one or two scores and recordings to Elaine Lincoln at the Department of Music, 143 Elm Street, by January 17, 2007.*

***MUSI 315a, INTRODUCTION TO SCHENKERIAN ANALYSIS.**

Patrick McCreless.

MW 1-2.15 II; Not CR/D/F Hu (○)

Schenkerian analysis of selected compositions from the repertory of tonal music: structure and form.

***MUSI 319b, ADVANCED MUSICIANSHIP II.** Michael Friedmann.

MWF 1.30-2.20 II; Not CR/D/F (○)

Development of students' ability to recognize and generate structures and processes particular to music of the twentieth century. Student composers and advanced performers of post-tonal music expand their perceptive skills. Course activities include singing (and playing), dictation, identification, improvisation, and recognition. Musical examples from the works of Schoenberg, Bartók, Debussy, and Stravinsky.

***MUSI 320b, INSTRUMENTATION AND ORCHESTRATION.**

Michael Klingbeil.

W 1.30-3.20 II; Not CR/D/F (36)

Thorough study of instruments; instrumental demonstrations and orchestrating for small instrumental combinations. Stylistic analysis with respect to the integration of structure and orchestration. *After or concurrently with MUSI 310a, 311b, or 410a.*

***MUSI 323a or b, INTRODUCTION TO CONDUCTING.**

Toshiyuki Shimada.

MW 11.30-12.45 II; Not CR/D/F (34)

An introduction to conducting through a detailed study of the problems of baton technique. These skills applied to selected excerpts from the standard literature, including concertos, recitatives, and contemporary music.

★MUSI 324a or b, INTERMEDIATE CONDUCTING. Staff.

HTBA II; Not CR/D/F (50)

Intermediate studies in baton technique and score preparation. *After* MUSI 323a or b.

★MUSI 340b, LISTENING IN NINETEENTH-CENTURY PARIS.

Gundula Kreuzer.

T 2.30-4.20 II Hu (o)

A journey through the musical capital of nineteenth-century Europe. Various facets of Parisian musical life examined in order to trace changes in the public experience of music under the influence of wider political, sociocultural, and technical revolutions. Focus on the rise of grand opera and on legacies for twentieth-century “serious” music and popular mass culture.

★MUSI 347b, THE CHAMBER MUSIC OF SCHUBERT: PERFORMANCE AND ANALYSIS. David Clampitt.

Th 3.30-5.20 II; Not CR/D/F Hu (o)

An intensive exploration of the instrumental chamber music of Schubert through analysis and performance. The aims of the course include acquiring a familiarity with the repertoire and with some of the musicological literature concerned with it, and achieving insight into a chosen major work, leading to an analytical paper and a public performance.

[MUSI 350a, HISTORY OF WESTERN MUSIC: MIDDLE AGES AND RENAISSANCE]

★MUSI 351a, HISTORY OF WESTERN MUSIC: BAROQUE AND CLASSICAL.

James Hepokoski.

TTh 11.30-12.45, 1 HTBA II; Not CR/D/F Hu (24)

A detailed investigation of the history of musical style from 1600 to 1800.

★MUSI 352b, HISTORY OF WESTERN MUSIC: THE NINETEENTH AND TWENTIETH CENTURIES. James Hepokoski.

TTh 11.30-12.45 II; Not CR/D/F Hu (24)

A detailed investigation of the history of musical style from 1800 to the present.

★MUSI 353a, TOPICS IN WORLD MUSIC. Michael Veal.

MW 2.30-3.45 II; Not CR/D/F Hu (o)

A critical introduction to selected cultures of world music. Specific cultures vary from year to year but generally include those of Native America, South Asia, Southeast Asia, sub-Saharan Africa, the Middle East, and the Caribbean.

★MUSI 364a, BAROQUE OPERA. Ellen Rosand.

W 1.30-3.20 II; Not CR/D/F Hu (o) Major sem

A chronological investigation of baroque opera in the main centers of Europe, moving from Italy through France, Germany, Spain, and England. Consideration of such issues as literary sources, genre, text-music relationships, the role of singers, operatic patronage, and changes in the reception of the genre from the period of its origins to today. Study of six operas, ranging from Cavalli’s *Giasone* (1650) to Handel’s *Giulio Cesare* (1724).

★MUSI 376a, WORLD MUSIC THEORIES: PRACTICE AND AESTHETICS.

Sarah Weiss.

T 1.30-3.20 II Hu (o) Major sem

Survey of the musical processes of various mode-based musical systems, selected from the Indian raga, Arabic *maqam*, Irish tune-family, Javanese *pathet*, Persian *dastgah*, and Vietnamese *Dieu*. Readings about the musical cultures are combined

with notation and analysis of the music as well as discussion about the related aesthetics systems.

***MUSI 390b, PRACTICAL APPLICATIONS IN MUSIC, MULTIMEDIA ART, VIDEO, AND TECHNOLOGY II.** Michael Klingbeil.

T 1.30-3.20 II; Not CR/D/F (o)

Continuation of MUSI 295a. Additional topics include real-time, interactive audio and video performance programming environments. *Prerequisite:* MUSI 295a or equivalent. *May be repeated for credit.*

LEVEL IV

***MUSI 410a, ADVANCED STUDIES IN ANALYSIS AND COMPOSITION.**

David Clampitt.

MW 11.30-12.45 II; Not CR/D/F Hu (o)

Advanced studies in the theory, analysis, and composition of the music of the early and mid-twentieth century. *Prerequisite:* MUSI 310a or 311b.

***MUSI 412, COMPOSITION SEMINAR II.** Kathryn Alexander,

Michael Klingbeil.

Th 1.30-3.20 II (o)

Advanced project-oriented studies in music composition, either acoustic or technological. *Prerequisite:* MUSI 312 or 390b. *Admission by audition only. May be repeated for credit. Enrollment limited to 8. To audition, students should submit one or two scores and recordings of work completed in MUSI 312 or 390b to the Department of Music by September 13, 2006.*

***MUSI 420b/*WGSS 420b, GENDERING MUSICAL PERFORMANCE.**

Sarah Weiss.

T 9.30-11.20 II Hu (o) Major sem

A critical examination of discourses on gender, sexuality, and music, grounded in the cross-cultural details of specific musical genres and performers. An exploration of ways in which issues of race, class, ethnicity, spirituality, and embodiment intersect with gender in shaping musical cultures and aesthetics.

***MUSI 422b, SYMPHONIC NATIONALISM.** James Hepokoski.

M 1.30-3.20 II; Not CR/D/F Hu (o) Senior sem

Case studies of selected symphonic works from c. 1875 to 1925 that are associated with issues of nationalism and the construction of personal and cultural memory. Composers include Tchaikovsky (Russia), Dvořák (Bohemia and Czech regions), and Sibelius (Finland). Analysis of selected movements; interpretation of program and structure; background and contextual reading. *Prerequisites:* MUSI 350a, 351a, 352b, and 353a.

***MUSI 435b/*HUMS 435b, MUSIC IN EUROPEAN THOUGHT: THREE MOMENTS IN THE MODERN ERA.** Leon Plantinga.

For description see under Humanities. Major sem

***MUSI 437a, BEETHOVEN STRING QUARTETS: ANALYTICAL AND HISTORICAL PERSPECTIVES.** David Clampitt.

T 9.30-11.20 II; Not CR/D/F Hu (o) Senior sem

Examination of Beethoven's artistic development through a focus on his music for string quartet; the reception history of these works.

***MUSI 445b, THE ORATORIOS OF HANDEL.** Ellen Rosand.

W 1.30-3.20 II; Not CR/D/F Hu (o) Senior sem

A close study of six oratorios by Handel that illustrate the full range of his contribution to the genre. Analysis of the textual and musical sources of the works

and consideration of issues of compositional process, borrowing, and text setting. Additional topics include the ways in which the works appealed to their audience, their intellectual context, and their changing reception from the eighteenth century to the present.

★MUSI 463b, ARRANGEMENT AND TRANSCRIPTION. Daniel Harrison.

T 1.30-3.20 II; Not CR/D/F Hu Meets RP (o) Major sem
Techniques of arrangement, transcription, and recomposition from the sixteenth century to the present, studied from analytical, historical, and compositional perspectives.

INDIVIDUAL STUDY COURSES

★MUSI 471a and 472b, INDIVIDUAL STUDY. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

Original essay in ethnomusicology, music history, or music theory under the direction of a faculty adviser. Admission to the course upon submission to the department of the proposal for the essay by the registration deadline and approval of the director of undergraduate studies.

★MUSI 490, SENIOR ESSAY FOR INTENSIVE MAJORS IN THE HISTORY, THEORY, OR COMPOSITION OF MUSIC. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

Preparation of an original composition or essay under the direction of a faculty adviser. Admission to the course upon submission to the department of the proposal for the senior essay by the fall registration deadline of the senior year, and approval of the director of undergraduate studies. Students intending to fulfill the requirements of the intensive major are urged to consult the director of undergraduate studies toward the end of the junior year.

Students in Yale College are eligible to take certain courses in the School of Music and are advised to consult its bulletin.

INDIVIDUAL INSTRUCTION IN PERFORMANCE

★MUSI 360a or b, PERFORMANCE: FIRST TERM. Staff.

I HTBA II; Not CR/D/F (o)

Individual instruction in the study and interpretation of musical literature. Academic credit is granted to students who demonstrate an appropriate level of proficiency in audition. *Enrollment requires previous completion of or concurrent registration in a required theory course.* Students must take the Music department's Music Theory Placement test to determine their placement in the 200-level music theory sequence. A score of 4 or 5 on the Advanced Placement test in Music Theory does not satisfy the music theory prerequisites for performance instruction. *After or concurrently with MUSI 209a or b or MUSI 210a or b, as determined by the Music Theory Placement test.*

Students register for the section specific to their instrument: Bass (01), Bassoon (02), Cello (03), Clarinet (05), Flute (07), Guitar (09), Harp (10), Harpsichord (11), Horn (08), Oboe (12), Organ (51), Percussion (15), Piano (60), Trombone (17), Trumpet (18), Tuba (19), Viola (20), Violin (70), Voice (80).

Although the faculty of the School of Music attempts to accommodate those who qualify for credit instruction, it cannot guarantee they will be enrolled with the teacher of their choice.

Students who do not qualify for academic credit may also receive lessons. Students accepted for noncredit instruction are charged \$400 for twelve hour

lessons per term; \$200 is charged for twelve half-hour lessons per term. The fees are added to the Student Financial Services bill and are not refundable after the first two weeks of lessons in each term. The half-hour fee is waived for juniors and seniors who are majors in Music.

Auditions (both for credit and not for credit) for assignment to instructors for freshmen and returning students will be held at the beginning of the fall term. To arrange for an audition, students must sign up at Leigh Hall on Tuesday, September 5, or Wednesday, September 6, 2006, from 9 A.M. to 1 P.M. or from 2 to 4:30 P.M.

★MUSI 361a or b, PERFORMANCE: SECOND TERM. Staff.

I HTBA II; Not CR/D/F (○)

Continuation of MUSI 360a or b. *Enrollment requires previous completion of or concurrent registration in a required theory course as described under MUSI 360a or b. Prerequisite: MUSI 360a or b; after or concurrently with MUSI 210a or b or MUSI 211a or b, as determined by the Music Theory Placement test.*

★MUSI 460a or b, PERFORMANCE: THIRD TERM. Staff.

I HTBA II; Not CR/D/F (○)

Continuation of MUSI 361a or b. *Prerequisite: MUSI 361a or b.*

★MUSI 461a or b, PERFORMANCE: FOURTH TERM. Staff.

I HTBA II; Not CR/D/F (○)

Continuation of MUSI 460a or b. *Prerequisite: MUSI 460a or b.*

Students beyond their fourth term of performance instruction register first in MUS 540 in the School of Music, and then in MUS 640. *No Yale College degree credit is offered for these courses.*

NEAR EASTERN LANGUAGES AND CIVILIZATIONS

Director of undergraduate studies: Hala Khamis Nassar, 318 HGS, 432-9447,
hala.nassar@yale.edu

FACULTY OF THE DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

PROFESSORS

John Darnell, Benjamin Foster, Beatrice Gruendler, Dimitri Gutas, Bentley Layton,
Harvey Weiss

ASSISTANT PROFESSORS

Eckart Frahm, Hala Khamis Nassar

LECTURERS

Adel Allouche, Elitzur Bar-Asher (*Visiting*), Karen Foster, Elizabeth Kassab (*Visiting*),
Kathryn Slanski

SENIOR LECTORS

Fereshteh Amanat-Kowssar, Ayala Dvoretzky, Bassam Frangieh

LECTORS

Muhammad Aziz, Shiri Goren, Robert Hawley, Ghassan Husseinali, Boutheina
Khaldi, Fatma-Nihan Ketzrez, Yechiel Schur

The major in Near Eastern Languages and Civilizations is a liberal arts major that gives students a sound competence in a Near Eastern language and a broad knowledge of the literatures, civilizations, history, and archaeology of the Near East. The major also provides essential preparation for graduate or

professional work in which a knowledge of Near Eastern languages, history, and archaeology is required.

Depending on the student's interests, the major is built around study of one or more Near Eastern languages leading to a concentration in the ancient Near East (Mesopotamia, Egypt, or Syria-Palestine), in Hebrew language and literature, in the languages and literatures of the Christian Near East, or in Arabic and Islamic studies.

Requirements of the major. Twelve term courses in the department, or their equivalent, are required for the major. No more than six term course credits from other institutions will be accepted toward this requirement. The course work includes at least two years of study of a Near Eastern language and no fewer than three term courses in the history and civilizations of the Near East, at least one term of which must be in the ancient and one in the Islamic Near East. Students should develop coherent programs of study in one of four areas of concentration:

1. Ancient Near Eastern languages and civilizations, with emphasis on Mesopotamia, Egypt, or Syria-Palestine. Students interested in Mesopotamia take at least two years of Akkadian, as well as courses in the history and civilizations of the ancient Near East. Students interested in Egypt take at least two years of Egyptian, as well as courses in the history and civilizations of ancient Egypt and, in some cases, Coptic. Students interested in Syria-Palestine take at least two years of biblical Hebrew, as well as courses in the history and civilizations of the ancient Near East.

2. Hebrew language and literature. Students take two years or more of Hebrew (ancient or modern, but in any case at least two years of one period of the language), and courses in Hebrew literature, in the history and civilizations of the ancient Near East, and in Near Eastern Judaism.

3. Languages and literatures of the Christian Near East. Students take two years of either Coptic or Syriac and two years of Greek or Arabic (including one term of Christian texts), and courses in ancient Christianity and the history of the Near East. Students in this area of concentration are strongly advised to begin their language training not later than the sophomore year.

4. Arabic and Islamic studies. Students take at least two years of Arabic, and courses in Arabic literature, Arab civilization, Islamic religion, Near Eastern history, and/or Persian language. ARBC 101 is a prerequisite for this area and counts as one term course toward the twelve required. If taken, ARBC 102 may not be counted toward the major. In their senior year, students take one of the two seminars for the major in Arabic and Islamic studies: either NELC 490a, Introduction to Classical Arabic and Islamic Studies, or 491a, Introduction to Modern Middle Eastern Studies. In exceptional cases, students may take both seminars. Majors in this area of concentration are strongly advised to begin their language training as early as possible, and certainly not later than the sophomore year. Students should consult Dimitri Gutas, 316 HGS, 432-2947.

Students whose native tongue is a Near Eastern language must take a second Near Eastern language to meet the language requirement of the major. Exceptions can be made by arrangement with the department.

Well-qualified students who have acquired the requisite background in undergraduate courses may, with the permission of the instructor, the director of undergraduate studies, and the director of graduate studies, be admitted to graduate courses where no suitable undergraduate courses exist. In addition, courses from such other departments and programs as

Archaeological Studies, History, History of Art, Judaic Studies, Political Science, and Religious Studies, as well as college seminars, are routinely accepted for credit toward the major if they deal with Near Eastern topics.

Senior essay. To derive full benefit from the major, the student should acquire practical experience in using Near Eastern languages for research purposes. Therefore all students in the major undertake a senior essay that involves substantial use of materials in one or more Near Eastern languages. The topic and a prospectus signed by an adviser are to be submitted to the director of undergraduate studies by the end of the fourth week of classes in either term of the senior year. The senior essay may be written under the rubric of NELC 492a and/or 493b, or as an extended seminar paper in a departmental seminar course, in which case the instructor serves as the essay adviser.

All course schedules must be approved by the director of undergraduate studies.

• *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in any of the languages offered by the Department of Near Eastern Languages and Civilizations to the intermediate level, such as Arabic or Hebrew, by successful completion of an intermediate course. In Arabic, such a course is ARBC 103; in Hebrew, HEBR 102. Students may also satisfy the requirement by passing a departmental examination, given at the beginning of the fall term, equivalent to successful completion of an intermediate course, though no term credit is earned by passing such an examination. Students wishing to take a departmental examination should contact the director of undergraduate studies.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in Chapter III, section A.

Languages currently offered by the Department of Near Eastern Languages and Civilizations include Akkadian, Arabic, Coptic, Egyptian, Hebrew, Persian, Syriac, and Turkish. Students who take a foreign language during a term, year, or summer abroad must complete a departmental placement examination after they return to Yale; there are no exceptions to this requirement.

REQUIREMENTS OF THE MAJOR

Prerequisites: *Arabic and Islamic studies*—ARBC 101; *All other areas*—none

Number of courses: Twelve term courses (including the senior essay)

Distribution of courses: Two years of a Near Eastern lang; three courses in Near Eastern history and civilizations, one in ancient and one in Islamic Near East; majors choose an area of concentration from ancient or Christian Near Eastern langs and lits, Hebrew lang and lit, or Arabic and Islamic studies

Specific course required: *Arabic and Islamic studies*—NELC 490a or 491a

Senior requirement: Senior essay using materials in one or more Near Eastern langs (in NELC 492a and/or 493b, or in a departmental sem)

NEAR EASTERN HISTORY AND CIVILIZATIONS

Introductory and Survey Courses

*NELC 001a/*ARCG 001a, EGYPT AND NORTHEAST AFRICA:

A MULTIDISCIPLINARY APPROACH. John Darnell.

TTh 11.30-12.45 WR, Hu (24) Fr sem

Examination of approximately 10,000 years of Nile Valley cultural history, with an introduction to the historical and archaeological study of Egypt and Nubia. Consideration of the Nile Valley as the meeting place of the cultures and societies of northeast Africa. A variety of written and visual sources are used, including the collections of the Yale Peabody Museum and the Yale Art Gallery. *Enrollment limited to freshmen.*

NELC 100a/ANTH 150a/ARCG 100a/HUMS 100a, THE GENESIS AND COLLAPSE OF OLD WORLD CIVILIZATIONS. Harvey Weiss.
For description see under Humanities.

NELC 101b/HUMS 101b, ORIGINS OF WESTERN CIVILIZATION: THE NEAR EAST FROM ALEXANDER TO MUHAMMAD. Benjamin Foster.
For description see under Humanities.

NELC 102a/HUMS 320a, INTRODUCTION TO THE MIDDLE EAST.
Benjamin Foster.

MW 9-10.15; *disc.* F 9.30-10.20 II Hu (32)

Introduction to the history and cultures of the Middle East, from the rise of Islam to the present, including the Arab world, Iran, Turkey, and Israel. Emphasis on factors important for understanding the Middle East today. Reading, in translation, of a variety of writings from and about the Middle East.

★NELC 123b/★HUMS 377b, EUROPE AND THE ANCIENT NEAR EAST.
John Darnell, Kathryn Slanski.
For description see under Humanities.

NELC 163b^G/ARCG 163b/CPSC 209b/HUMS 338b, FROM PICTOGRAPH TO PIXEL: CHANGING WAYS OF HUMAN COMMUNICATION.
John Darnell, Michael Fischer, Beatrice Gruendler.

TTh 11.30-12.45 II Hu (0)

An exploration of the five pivotal stages in the development of human communication: pictographic and syllabic ways of writing; the consonantal or phonetic alphabet; the invention of paper; movable type; and electronic/digital media and the Internet. These technologies are considered for their innovative features, new capabilities, social and ideological implications, and the instrumental parts they played in contemporary periods of change.

★NELC 188b^G/★ANTH 473b^G/★ARCG 473b^G, CIVILIZATIONS AND COLLAPSE.
Harvey Weiss.
For description see under Anthropology.

★NELC 189a^G/★ANTH 363a^G/★ARCG 363a^G, ARCHAEOLOGIES OF EMPIRE.
Harvey Weiss.

Th 2.30-4.20 II or III Hu, So (0)

Comparative study of origins, structures, efficiencies, and limitations of imperialism, ancient and modern, in the Old and New Worlds, from Akkad to “Indochina,” 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.

Ancient, Classical, and Medieval

NELC 104a/ARCG 239a/HSAR 239a^G/HUMS 104a, ART OF THE ANCIENT NEAR EAST AND AEGEAN. Karen Foster.
For description see under History of Art.

NELC 107b/ARCG 238b/HSAR 238b, BURIED CITIES: THERA, POMPEII, AND HERCULANEUM. Karen Foster.

For description see under History of Art.

NELC 109b^G/ARCG 244b^G, THE AGE OF AKHENATON. John Darnell, Karen Foster.

MW 11.30-12.45 II Hu (0)

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.

[NELC 112b^G/ARCG 222b, EGYPTIAN RELIGION THROUGH THE AGES]

NELC 115b^G, THE BIBLE IN ITS ANCIENT NEAR EASTERN SETTING.

Eckart Frahm.

MW 2.30-3.45 II Hu (0)

History of the Assyrian, Babylonian, and Persian empires of the first millennium B.C.E., and 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.

NELC 121a/HUMS 331a, THE HERO IN THE ANCIENT NEAR EAST.

Kathryn Slanski.

TTh 11.30-12.45 II Hu (0)

Exploration of the interaction of religion, history, and literature in the ancient Near East through study of its heroes, including comparison with heroes, heroic narratives, and hero cults in the Bible and from classical Greece. (Formerly NELC 107b)

NELC 155a/LITR 178a, CLASSICAL ARABIC LITERATURE IN TRANSLATION.

Beatrice Gruendler.

TTh 1-2.15 I Hu (26) Tr

Exploration of premodern Arabic literature from the sixth century C.E. to the fifteenth, including genres of poetry (ode, love lyric, lament, wine song, and mystical poem) and prose (Koran, oral account, exegetical tale, epic, epistle, mirror for princes, essay, biographical dictionary, and travelogue). Special attention to the agendas authors pursued and the characters they created, viewed from both fictional and historical perspectives.

*NELC 380a/*HIST 415a/*RLST 420a^G, THE MAKING OF MONASTICISM.

Bentley Layton.

For description see under Religious Studies.

NELC 402a/HIST 360a, THE ISLAMIC NEAR EAST FROM MUHAMMAD TO THE MONGOL INVASION. Adél Allouche.

TTh 11.30-12.45 II Hu (24)

An examination of 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.

★NELC 403b/★HIST 484b, THE MIDDLE EAST BETWEEN CRUSADERS AND MONGOLS. Adel Allouche.

For description see under History.

Modern

★NELC 154b/★JDST 295b, ISRAELI IDENTITY AND CULTURE: 1948 TO THE PRESENT. Shiri Goren.

Tth 1-2.15 I; Not CR/D/F Hu (o)

Introduction to contemporary culture and representations of Israeli society. Themes of national and personal identity formation, gender, Zionism and post-Zionism, the writings of women, Israeli-Palestinian relations, Russian immigrants, and Jews of North African origin.

★NELC 190b^G, IDENTITY IN MODERN TURKEY. Fatma-Nihan Ketrez.

W 3.30-5.20 II Hu (o)

A history of Turkey, with particular focus on Turkish identity and on the interaction of Turkish language, culture, and society. Topics include language reform, migration to cities, women in society, and the use of music and dress as modes of expressing social, political, and religious identity. Readings from contemporary Turkish literature in translation.

★NELC 193b^G, MODERN ARABIC POETRY IN TRANSLATION.

Bassam Frangich.

W 3.30-5.20 I; Not CR/D/F Hu (o) Tr

A window into the richness and sophistication of modern Arabic poetry, with insights into critical aspects of modern Arab culture. Overview of classical Arabic poetic traditions, including pre-Islamic poetry, as a background for understanding the modern era. Examination of the influence of Western literature on modern Arabic poetry.

★NELC 407b^G, MODERN ARAB THOUGHT. Elizabeth Kassab.

Th 3.30-5.20 II; Not CR/D/F Hu (o)

Major trends of twentieth-century Arab thought, critically examined through readings in translation from a wide range of thinkers. Issues are analyzed in the context of the historical-colonial, postcolonial, and neocolonial background from which they emerged.

[NELC 491a^G/WGSS 493a, INTRODUCTION TO MODERN MIDDLE EASTERN STUDIES]

★TKSH 105a^G/★LING 248a^G, STRUCTURE OF MODERN TURKISH.

Fatma-Nihan Ketrez.

For description see under Linguistics.

LANGUAGES AND LITERATURES OF THE ANCIENT NEAR EAST

Akkadian

AKKD 101^G, ELEMENTARY AKKADIAN. Elizabeth Payne.

MWF 11.30-12.20 I; Not CR/D/F L1-L2 Meets RP (34)

Cr/Year only

Elements of Akkadian grammar and cuneiform syllabary. Exercises in reading, translation, and composition.

★AKKD 102^G, INTERMEDIATE AKKADIAN. Benjamin Foster.

M 2.30-4.20 I; Not CR/D/F L3-L4 Meets RP (37) *Cr/Year only*

Close reading of selected Akkadian texts; introduction to Akkadian dialects, cuneiform epigraphy, and research techniques of Assyriology. *Prerequisite:* AKKD 101.

Egyptian

EGYP 101^G, INTRODUCTION TO CLASSICAL HIEROGLYPHIC EGYPTIAN.
David Klotz.

TTh 9-10.15 I; Not CR/D/F L1–L2 Meets RP (22) *Cr/Year only*
An 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.

*EGYP 102a^G, INTERMEDIATE EGYPTIAN I: LITERARY TEXTS. Staff.

Th 2.30-4.30 I; Not CR/D/F L3 Meets RP (27)
Close reading of Middle Egyptian literary texts, and an introduction to the hieratic (cursive) Egyptian script. Readings include the Middle Kingdom stories of Sinuhe and the Eloquent Peasant and excerpts from Wisdom Literature. *Prerequisite:* EGYP 101. *For the Class of 2009 and subsequent classes, counts as L4 if taken after EGYP 103b.*

*EGYP 103b^G, INTERMEDIATE EGYPTIAN II: HISTORICAL TEXTS. Staff.

Th 2.30-4.30 I; Not CR/D/F L3 Meets RP (27)
Close reading of Middle Egyptian historical texts in original hieroglyphic script. Initial survey of ancient Egyptian historiography and grammatical forms peculiar to this genre of text. *Prerequisite:* EGYP 101. *For the Class of 2009 and subsequent classes, counts as L4 if taken after EGYP 102a.*

HEBREW LANGUAGE AND LITERATURE

HEBR 101^G/JDST 211, ELEMENTARY MODERN HEBREW.

I; Not CR/D/F L1–L2 3 C Credits Meets RP (61) *Cr/Year only*
101-1: MTWThF 9.30-10.20 Ayala Dvoretzky
101-2: MTWThF 3.30-4.20 Shiri Goren

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. *Section 1 is for students with some knowledge of modern Hebrew; section 2 is for beginners.*

HEBR 102^G/JDST 212, INTERMEDIATE MODERN HEBREW.

I; Not CR/D/F L3–L4 Meets RP (61) *Cr/Year only*
102-1: MW 11.30-12.45; *drill* 1 HTBA Ayala Dvoretzky
102-2: TTh 2.30-3.45; *drill* 1 HTBA Yechiel Schur

Review and continuation of grammatical study, leading to a deeper comprehension of style and usage. Focus on selected readings, writing, comprehension, and speaking skills. *Prerequisite:* HEBR 101 or equivalent.

*HEBR 103a^G/*JDST 213a, ADVANCED MODERN HEBREW: IDEOLOGICAL AND SOCIAL DISCOURSE. Shiri Goren.

MW 1-2.15 I; Not CR/D/F L5 Meets RP (36)
An examination of major controversies in Israeli society. Readings include newspaper editorials and academic articles as well as documentary and history-related material. Advanced grammatical structures are introduced and practiced. *Conducted in Hebrew. Prerequisite:* HEBR 102 or equivalent.

*HEBR 104b^G/*JDST 301b, INTRODUCTION TO MODERN ISRAELI LITERATURE. Ayala Dvoretzky.

MW 1-2.15 I; Not CR/D/F L5 (0)

Reading, discussion, and analysis of fiction, poetry, films, drama, and magazine articles representative of contemporary cultural, social, and political issues in Israeli life. *Conducted in Hebrew. Prerequisite:* HEBR 102 or equivalent.

★HEBR 105a/★JDST 305a, CONTEMPORARY ISRAELI SOCIETY IN FILM.

Shiri Goren.

MW 1-2.15 I; Not CR/D/F L5, Hu Meets RP (0)

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. *Prerequisite:* HEBR 102 or permission of instructor.

★HEBR 107b/★JDST 261b, MEDIEVAL HEBREW COMMENTARIES ON THE PENTATEUCH. Yechiel Schur.

TTh 9-10.15 I; Not CR/D/F L5, Hu Meets RP (22)

Readings from commentaries on the Pentateuch by medieval Jewish writers, with attention to the methodological and metaphysical assumptions of commentators. Close study of word usage, grammatical concepts, and the development of the Hebrew language. *Prerequisite:* HEBR 103a or permission of instructor.

★HEBR 108a/★JDST 260a, READING MEDIEVAL HEBREW TEXTS.

Yechiel Schur.

TTh 9-10.15 I; Not CR/D/F L5, Hu Meets RP (22)

Readings from medieval Hebrew texts in a variety of genres such as prose, poetry, tomb inscriptions, legal texts, Hebrew translations, and philosophical treatises. *Prerequisite:* HEBR 103a or permission of instructor.

★HEBR 109b/★JDST 214b, READING ACADEMIC TEXTS IN MODERN HEBREW. Yechiel Schur.

TTh 1-2.15 I; Not CR/D/F L5 Meets RP (26)

Reading of academic texts in modern Hebrew, for students with a strong background in Hebrew. Discussion of grammar and stylistics, with special concentration on the development of accuracy and fluency. *Prerequisite:* HEBR 103a or permission of instructor. *Conducted in Hebrew.*

★HEBR 471a or b, DIRECTED READING AND RESEARCH. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (0)

For students who wish to pursue a topic or body of texts not available in the department's regular curriculum. Approval of the plan of study by both the director of undergraduate studies and a member of the department who agrees to serve as instructor is required. Student and instructor meet regularly throughout the term. The course culminates in either a piece of written work or a final examination.

Biblical Hebrew

HEBR 111/JDST 111, ELEMENTARY BIBLICAL HEBREW. Staff.

MW 9-10.15 I; Not CR/D/F Meets RP (32) Cr/Year only

An introduction to biblical Hebrew. Intensive instruction in grammar and vocabulary, supplemented by readings from the Bible. *No prior knowledge of Hebrew required.*

★HEBR 112/★JDST 112, INTERMEDIATE BIBLICAL HEBREW.

Elitzur Bar-Asher.

MW 9-10.15 I; Not CR/D/F L3-L4 Meets RP (32) Cr/Year only

Review and continuation of grammatical study leading to a deeper comprehension of biblical Hebrew style. Focus on extended reading of biblical narrative, poetry, prophecy, and Wisdom texts. *Prerequisite:* HEBR 111 or equivalent.

[HEBR 113a^G/JDST 410a^G, MISHNAIC HEBREW GRAMMAR]

LANGUAGES AND LITERATURES OF THE CHRISTIAN NEAR EAST

Coptic

[CPTC 101^G, BIBLICAL COPTIC: ELEMENTARY COURSE]

★CPTC 102b^G/★RLST 423b, INTRODUCTION TO Gnostic TEXTS IN COPTIC.
Bentley Layton.

MW 2.30-3.45 I or II; Not CR/D/F Hu (37)

Readings in Gnostic and Valentinian literature from Nag Hammadi, in several dialects of Coptic. *Prerequisite:* CPTC 101 or equivalent.

★CPTC 103a^G/★RLST 422a, EGYPTIAN MONASTIC LITERATURE IN COPTIC.
Bentley Layton.

MW 2.30-3.45 I or II; Not CR/D/F Hu (37)

Readings in the early Egyptian classics of Christian asceticism in Sahidic Coptic, including the desert Fathers and Shenute. *Prerequisite:* CPTC 101 or equivalent.

Syriac

Students wishing to study Syriac should consult the director of undergraduate studies.

ARABIC AND ISLAMIC STUDIES

Arabic

ARBC 101^G, ELEMENTARY MODERN STANDARD ARABIC.

I; Not CR/D/F L1–L2 3 C Credits Meets RP (○) *Cr/Year only*

101-1: MTWThF 12.30-1.20; *drill* I HTBA Muhammad Aziz

101-2: MTWThF 1.30-2.20; *drill* I HTBA Muhammad Aziz

101-3: MTWThF 3.30-4.20; *drill* I HTBA Ghassan Husseinali

Development of a basic knowledge of Modern Standard Arabic. Emphasis on grammatical analysis, vocabulary acquisition, and the growth of reading and writing skills.

ARBC 102^G, SPOKEN STANDARD ARABIC.

I; Not CR/D/F 1 C Credit Meets RP (○) *Cr/Year only*

102-1: WF 2.30-3.45 Muhammad Aziz

102-2: TTh 2.30-3.45 Muhammad Aziz

102-3: MW 4-5.15 Ghassan Husseinali

A supplement to the elementary course in Modern Standard Arabic, emphasizing oral skills. *After or concurrently with* ARBC 101, *or by permission of instructor.*

ARBC 103^G, INTERMEDIATE MODERN STANDARD ARABIC.

Boutheina Khaldi.

I; Not CR/D/F L3–L4 3 C Credits Meets RP (○) *Cr/Year only*

103-1: MTWThF 1.30-2.20; *drill* HTBA

103-2: MTWThF 12.30-1.20; *drill* HTBA

Intensive review of grammar; readings from contemporary and classical Arab authors with emphasis on serial reading of unvoiced Arabic texts, prose composition, and formal conversation. *Prerequisite:* ARBC 101 or permission of instructor.

★ARBC 104^G, ADVANCED MODERN STANDARD ARABIC.

Ghassan Husseinali.

TTh 1-2.15 I; Not CR/D/F L₅ Meets RP (26)

Focus on improving the listening, writing, and speaking skills of students who already have a substantial background in the study of Modern Standard Arabic.

Prerequisite: ARBC 103 or permission of instructor.★ARBC 105a^G or b^G, ARABIC SEMINAR. Dimitri Gutas [F],

Beatrice Gruendler [Sp].

T 3.30-5.20 I; Not CR/D/F L₅ Meets RP (0)Study and interpretation of classical Arabic texts for advanced students. *Prerequisite:* ARBC 103. *May be repeated for credit.*★ARBC 106b^G, MODERN ARABIC SEMINAR. Bassam Frangieh.I; Not CR/D/F L₅ Meets RP (0)

106b-1: TTh 1.30-3.20

106b-2: TTh 3.30-5.20

Study and interpretation of modern Arabic prose and poetry for advanced students.

Prerequisite: ARBC 104.[ARBC 114^G/JDST 420^G, INTRODUCTION TO JUDEO-ARABIC]

★ARBC 471a or b, DIRECTED READING AND RESEARCH. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (0)

For students who wish to pursue a topic or body of texts not available in the department's regular curriculum. Approval of the plan of study by both the director of undergraduate studies and a member of the department who agrees to serve as instructor is required. Student and instructor meet regularly throughout the term. The course culminates in either a piece of written work or a final examination.

*Persian*PERS 101^G, ELEMENTARY PERSIAN. Fereshteh Amanat-Kowssar.MTWThF 9.30-10.20 I; Not CR/D/F L₁-L₂ 3 C Credits Meets RP

(32) Cr/Year only

An introduction to modern Persian, with emphasis on grammar and syntax as well as writing and reading simple prose. Students are introduced to colloquial Persian and are encouraged to speak the language from the outset.

PERS 102^G, INTERMEDIATE PERSIAN. Fereshteh Amanat-Kowssar.MTWThF 10.30-11.20 I; Not CR/D/F L₃-L₄ 3 C Credits Meets RP

(0) Cr/Year only

Intermediate study of grammar and readings in Persian, emphasizing rules and usage of colloquial Persian. *Prerequisite:* PERS 101.

[PERS 103a^G, PERSIAN SEMINAR: IDENTITY AND CHANGE]★PERS 104a^G, THEMATIC SURVEY OF MODERN PERSIAN LITERATURE.

Fereshteh Amanat-Kowssar.

MW 11.30-12.45 I; Not CR/D/F L₅, Hu (0)

A thematic survey of modern Persian literature. Themes include the depiction of women, minorities, the West, and Westerners. Discussion of language and society in works by Jalal Al-Ahmad, Sadeq Chubak, Simin Daneshvar, Sadiq Hedayat, and others. *Prerequisite:* PERS 102 or equivalent.

Turkish

TKSH 101^G, ELEMENTARY MODERN TURKISH. Fatma-Nihan Ketrez.

MTWThF 10.30–11.20 I; Not CR/D/F L1–L2 3 C Credits Meets RP
(33) *Cr/Year only*

Development of a basic knowledge of modern Turkish, with emphasis on grammatical analysis, vocabulary acquisition, and the training of reading and writing skills.

TKSH 102^G, INTERMEDIATE TURKISH. Fatma-Nihan Ketrez.

TTh 11.30–12.45 I; Not CR/D/F L3–L4 Meets RP (24)
Cr/Year only

Continued study of modern Turkish, with emphasis on advanced syntax, vocabulary acquisition, and the beginnings of free oral and written expression.
Prerequisite: TKSH 101 or *permission of instructor.*

COURSES FOR MAJORS

*NELC 471a or b, DIRECTED READING AND RESEARCH. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (○)

For students who wish to pursue a topic or body of texts not available in the department's regular curriculum. Approval of the plan of study by both the director of undergraduate studies and a member of the department who agrees to serve as instructor is required. Student and instructor meet regularly throughout the term. The course culminates in either a piece of written work or a final examination.

*NELC 490a^G, INTRODUCTION TO CLASSICAL ARABIC AND ISLAMIC STUDIES. Dimitri Gutas, Beatrice Gruendler.

W 2.30–4.20 I or II; Not CR/D/F (○)

Comprehensive survey of the various subjects treated in Arabic and Islamic studies, with representative readings from each. Detailed investigation into the methods and techniques of scholarship in the field, with emphasis on acquiring familiarity with bibliographical and other research tools. *Enrollment limited to senior NELC majors except by permission of instructor.*

*NELC 492a and 493b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (○)

The senior essay, required of all majors, is a research paper of at least thirty pages prepared under the supervision of a departmental faculty member. It may be written in either the fall or the spring term as an extended paper in a departmental seminar, or, in cases in which students demonstrably need more time for an extensive essay, as a year course. Permission to write a two-term essay may be given after consultation with the adviser and the director of undergraduate studies. Only those students with advanced language skills and whose project is considered to be of exceptional promise are eligible. The requirements for the two-term essay are the same as for the one-term essay, except that the essay should be at least sixty pages. The main requirement for the senior essay is substantial use of source materials in one or more of the Near Eastern languages, the particular subject matter and theoretical approach being decided by the student after consultation with the faculty adviser.

The senior essay is prepared in accordance with the following schedule:

1. By the end of the second week of classes of the first term, students meet with advisers to discuss the topic, approach, sources, and bibliography of the essay.

Note: students planning to write the essay in the second term (NELC 493b) should also meet with their prospective advisers by this deadline.

2. By the end of the fourth week of classes a prospectus with outline, including an annotated bibliography of materials in one or more Near Eastern languages and of secondary sources, is signed by the adviser and submitted to the director of undergraduate studies. The prospectus should indicate the formal title, scope, and focus of the essay, as well as the proposed research method, including detailed indications of the nature and extent of materials in a Near Eastern language that will be used.

3. At the end of the tenth week of classes (end of February for yearlong essays), a rough draft of the complete essay is submitted to the adviser.

4. Two copies of the finished paper must be submitted to the director of undergraduate studies, 314 HGS, by 4 P.M. on the last day of reading period. Failure to comply with the deadline will be penalized by a lower grade. Senior essays will be graded by departmental faculty unless, for exceptional reasons, different arrangements for an outside reader are made in advance with the director of undergraduate studies and the departmental adviser.

GRADUATE AND PROFESSIONAL SCHOOL COURSES OF INTEREST TO UNDERGRADUATES

Some Graduate School courses are open to qualified undergraduates with permission of the instructor and of the director of graduate studies. For course descriptions see the Graduate School bulletin. (Also see "Courses in the Yale Graduate and Professional Schools" in chapter III, section K, of this bulletin.)

OPERATIONS RESEARCH

Coordinator: Eric Denardo, 502 DL, 432-7276, eric.denardo@yale.edu

PROFESSORS

Eric Denardo, Edward Kaplan, Herbert Scarf, Martin Shubik, Arthur Swersey

The discipline of operations research is concerned with the organization and management of productive activities. Operations research includes mathematical analysis of techniques of optimization, efficient organization of production, calculation of operating characteristics of complex systems, and application of these and other techniques to operating problems throughout business and government. The subject, also known as management sciences, is closely related to computer science, economics, statistics, engineering, and pure and applied mathematics.

Operations research developed out of an awareness that effective decision making in organizations requires more than intuition. To practice operations research, one must identify the objectives of the operation under study, describe alternative actions, define measures of effectiveness for them, create a model of the system under study, and select the action that best meets the stated objectives.

Operations research has four major subfields. Mathematical programming concerns the optimal operation of systems with many variables that are linked by simple relationships. Stochastic processes describes the evolution over time of systems whose "laws of motion" are affected by chance. Game theory describes models of cooperation and competition between members of an organization or participants in a market. Production and

inventory control is a family of models that applies to manufacturing and service systems. Operations research can prepare the mathematically inclined student for a career in the management of technology or in administration, for graduate study in the mathematical sciences, or for graduate study in management. Yale College offers no major in this subject.

Courses in Operations Research do not count toward the natural science requirement for the Class of 2008 and previous classes.

INTRODUCTORY COURSE

OPRS 125b/AMTH 125b/MATH 125b, INTRODUCTION TO MANAGEMENT SCIENCE: PROBABILISTIC MODELS. Eric Denardo.

TTh 1-2.15 III or IV; Not CR/D/F QR (26)

A problem-based introduction to models of decision making in an unpredictable environment. Real-world applications motivate the study of objective and subjective probability, decision analysis, utility theory, production and inventory control, queuing theory, and computer simulation. Spreadsheets are introduced. *Prerequisite: MATH 112a or b or equivalent.*

INTERMEDIATE COURSE

OPRS 235a/AMTH 235a, OPTIMIZATION I. Eric Denardo.

TTh 1-2.15 III or IV; Not CR/D/F QR (26)

Focus on linear programming, a resource-allocation method widely used by engineers, managers, economists, and social scientists. The theory of linear programming (the simplex method, sensitivity analysis, prices, duality, and geometry) is coupled with a survey of its principal uses. *Prerequisite: MATH 222a or b or 225b or equivalent.*

ADVANCED COURSE

*OPRS 350a and 351b, APPLIED PROJECT OR DIRECTED READING.

Consult the program coordinator.

HTBA III or IV; Not CR/D/F (O)

Individual study for students wishing to do a project or to explore topics in the management sciences not otherwise covered. *Permission of a faculty adviser required.*

PEKING UNIVERSITY–YALE UNIVERSITY JOINT UNDERGRADUATE PROGRAM

The Peking University–Yale University Joint Undergraduate Program in Beijing is open to Yale College sophomores, juniors, and, in some cases, first-term seniors, and to students in the Peking University Yuanpei Honors Program. Yale students from all majors who are in good academic standing may apply for a fall term, a spring term, or an academic year. The program carries full Yale course credit and counts as a term of enrollment. No prior Chinese language knowledge is required for Yale participants, although each student must take an appropriate level language course while enrolled in the program. All other courses are taught in English by Yale and Peking University faculty members. Further information about the program, the courses offered, and the application process is available on the

Web at www.yale.edu/iefp/pku-yale or in the Office of International Education and Fellowship Programs, 55 Whitney Avenue, third floor.

AMST 190a/HIST 112a, THE FORMATION OF MODERN AMERICAN CULTURE, 1876–1919. Jean-Christophe Agnew.
For description see under American Studies.

★AMST 307a, AMERICAN CONSUMER CULTURE IN THE TWENTIETH CENTURY. Jean-Christophe Agnew.

★CHNS 115, ELEMENTARY MODERN CHINESE. William Zhou, John Montanaro, Jianhua Shen.
For description see under East Asian Languages & Literatures.

CHNS 360a *or* b, CONTEMPORARY BEIJING CULTURE. Charles Laughlin.
For description see under East Asian Languages & Literatures.

★EENG 235a *and* 236b, SPECIAL PROJECTS. Consult the director of undergraduate studies.

HSAR 118b, MONUMENTS OF ART. Anne Dunlop.

★HSAR 438b/★HUMS 379b/★RNST 421b, SILK ROAD RENAISSANCE. Anne Dunlop.
For description see under History of Art.

★LITR 240a, TRANSNATIONAL CULTURE IN EUROPE OF THE 1920S AND 1930S. Katerina Clark.

★LITR 403a/★FILM 442a, THE CITY IN LITERATURE AND FILM. Katerina Clark.
For description see under Literature.

★MCDB 470a *or* b, TUTORIAL. Elke Stein.
For description see under Biology.

★MCDB 475a *or* b, RESEARCH. Elke Stein.
For description see under Biology.

SOCY 131b, SOCIOLOGY OF THE ARTS AND POPULAR CULTURE. Ron Eyerman.

SOCY 151b/HUMS 284b, FOUNDATIONS OF MODERN SOCIAL THEORY. Ron Eyerman.
For description see under Sociology.

PERSIAN

(See under Near Eastern Languages and Civilizations.)

PERSPECTIVES ON SCIENCE

(See under Science.)

PHILOSOPHY

Director of undergraduate studies: Michael Weber, 406A C, 432-1679,
michael.weber@yale.edu

FACULTY OF THE DEPARTMENT OF PHILOSOPHY

PROFESSORS

George Bealer, Seyla Benhabib, Susanne Bobzien, Jules Coleman, Michael Della Rocca (*Chair*), Keith DeRose, Tamar Gendler, John Hare, Karsten Harries, Verity Harte, Shelly Kagan, Sun-Joo Shin, Zoltán Szabó, Kenneth Winkler (*Visiting*)

ASSOCIATE PROFESSORS

Katalin Balog, Michael Weber

ASSISTANT PROFESSORS

Troy Cross, Jonathan Gilmore, James Kreines, Jill North, Matthew Smith

LECTURERS

Gregory Ganssle, Quang Phu Van

Courses numbered 100 through 199 are introductory. They are open to all students and have no prerequisites. Courses numbered 200 through 399 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 more general course in any area of philosophy before taking a more specialized course.

Courses numbered 400 through 479 are seminars. These advanced 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. Students with questions should consult the instructor.

THE PHILOSOPHY MAJOR

The Philosophy major requires twelve courses (including the prerequisites and the senior requirement) that collectively expose majors to a wide range of philosophy and philosophers. The Philosophy curriculum is divided into three large groups: history of philosophy, metaphysics and epistemology, and ethics and value theory. In history of philosophy, majors are required to take (1) either the introductory sequence in philosophy (PHIL 125a and 126b) or both terms of Directed Studies, and (2) an additional, third course in history of philosophy. Majors must take two courses in metaphysics and epistemology and two courses in ethics and value theory. Majors must also take two seminars and satisfy the senior requirement as described below. Prerequisite to the major are two introductory or intermediate philosophy courses.

All courses in Philosophy count toward the twelve-course requirement. With approval from the director of undergraduate studies, 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:

(a) Some introductory courses, including PHIL 115a, First-Order Logic, do not count toward a group requirement. Other courses count toward a group requirement unless they are otherwise designated.

(b) Courses automatically count toward the group under which they are listed in this bulletin. In rare cases, a course will be designated as counting toward a second group (though no single course can be counted by the same

student toward two group requirements). In addition, students may petition to have a course count toward a group other than the one it is listed under in this bulletin, though the presumption will be against such petitions.

(c) 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.

Although it is not required, majors are strongly encouraged to take a course in logic, for example, PHIL 115a, and to do so before the end of the sophomore year. Logic is one of the essential tools in philosophy, and competence is assumed in intermediate and advanced classes, some of which require a background in logic as a prerequisite.

The 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 that are delineated in the syllabus or during the first class session, and that 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. In special cases, students may meet the senior requirement through either a one-term or two-term independent project supervised by an instructor (PHIL 490). Students must petition to fulfill the senior requirement through an independent project, and approval is not guaranteed. Applicants must submit a proposal to the director of undergraduate studies, in consultation with an appropriate supervisor, by the end of the term prior to beginning the independent study.

Each major should, by October 1 of the junior year, secure the agreement of a member of the Philosophy department to serve as adviser for the year. The adviser aids the student in choosing courses and in planning for the senior year. All senior majors must have their schedules signed by the director of undergraduate studies.

PSYCHOLOGY TRACK IN PHILOSOPHY

The psychology track is designed for students interested in both philosophy and psychology. Prerequisite to the major in the psychology track are two courses in philosophy or psychology. Majors in the track 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 125a and 126b or DRST 002, (2) two seminars, only one of which may be in the Psychology department, and (3) 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 (3) must be approved by the director of undergraduate studies. The five psychology courses must include PSYC 110a or b or its equivalent. Each major must also satisfy the senior requirement as described above for the standard major.

Students interested in philosophy and psychology should also consider the philosophy track in the Psychology department and the major in Cognitive Science.

OTHER MAJORS INVOLVING PHILOSOPHY

Majors in Mathematics and Philosophy and in Physics and Philosophy are also available. For information, see under those headings.

REQUIREMENTS OF THE MAJOR

Prerequisites: *Standard track*—any two philosophy courses at the introductory or intermediate level; *Psychology track*—any two courses in philosophy or psychology

Number of courses: *Both tracks*—twelve term courses, including prerequisites and senior requirement

Distribution of courses: *Standard track*—three courses in the history of philosophy (including DRST 002, or PHIL 125a and 126b), two in metaphysics and epistemology, and two in ethics and value theory; two philosophy sems; *Psychology track*—seven courses in philosophy, as specified; five in psychology

Specific courses required: *Standard track*—PHIL 125a and 126b, or DRST 002; *Psychology track*—PSYC 110a or b or equivalent

Senior requirement: *Both tracks*—a third sem in philosophy, or substantial written work in a tutorial

★DRST 002, DIRECTED STUDIES: PHILOSOPHY. Jonathan Gilmore, Michael Della Rocca, Greg Ganssle, Tamar Gendler, John Hare, Verity Harte, James Kreines, Anthony Kronman, David Miller, Matthew Smith, Michael Weber.

★PHIL 080a, LIFE. Shelly Kagan.
TTh 11.30–12.45 Hu (○) Fr sem

Most of us stumble through life without asking what is really worth having. This course examines the various possible elements of a good life, and asks which truly have value and why. What should I look for in choosing a career? What is the significance of my decision whether to have children? Why is love so important? What is the value of education? How important is accomplishment? Socrates said the unexamined life is not worth living. Let's examine. *Enrollment limited to freshmen.*

INTRODUCTORY COURSES

PHIL 110a, INTRODUCTION TO PHILOSOPHY. Jill North.
MW 11.30–12.45 II Hu (○)

An introduction to the character of philosophical thought and reasoning. Focus on five issues in philosophy, using historical and contemporary readings: skepticism; free will and determinism; laws of nature; time; and material constitution.

PHIL 115a, FIRST-ORDER LOGIC. Sun-Joo Shin.
TTh 2.30–3.20, I HTBA II QR (27)

An introduction to formal logic. Study of the formal deductive systems and semantics for both propositional and predicate logic. Some discussion of metatheory. (Formerly PHIL 130a)

History of Philosophy

PHIL 125a, INTRODUCTION: ANCIENT PHILOSOPHY. Susanne Bobzien.
MW 1.30–2.20, I HTBA II Hu (○)

An introduction to the main developments in ancient Western philosophy from the earliest pre-Socratics to Plato and Aristotle, including a brief foray into Stoic and Epicurean philosophy. *Intended to be taken in conjunction with* PHIL 126b. (Formerly PHIL 116a)

PHIL 126b, INTRODUCTION: MODERN PHILOSOPHY FROM DESCARTES TO KANT. Kenneth Winkler.

Tth 11.30-12.20, I HTBA II Hu (24)

An introduction to some major figures in the history of modern philosophy, with critical readings of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. *Intended to be taken in conjunction with PHIL 125a although PHIL 125a is not a prerequisite.* (Formerly PHIL 117b)

Ethics and Value Theory

PHIL 175a, INTRODUCTION TO ETHICS. Matthew Smith.

MW 10.30-11.20, I HTBA II Hu (0)

What makes one act right, and another wrong? What am I morally required to do for others? These are some of the questions raised in moral philosophy. The course examines four important attempts to answer them—the theories of Plato, Aristotle, John Stuart Mill, and Immanuel Kant. Consideration of the problem of free will, questions about moral education, and theories of practical reason. (Formerly PHIL 120a)

PHIL 176b, DEATH. Shelly Kagan.

Tth 10.30-11.20, I HTBA II Hu (0)

There is one thing I can be sure of: I am going to die. But what am I to make of that fact? An examination of a number of issues that arise once we begin to reflect on our mortality. Consideration of the possibility that death may not actually be the end. Are we, in some sense, immortal? Would immortality be desirable? An attempt to get a clearer notion of what it *is* to die. And, finally, an evaluation of different attitudes to death. Is death an evil? Is suicide morally permissible? Is it rational? In short: how should the knowledge that I am going to die affect the way I live my life? Authors include Fischer, Perry, Plato, and Tolstoy.

PHIL 178a, INTRODUCTION: POLITICAL PHILOSOPHY.

Matthew Smith.

MW 2.30-3.20, I HTBA II Hu (0)

A survey of social and political theory from Plato through modern philosophers such as Rawls, Nozick, and Cohen. Emphasis on tracing the development of political ideas; challenges to political theories.

INTERMEDIATE COURSES

History of Philosophy

PHIL 204a, KANT'S *CRITIQUE OF PURE REASON*. James Kreines.

Tth 2.30-3.20, I HTBA II Hu (27)

An examination of the metaphysical and epistemological doctrines of Kant's *Critique of Pure Reason*. (Formerly PHIL 165a)

PHIL 207b, NIETZSCHE. James Kreines.

MW 11.30-12.20, I HTBA II Hu (34)

An introduction to Friedrich Nietzsche's philosophy, with emphasis on his late works, in particular the *Genealogy of Morality*. Topics include "the death of God," the "eternal recurrence," Nietzsche's account of morality ("slave morality" vs. "master morality"), and his "perspectivism." Some discussion of interpretations of Nietzsche by Deleuze, Foucault, and contemporary ethical philosophers. (Formerly PHIL 181b)

★PHIL 210a, EASTERN PHILOSOPHY. Quang Phu Van.

Tth 1.30-2.20, I HTBA II Hu (0)

An introduction to Eastern philosophy through the study of philosophical and religious texts. Topics include reality and illusion, knowledge, self, right and wrong, nonattachment, meditation, aesthetics, meaning of life, and death. *Limited enrollment.*

PHIL 215b/GREK 410bG, PLATO'S *REPUBLIC*. Verity Harte.

For description see under Classical Languages & Literatures.

PHIL 260a, AMERICAN PHILOSOPHY. Kenneth Winkler.

TTh 1-2.15 II; Not CR/D/F Hu (○)

A survey of American philosophy from colonial times to the middle of the twentieth century. Topics include European justifications of colonization and conquest; the spiritualist metaphysics of Berkeley and Jonathan Edwards; slavery and abolition; and transcendentalism (Emerson, Thoreau). Particular attention to classical pragmatism, with readings in Peirce, James, Dewey, and their critics. Some discussion of recent reinterpretations of pragmatism by such writers as Quine, Richard Rorty, and Cornel West.

Metaphysics and Epistemology

PHIL 267aG, MATHEMATICAL LOGIC I. Sun-Joo Shin.

TTh 11.30-12.45 II; Not CR/D/F QR (○)

An introduction to the metatheory of first-order logic, up to and including the completeness theorem for the first-order calculus. An introduction to the basic concepts of set theory is included. *Prerequisite:* PHIL 115a or *permission of instructor.* (Formerly PHIL 204a)

*PHIL 268bG, MATHEMATICAL LOGIC II. Sun-Joo Shin.

M 1.30-3.20 II; Not CR/D/F QR (36)

A technical exposition of Gödel's first and second incompleteness theorems and of some of their main 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 267a or *permission of instructor.* (Formerly PHIL 205b)

PHIL 269b, PHILOSOPHY OF SCIENCE. Jill North.

TTh 11.30-12.45 II; Not CR/D/F Hu (24)

Consideration of central questions about the nature of scientific theory and practice, including what makes a discipline a science, whether science discovers the objective truth about the world, how and why scientific theories change over time, to what extent observation and experiment determine which theories we accept, what constitutes a good scientific explanation, what laws of nature are, and whether physics has a special status compared to other sciences.

PHIL 272a, PHILOSOPHY OF MIND. Katalin Balog.

TTh 11.30-12.45 II Hu (○)

A survey of contemporary issues in the philosophy of mind. Topics include arguments for dualism and physicalist responses, mental causation, the nature of intentional states, and the nature of qualitative states.

PHIL 276b, METAPHYSICS. Troy Cross.

MW 2.30-3.20, I HTBA II Hu (○)

A survey of central issues in contemporary metaphysics. Topics include the nature of time, change and causation, and the characterization of personal identity. A consideration of such questions as whether time flows, whether it is real, and whether we can make sense of time travel. (Formerly PHIL 265a)

PHIL 282b, FREE WILL. Katalin Balog.

TTh 11.30-12.45 II Hu (○)

Exploration of philosophical, psychological, and neurophysiological issues related to free will. Consideration of whether determinism is compatible with freedom, how different notions of freedom relate to conceptions of responsibility and agency in the philosophical tradition, and how the “folk” thinks about these issues. Survey of neurophysiological findings that might shed new light on the traditional conception of the issues.

PHIL 283a, PHILOSOPHY OF PHYSICS. Jill North.

MW 2.30-3.45 II; Not CR/D/F Sc (37)

An introduction to the philosophical foundations of physics, with a goal toward understanding the theoretical framework and quantitative methods of different physical theories. Analysis of both conceptual and quantitative problems in classical mechanics, classical electromagnetism, statistical mechanics, thermodynamics, special and general relativity, and quantum mechanics.

PHIL 300a, SKEPTICISM. Keith DeRose.

TTh 9-10.15 II Hu (22)

An investigation of the most important forms of philosophical skepticism and of the major lines of response to such skepticism. Focus on recent work on the problem, with some discussion of historical sources, especially works by Descartes and G. E. Moore.

Ethics and Value Theory

PHIL 326a, THE PHILOSOPHY OF RELIGION. John Hare.

MW 11.30-12.20, 1 HTBA II Hu (34)

A study of 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.

PHIL 330b/EP&E 333b, ETHICS AND THE EMOTIONS. Michael Weber.

MW 11.30-12.45 II Hu (0)

Examination of the nature of emotions. Questions include: Are emotions only feelings, or do they also involve a cognitive component? Can they be judged as rational or irrational? What is their role in the moral sphere? Is it better to be motivated by our emotions or by our sense of duty? Is a moral agent better without emotions entirely, or would such a person be morally handicapped? (Formerly PHIL 320b)

PHIL 331b, ENVIRONMENTAL ETHICS. Michael Weber.

MW 2.30-3.45 II Hu (37)

A broad introduction to environmental ethics and some of its central issues, particularly the contrast between anthropocentric and non-anthropocentric values and between individualism and holism. Other topics include different cultures and their attitudes toward nature; biophilia; economics and the environment; biodiversity and the preservation of species; and ecofeminism.

PHIL 334a/HUMS 355a, PHILOSOPHY OF ARCHITECTURE. Karsten Harries.

MW 11.30-12.20, 1 HTBA II; Not CR/D/F Hu (0)

An examination of architecture’s uneasy placement between art and everydayness. Topics include architecture and building, building and body, the architectural theory of the Enlightenment, the architectural sublime, ornament, modernism, and postmodernism. Authors include Vitruvius, Alberti, Laugier, Boullée, Goethe, Schopenhauer, Hegel, Semper, Ruskin, Nietzsche, Loos, and Heidegger.

PHIL 343b/HUMS 363b, PHILOSOPHY OF ART. Jonathan Gilmore.

MW 11.30-12.45 II Hu (0)

A broadly focused investigation into philosophical questions raised by art and literature. Topics include art and politics, the concept of art, censorship, expression, metaphor, autonomy, art and knowledge, museum display, audiences, high vs. low art, formalism, interpretation, evaluation, narrative, and style.

SEMINARS

Prerequisites: The following courses generally require a previous course in philosophy. All require the instructor's permission.

History of Philosophy

***PHIL 400b^G/★CLCV 402b, PLATO'S PHILOSOPHICAL PSYCHOLOGY.**

Verity Harte.

M 3.30-5.20 II; Not CR/D/F Hu (○)

Exploration of the rich vein of philosophical psychology in selected Platonic works. Topics include the nature of psyche, soul, or mind, and its relation to body; psychological faculties such as perception, reason, and desire; the unity of consciousness; psychological conflict; and Plato's various models of the mind. Works include *Phaedo*, *Republic*, *Theaetetus*, and *Philebus*.

***PHIL 403a^G, CAUSATION IN EARLY MODERN PHILOSOPHY.**

Michael Della Rocca, Kenneth Winkler.

W 1.30-3.20 II; Not CR/D/F Hu (○)

Close examination of the way in which the notion of causation shaped metaphysics in the seventeenth and eighteenth centuries. Topics include causation as necessary connection, occasionalism, laws of nature, miracles, pre-established harmony, mental causation, physical causation, and causation and explanation. Focus on these themes in Descartes, Malebranche, Leibniz, Berkeley, and Hume.

***PHIL 404b^G, LOCKE AND LEIBNIZ.** Kenneth Winkler.

W 1.30-3.20 II; Not CR/D/F Hu (○)

A close study of Locke's *Essay concerning Human Understanding* and of Leibniz's *New Essays on Human Understanding*, a section-by-section commentary on Locke. Topics include representation and consciousness; substance and essence; the explanatory limits of mechanism; the nature and extent of human freedom; personal identity; theories of signification; and the scope of human knowledge. Some examination of Leibniz's views as presented in the *Discourse on Metaphysics* and the *Monadology*.

***PHIL 405b^G, HUME AND REID.** Keith DeRose.

Th 1.30-3.20 II; Not CR/D/F Hu (○)

A study of the philosophies of the eighteenth-century Scottish philosophers David Hume and Thomas Reid, focusing on their work in metaphysics and epistemology, with special emphasis on their responses to skepticism and the different roles each gave to the use of common sense in philosophy.

***PHIL 407b^G, GERMAN IDEALISM.** James Kreines.

T 3.30-5.20 II; Not CR/D/F Hu (○)

An in-depth study of idealism in Kant, Jacobi, Fichte, Schelling, and Hegel, with special attention to Kant and Hegel. Emphasis on the metaphysics and epistemology involved in the different forms of idealism advocated by Kant and the post-Kantian idealists. *Prerequisite:* PHIL 204a or equivalent.

Metaphysics and Epistemology

***PHIL 425b^G, CONSCIOUSNESS—PHILOSOPHICAL ISSUES.**

Katalin Balog.

T 1.30-3.20 II; Not CR/D/F Hu (○)

The problem of consciousness is considered by most philosophers of mind as the “hard problem,” i.e., the difficult part of the mind-body problem. Arguments against physicalism, i.e., the view that everything is, or is composed of, physical stuff, often take consciousness as their starting point. Discussion of these arguments as well as physicalist proposals for a theory of consciousness. (Formerly PHIL 442a)

★PHIL 427b^G, DIRECTION OF TIME. Jill North.

T 3.30-5.20 II; Not CR/D/F Hu (o)

Attempts to explain the temporal asymmetries we experience at the macroscopic level—coffee cools and ice melts, we have memories of the past and not the future, and so on—given that the underlying laws of physics are symmetric in time. Questions include whether it is possible to have a unified explanation for the different asymmetries we experience and whether time has a direction. Consideration of how the probabilities required by the explanations should be understood metaphysically.

★PHIL 428a^G, PERSONAL IDENTITY AND THE SELF.

Katalin Balog.

T 1.30-3.20 II; Not CR/D/F Hu (o)

A study of the concept of a person. Exploration of whether our conception of what it is to be a human being is historically conditioned and culture-relative, and whether our conception of ourselves is related to our knowledge and understanding of other people. Discussion of the problem of personal identity over time, i.e., what makes a person the same individual at different times. Implications for ethics, psychology, and the significance of mortality.

★PHIL 429a^G, IMAGINATION. Tamar Gendler.

M 3.30-5.20 II; Not CR/D/F Hu (o)

An interdisciplinary exploration of imagination, drawing on traditional philosophical discussions (Aristotle, Hume, Kant), contemporary philosophical writing (Currie, Goldman, Walton), and recent psychological research (Harris, Kosslyn, Leslie).

★PHIL 430a^G, PROPOSITIONS AND EVENTS. Zoltán Szabó.

T 3.30-5.20 II; Not CR/D/F Hu (o)

A study of propositions and events, using as starting points the interpretation of nominalization, the progressive aspect, that-clauses, and a number of other complex linguistic phenomena. Semantic analysis of these issues, seeking an ontology that meshes well with our best accounts of mental states and causation. Theorization about propositions and events in consideration of both language and the world.

Ethics and Value Theory

★PHIL 450b/★EP&E 332b/★PLSC 320b, LIBERALISM, GENDER, AND MULTICULTURALISM. Seyla Benhabib.

For description see under Ethics, Politics, & Economics.

★PHIL 451a^G, PROBLEM OF EVIL. Keith DeRose.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

A study of the major forms of the challenge to traditional theism posed by the evil in the world, together with the main lines of response to these various forms of the problem of evil. Focus on recent philosophical writings.

★PHIL 452a^G/★EP&E 366a/★HUMS 292a, FREEDOM OF EXPRESSION.

Jonathan Gilmore.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

The history and theory of freedom of expression examined from the standpoints of philosophy, law, art history, and literary criticism. Topics include censorship of art and literature, self-expression and self-realization, First Amendment interpretation, autonomy, paternalism, and rights.

★PHIL 455a^G/★EP&E 334a, **NORMATIVE ETHICS.** Shelly Kagan.
For description see under Ethics, Politics, & Economics.

★PHIL 456b^G/★EP&E 336b, **ETHICS OF TRUST.** Matthew Smith.
TH 1.30-3.20 II; Not CR/D/F Hu (o)

An in-depth philosophical exploration of trust and trusting relationships. Examination of the relationships between trust and belief, knowledge, faith, love, and social practices. Readings are drawn from ethics, epistemology, political philosophy, psychology, economics, political science, and cognitive science.

★PHIL 457b^G/★HUMS 381b, **BIOLOGY, EVOLUTION, AND CULTURE.**
Jonathan Gilmore.

W 3.30-5.20 II; Not CR/D/F Hu (o)

A broad investigation into purported evolutionary and biological explanations for such cultural phenomena as language, morals, politics, and art.

★PHIL 458b^G/★EP&E 340b, **PHILOSOPHY OF SOCIAL SCIENCE.**
Thomas McCarthy.

For description see under Ethics, Politics, & Economics.

TUTORIAL AND SENIOR ESSAY COURSES

★PHIL 480a *or* b, **TUTORIAL.** Consult the director of undergraduate studies.
HTBA II; Not CR/D/F (o)

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 to do 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 490, **THE SENIOR ESSAY.** Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (o)

The essay, written under the supervision of a member of the department, should be a substantial paper; a suggested length is between 12,500 and 15,000 words. It must be submitted by April 12 of the senior year.

COURSES RELEVANT TO THE MAJOR IN OTHER DEPARTMENTS

★GMST 315a^G/★GMAN 315a/★HUMS 368a/★LITR 431a, **SYSTEMS AND THEIR THEORY.** Henry Sussman.
For description see under German Studies.

★GMST 353b^G/★GMAN 353b/★HUMS 351b/★LITR 424b, **DIALECTIC OF ENLIGHTENMENT: KANT AND SADE.** Rainer Nägele.
For description see under German Studies.

LING 275a^G, **PRAGMATICS.** Laurence Horn.

★LING 276b^G, **IMPLICATURE AND PRAGMATIC THEORY.** Laurence Horn.

GRADUATE, DIVINITY, AND LAW SCHOOL COURSES THAT COUNT TOWARD THE MAJOR

Some Graduate, Divinity, and Law School courses are open to qualified undergraduates with permission of the instructor and the director of graduate studies or the dean or registrar of the Divinity or the Law School. (See “Courses in the Yale Graduate and Professional Schools” in chapter III, section K.) With permission of the director of undergraduate studies, relevant Graduate, Divinity, and Law School courses may count toward the major. Course descriptions appear in the Graduate, Divinity, and Law School bulletins. Graduate Philosophy courses of interest to undergraduates include the following:

PHIL 707a, ARISTOTLE’S *CATEGORIES*. Verity Harte.

PHIL 708b, ARISTOTLE’S *DE INTERPRETATIONE*. Susanne Bobzien.

PHILOSOPHY AND MATHEMATICS

(See under *Mathematics and Philosophy*.)

PHILOSOPHY AND PHYSICS

(See under *Physics and Philosophy*.)

PHYSICS

Director of undergraduate studies: Sean Barrett, 36 SPL, 432-3601,
 dus.physics@yale.edu, www.yale.edu/physics, opnmr.physics.yale.edu/dus

FACULTY OF THE DEPARTMENT OF PHYSICS

PROFESSORS

†Charles Ahn, Yoram Alhassid, Thomas Appelquist, †Charles Bailyn, Charles Baltay, Sean Barrett, Richard Casten, †Richard Chang, †Paolo Coppi, David DeMille, †Michel Devoret, †Paul Fleury, Moshe Gai (*Adjunct*), Steven Girvin, †Robert Grober, Martin Gutzwiller (*Adjunct*), John Harris, †Victor Henrich, Jay Hirshfield (*Adjunct*), Francesco Iachello, William Marciano (*Adjunct*), Simon Mochrie, Vincent Moncrief, Peter Parker, †Daniel Prober, Nicholas Read, †Vladimir Rokhlin, Jack Sandweiss, Michael Schmidt, †Robert Schoelkopf, Ramamurti Shankar, †A. Douglas Stone, †John Tully, Thomas Ullrich (*Adjunct*), C. Megan Urry, †John Wettlaufer, Michael Zeller

ASSOCIATE PROFESSORS

Colin Gay, Homer Neal, †Priya Natarajan, Witold Skiba

ASSISTANT PROFESSORS

Helen Caines, †Eric Dufresne, Richard Easther, Bonnie Fleming, Steven Furlanetto, Walter Goldberger, Jack Harris, Andreas Heinz, †Sohrab Ismail-Beigi, Daniel McKinsey, †Corey O’Hearn, Volker Werner

LECTURER

Stephen Irons

†A joint appointment with primary affiliation in another department.

Physics forms a foundation for all other sciences. The various undergraduate courses and degree programs offered by the Physics department provide students with a thorough preparation in physics for any career. To satisfy the needs of science students and to provide the general background in physics

that should be part of a liberal education, the department offers five different introductory sequences and two different degree programs for Physics majors. Combined majors are also available in mathematics and physics (see Mathematics and Physics), astronomy and physics (see Astronomy), and philosophy and physics (see Physics and Philosophy). Applied Physics is a closely related major (see Applied Physics).

Introductory lecture courses with no calculus prerequisite.

1. PHYS 110a or b (one term) is for students with little or no previous experience in physics who do not plan to major in the natural sciences. There is no mathematics requirement. PHYS 110a or b does not satisfy the medical school requirement.

2. PHYS 150a, 151b (two terms) is for students with little background in physics and mathematics who will probably not major in the physical sciences but who may be interested in the medical and biological sciences. There is no mathematics prerequisite other than high school mathematics, but MATH 112a and 115b should be taken concurrently.

Introductory calculus-based lecture courses.

1. PHYS 180a, 181b (two terms) is for students with some previous background in physics and mathematics who plan to major in the physical sciences. Calculus at the level of MATH 112a or b is a prerequisite; MATH 115a should be taken concurrently. It is suggested that MATH 120b be taken concurrently with PHYS 181b.

2. PHYS 200a, 201b (two terms) is for students with a strong background in mathematics and physics who plan to major in the physical sciences. Calculus at the level of MATH 115a or b is presumed. MATH 120a should be taken concurrently. It is suggested that MATH 222b or 225b be taken concurrently with PHYS 201b.

3. PHYS 260a, 261b (two terms) is intended for students who have had excellent training in and have a flair for mathematical methods and quantitative analysis; a solid foundation in physics is required. MATH 230 or the equivalent should be taken concurrently with PHYS 260a, 261b.

If students have the appropriate mathematics background, they are advised to take a calculus-based physics course. Sir Isaac Newton developed calculus while trying to describe the world around him; it is the natural language of physics. Students enrolled in one of the calculus-based introductory courses will be invited to a series of Chairman's Teas, which provide an opportunity to discuss topics on the frontiers of physics with faculty and peers. Completion of a calculus-based course also prepares students for the 340-level series of advanced physics electives, which cover special topics of interest to both majors and nonmajors.

PHYS 150a, 180a, 200a, and 260a meet at the same time so that students are easily able to change levels if necessary. Questions about placement should be addressed to the director of undergraduate studies.

Introductory laboratories. Two different introductory laboratory sequences are offered: PHYS 165La, 166Lb, and the PHYS 205La or Lb, 206La or Lb sequence. 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. Students should register for a section of the appropriate laboratory course during the first week of classes by logging onto classesv2.yale.edu.

1. PHYS 165La, 166Lb (two terms) is an introductory laboratory for students without a strong high school physics laboratory preparation. Related lecture courses are PHYS 150a, 151b, and PHYS 180a, 181b.

2. PHYS 205La or Lb, 206La or Lb (two terms) is for students who plan to major in the physical sciences. Related lecture courses are PHYS 180a, 181b, PHYS 200a, 201b, and PHYS 260a, 261b. Students who take the lecture courses in freshman year are advised to start this laboratory sequence with PHYS 205Lb in the spring of freshman year, or with 205La 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 180a, 181b, or 200a, 201b, or 260a, 261b). The offerings for 2006–2007 include PHYS 342a, Introduction to Earth and Environmental Physics, and 344b, Quantum and Nanoscale Physics. Offerings anticipated for 2007–2008 include PHYS 341a, Biological Physics, and 343b, Gravity, Astrophysics, and Cosmology.

Major degree programs. Two different majors are offered in Physics: the B.S. and the intensive B.S. Students pursuing either degree acquire an advanced training in physics, math, and related topics through the core courses. They use electives to design individualized programs with more depth or breadth, depending upon their needs and interests. Both programs are excellent preparation for a wide variety of postgraduate activities, including professional school in business, law, or medicine; graduate school in engineering or other sciences; or careers in business, consulting, financial services, government service, or teaching.

The intensive B.S. program prepares students to study physics in graduate school. The intensive program is distinguished by depth of study in advanced physics courses; a research experience is expected. The director of undergraduate studies can help students in the B.S. program prepare for graduate school in physics by recommending appropriate electives to supplement the core courses.

For the Class of 2009 and subsequent classes, courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major.

B.S. degree program. The prerequisites are a calculus-based introductory lecture course sequence with a mathematics sequence equivalent to, or more advanced than, the corequisite of the physics sequence. The following three options are appropriate: PHYS 180a, 181b with MATH 115a, 120b; or PHYS 200a, 201b with MATH 120a, 225b or 222b; or PHYS 260a, 261b with MATH 230 or equivalent. In addition, the laboratory sequence PHYS 205La or Lb, 206La or Lb is required. Students who take these physics and mathematics courses starting in their freshman 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 B.S. Students are advised to take mathematics courses throughout their freshman year at the appropriate level.

Eight courses are required beyond the prerequisites. Students must take a mathematics course at the level of, or more advanced than, PHYS 301a. Three courses at the core of the major involve advanced study of fundamental topics common to all branches of physics, and must be taken in order. The first two, PHYS 401a and 402b, pertain to advanced classical physics (mechanics, statistical physics and thermodynamics, and electromagnetism), and the third, APHY 439a or PHYS 440b, incorporates quantum mechanics. Four additional advanced courses are required. Suitable advanced courses include the PHYS 340-level electives, advanced laboratories (PHYS 381La or 382Lb), and 400-level courses in Physics. Students with a strong background in course work are encouraged to complete a research project

(PHYS 471a, 472b or APHY 471a, 472b). 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 director of undergraduate studies. In order to pursue their individual interests in sufficient depth, many students choose to take more than eight advanced courses.

Intensive B.S. degree program. The prerequisites for the intensive B.S. are the same as for the standard program. Ten courses are required beyond the prerequisites. Students must take a mathematics course at the level of, or more advanced than, PHYS 301a. 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 410a), statistical physics and thermodynamics (PHYS 420a), and electromagnetism (PHYS 430b). Two other courses incorporate quantum mechanics (PHYS 440b and 441a). These courses must be taken in order because the ideas build progressively: PHYS 410a precedes 440b, which precedes 441a, 420a, and 430b.

Because experiment is at the heart of the discipline, the intensive B.S. program requires at least one term of advanced laboratory (PHYS 381La or 382Lb) and at least two terms of independent research (PHYS 471a, 472b or equivalent). One advanced elective course is required to complete the program. Suitable advanced courses include the PHYS 340-level electives, advanced laboratories (PHYS 381La or 382Lb), 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 director of undergraduate studies. In order to pursue their individual interests in sufficient depth, many students choose to take more than ten advanced courses.

Senior requirement. The senior requirement for both degree programs is fulfilled by receiving a passing grade on a research project in PHYS 471a, 472b (or in APHY 471a, 472b) or on a senior essay. Students should consult the director of undergraduate studies for further information.

Sequence of courses. For both the B.S. and the intensive B.S. degrees, students are advised to begin the program in their freshman 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:

<i>Freshman or Sophomore</i>	<i>Sophomore or Junior</i>	<i>Senior</i>
PHYS 180a, 181b, or 200a, 201b, or 260a, 261b	PHYS 206La PHYS 301a PHYS 401a	APHY 439a or PHYS 440b
PHYS 205Lb	PHYS 402b	Three advanced electives
Mathematics corequisites	One advanced elective	

A program for a student completing the intensive B.S. in three years might be:

<i>Freshman or Sophomore</i>	<i>Sophomore or Junior</i>	<i>Senior</i>
PHYS 180a, 181b, or 200a, 201b, or 260a, 261b	PHYS 206La PHYS 301a PHYS 410a	PHYS 441a PHYS 420a PHYS 430b
PHYS 205Lb	PHYS 440b	PHYS 471a
Mathematics corequisites	PHYS 382Lb	PHYS 472b One advanced elective

Approval of programs. All Physics majors in the sophomore, junior, and senior classes must have their programs approved by the director of undergraduate studies. Freshmen and undeclared sophomores who are interested in Physics or related majors are encouraged to meet with the director of undergraduate studies to discuss their questions and proposed programs.

REQUIREMENTS OF THE MAJOR

B.S. DEGREE

Prerequisites: PHYS 180a, 181b, or 200a, 201b, or 260a, 261b, with appropriate math corequisites; PHYS 205La or Lb, 206La or Lb

Number of courses: Eight term courses beyond prerequisites (not including the senior essay, if chosen)

Distribution of courses: Four advanced electives approved by DUS

Specific courses required: PHYS 301a or other advanced mathematics course; PHYS 401a, 402b, and either APHY 439a or PHYS 440b, in sequence

Senior requirement: Senior essay, or PHYS 471a, 472b, or APHY 471a, 472b

INTENSIVE B.S. DEGREE

Prerequisites: PHYS 180a, 181b, or 200a, 201b, or 260a, 261b, with appropriate math corequisites; PHYS 205La or Lb, 206La or Lb

Number of courses: Ten term courses beyond prerequisites (not including the senior essay, if chosen)

Distribution of courses: One advanced elective approved by DUS

Specific courses required: PHYS 301a or other advanced mathematics course; PHYS 410a, 440b, 441a, 420a, 430b, in sequence; PHYS 381La or 382Lb; PHYS 471a, 472b or equivalent

Senior requirement: PHYS 471a, 472b, or APHY 471a, 472b, or senior essay

Unless otherwise indicated, courses in Physics count toward the natural science requirement for the Class of 2008 and previous classes.

★PHYS 095a, RADIATION, NUCLEAR PHYSICS, AND THE UNIVERSE.

Peter Parker.

TTh 2.30-3.45 Sc (○) Fr sem

An exploration of nuclear physics in the cosmos and on Earth, without intense mathematics. Nuclei as the heart of matter and the cores of stars; nuclear reactions as they power the stars and are responsible for the existence of every element; the role of radioactivity in our lives, including nuclear medicine, X rays, nuclear power, nuclear weapons, and terrorism. *Enrollment limited to freshmen.*

PHYS 110a or b, DEVELOPMENTS IN MODERN PHYSICS.

110a: MW 2.30-3.45 IV QR, Sc (37) John Harris

110b: MW 1-2.15 IV QR, Sc (36) Bonnie Fleming

An introduction to modern physics and quantitative reasoning. Topics include subatomic particles, electromagnetic waves, black holes, galaxies, and the fate of the universe. Study of the stages of descriptive modeling, with examples ranging from Newtonian physics to Einstein's theory of relativity. *See comparison of introductory sequences and laboratories in the text above.*

PHYS 150a and 151b, GENERAL PHYSICS. Homer Neal [F],

Michael Zeller [Sp].

Lect. MWF 11.30-12.20; disc. HTBA IV QR, Sc (34)

An introduction to classical physics and to selected topics in modern physics. Emphasis on fundamental principles, with examples of practical applications to medicine and other fields. PHYS 150a covers mechanics, thermodynamics, and

wave motion. PHYS 151b covers electricity and magnetism, optics, and modern physics. *See comparison of introductory sequences and laboratories in the text above.*

PHYS 165La and 166Lb, GENERAL PHYSICS LABORATORY.

David DeMille [F], John Harris [Sp].

3 HTBA For sections see *classesv2.yale.edu* IV; Not CR/D/F Sc
 $\frac{1}{2}$ C Credit per term Meets RP (o)

A large variety of individually self-contained experiments are roughly coordinated with the lectures in PHYS 150a, 151b, and 180a, 181b and illustrate and develop physical principles covered in those lectures.

PHYS 180a and 181b, ADVANCED GENERAL PHYSICS. Michael Zeller [F],
 A. Douglas Stone [Sp].

Lect. MWF 11.30-12.20; *disc.* 1 HTBA IV QR, Sc (34)

A broad introduction to classical and modern physics for students who have some previous preparation in physics and mathematics. PHYS 180a covers Newtonian mechanics, gravitation, waves, and thermodynamics. PHYS 181b covers electromagnetism, optics, special relativity, and quantum physics. *Concurrently with MATH 115a and 120b or equivalents. See comparison of introductory sequences and laboratories in the text above. May not be taken for credit after PHYS 150a, 151b.*

PHYS 200a and 201b, FUNDAMENTALS OF PHYSICS.

Ramamurti Shankar.

Lect. MWF 11.30-12.20; *disc.* 2 HTBA IV QR, Sc (34)

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. PHYS 200a covers Newtonian mechanics, special relativity, gravitation, thermodynamics, and waves. PHYS 201b covers electromagnetism, geometrical and physical optics, and elements of quantum mechanics. *Prerequisite:* MATH 115a or b or equivalent. *See comparison of introductory sequences and laboratories in the text above.*

PHYS 205La or Lb and 206La or Lb, MODERN PHYSICAL MEASUREMENT.

Andreas Heinz [F], C. Megan Urry [Sp].

3 HTBA For sections see *classesv2.yale.edu* IV; Not CR/D/F Sc
 $\frac{1}{2}$ C Credit per term Meets RP (o)

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 a series of experiments designed to make use of computer data handling and teach error analysis. In the second term, students plan and carry out a selection of 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.*

*PHYS 260a and 261b, INTENSIVE INTRODUCTORY PHYSICS.

Steven Girvin.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc (34)

The major branches of physics—classical and relativistic dynamics, gravitation, electromagnetism, heat and thermodynamics, statistical mechanics, quantum physics—covered at a sophisticated level. For students majoring in the physical sciences, Mathematics, and Philosophy who have excellent training in and a flair for mathematical methods and quantitative analysis. *Concurrently with MATH 230, PHYS 301a, or equivalent.*

MENG 285b, INTRODUCTION TO MATERIALS SCIENCE.

Ainissa Ramirez.

PHYS 295a/ASTR 255a, RESEARCH METHODS IN ASTROPHYSICS.

Charles Bailyn.

For description see under Astronomy.

PHYS 301a, INTRODUCTION TO MATHEMATICAL METHODS OF PHYSICS.

Daniel McKinsey.

TTh 11.30-12.45 IV; Not CR/D/F QR (24)

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 401a or 410a. *Prerequisite:* PHYS 180a, 181b, or 200a, 201b, or 260a, 261b, or permission of instructor.

[PHYS 341a, BIOLOGICAL PHYSICS]

PHYS 342a/G&G 342a, INTRODUCTION TO EARTH AND ENVIRONMENTAL PHYSICS. John Wettlaufer.

TTh 2.30-3.45 IV; Not CR/D/F QR, Sc (27)

An introduction to the basic physical processes that have shaped the Earth's environment over time. Topics include the accretion of the nascent Earth, the evolution of the inner core, and the fundamental atmospheric, oceanic, and cryospheric dynamics that determine the state of the climate. *Prerequisite:* yearlong sequence of introductory physics (PHYS 180a, 181b, or 200a, 201b, or 260a, 261b) or permission of instructor.

[PHYS 343b/ASTR 343b, GRAVITY, ASTROPHYSICS, AND COSMOLOGY]

PHYS 344b, QUANTUM AND NANOSCALE PHYSICS. David DeMille.

TTh 11.30-12.45 IV; Not CR/D/F QR, Sc (24)

An introduction to cutting-edge developments in physics involving quantum information and/or nanotechnology. Background concepts in quantum mechanics, electromagnetism, and optics are introduced as necessary. *Prerequisite:* yearlong sequence of introductory physics (PHYS 180a, 181b, or 200a, 201b, or 260a, 261b) or permission of instructor. PHYS 301a or other advanced mathematics course recommended.

PHYS 381La, EXPERIMENTAL RESEARCH STUDIES I. Simon Mochrie.

Lab MW 1.30-4.20 IV; Not CR/D/F Sc (0)

Laboratory experiments with some discussion of theory and techniques. An advanced course focusing on modern experimental methods and concepts in condensed matter physics. Intended to prepare students for independent research. For majors in the physical sciences. *Prerequisite:* PHYS 206La or Lb. *After or concurrently with* PHYS 439a or 440b, or with permission of instructor.

PHYS 382Lb, EXPERIMENTAL RESEARCH STUDIES II. Daniel McKinsey.

Lab MW 1.30-4.20 IV; Not CR/D/F Sc (0)

Laboratory experiments with some discussion of theory and techniques. An advanced course focusing on modern experimental methods and concepts in atomic and optical physics. Intended to prepare students for independent research. For majors in the physical sciences. *Prerequisite:* PHYS 206La or Lb. *After or concurrently with* PHYS 439a or 440b, or with permission of instructor. PHYS 381La is not a prerequisite.

PHYS 401a, ADVANCED CLASSICAL PHYSICS: FROM NEWTON TO EINSTEIN I. Charles Baltay.

MW 11.30-12.45 IV; Not CR/D/F QR, Sc (34)

The first term of a two-term sequence in 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 180a, 181b, or 200a, 201b, or 260a, 261b. *Concurrently with* PHYS 301a *or other advanced mathematics course.*

PHYS 402b, ADVANCED CLASSICAL PHYSICS: FROM NEWTON TO EINSTEIN II. Charles Baltay.

MW 11.30–12.45 IV; Not CR/D/F QR, Sc (34)

Continuation of PHYS 401a. *Prerequisite:* PHYS 401a.

PHYS 410a, CLASSICAL MECHANICS. Helen Caines.

MW 11.30–12.45 IV; Not CR/D/F QR, Sc (34)

An advanced treatment of mechanics, with a special focus on the methods of Lagrange and Hamilton. Lectures and problems dealing with 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 180a, 181b, or 200a, 201b, or 260a, 261b. *To be taken concurrently with* PHYS 301a *or other advanced mathematics course.*

PHYS 420a, STATISTICAL THERMODYNAMICS. A. Douglas Stone.

MWF 10.30–11.20 IV; Not CR/D/F QR, Sc (33)

An introduction to the laws of thermodynamics and their theoretical explanation by statistical mechanics. Applications to gases, solids, phase equilibrium, chemical equilibrium, and boson and fermion systems. *Prerequisites:* PHYS 301a and 410a *or equivalents.*

PHYS 430b, ELECTROMAGNETIC FIELDS AND OPTICS. Richard Easter.

MWF 11.30–12.20 IV; Not CR/D/F QR, Sc (34)

Electrostatics, magnetic fields of steady currents, electromagnetic waves, and relativistic dynamics. Provides a working knowledge of electrodynamics. *Prerequisites:* PHYS 301a and 410a *or equivalents.*

PHYS 439a/APHY 439a^G, BASIC QUANTUM MECHANICS. Robert Grober.

For description see under Applied Physics.

PHYS 440b, QUANTUM MECHANICS AND NATURAL PHENOMENA I.

Witold Skiba.

MWF 10.30–11.20 IV; Not CR/D/F QR, Sc (33)

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. *Prerequisites:* PHYS 410a or 401a, 402b.

PHYS 441a, QUANTUM MECHANICS AND NATURAL PHENOMENA II.

Witold Skiba.

MWF 11.30–12.20 IV; Not CR/D/F QR, Sc (34)

Continuation of PHYS 440b. *Prerequisite:* PHYS 440b.

PHYS 448a/APHY 448a^G, SOLID-STATE PHYSICS I. Victor Henrich.

For description see under Applied Physics.

PHYS 449b/APHY 449b^G, SOLID-STATE PHYSICS II. Charles Ahn.

For description see under Applied Physics.

PHYS 460a^G, MATHEMATICAL METHODS OF PHYSICS. Richard Easter.

MW 9-10.15 IV; Not CR/D/F QR (32)

Survey of mathematical techniques useful in physics. Vector and tensor analysis, group theory, complex analysis (residue calculus, method of steepest descent), differential equations and Green's functions, and selected advanced topics are illustrated with physical examples. *Prerequisites:* PHYS 301A or other advanced mathematics course.

★PHYS 471a and 472b, INDEPENDENT PROJECTS IN PHYSICS.

Sean Barrett.

HTBA IV; Not CR/D/F Meets RP (o)

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 submitted. For students with a strong background in Physics course work.

PHYSICS AND ASTRONOMY

(See under Astronomy.)

PHYSICS AND MATHEMATICS

(See under Mathematics and Physics.)

PHYSICS AND PHILOSOPHY

Prospective majors in Physics and Philosophy are advised to begin taking the prerequisites during their freshman 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; any introductory Physics lecture sequence (except PHYS 110a or b), including PHYS 260a, 261b; PHYS 165La, 166Lb or the PHYS 205La or Lb, 206La or Lb laboratory sequence; one introductory Philosophy course.

Beyond the prerequisites, students take seven courses in Physics approved by the director of undergraduate studies and numbered 301 or higher, including (1) PHYS 301A or the equivalent, (2) PHYS 439a or 440b, and (3) PHYS 381La or 382Lb; and six courses in Philosophy or in History of Science, History of Medicine, including PHIL 125a and 126b, one course in logic above the introductory level, and a Philosophy seminar selected with the approval of the directors of undergraduate studies. Seniors must complete one of the following: (1) Physics senior essay; (2) PHYS 471a, 472b; (3) PHIL 490 (senior essay); (4) PHIL 480a or b (tutorial) in an appropriate subject; (5) an appropriate Philosophy seminar with the approval of the director of undergraduate studies in Philosophy.

Consult Sean Barrett (Physics), 36 SPL, 432-3601, sean.barrett@yale.edu, and Michael Weber (Philosophy), 406A C, 432-1679, michael.weber@yale.edu.

REQUIREMENTS OF THE MAJOR

Prerequisites: MATH 120a or b; PHYS 150a, 151b, or 180a, 181b, or 200a, 201b, or 260a, 261b; PHYS 165La, 166Lb, or 205La or Lb, 206La or Lb; one course in intro philosophy

Number of courses: Thirteen term courses beyond prerequisites, not including the senior requirement

Distribution of courses: Seven Physics courses at level 301 or higher, approved by DUS; six courses in Philosophy or History of Science, History of Medicine, including one course in logic above intro level and a Philosophy sem as specified

Specific courses required: PHYS 301A (or equivalent); 439A or 440B; 381La or 382Lb; PHIL 125A, 126B

Senior requirement: One from Physics senior essay, PHYS 471A and 472B, PHIL 490, PHIL 480A or B on appropriate topic, or approved Philosophy sem

POLITICAL SCIENCE

Director of undergraduate studies: David Cameron, 124 Prospect St.,
432-5236, david.r.cameron@yale.edu

FACULTY OF THE DEPARTMENT OF POLITICAL SCIENCE

PROFESSORS

Bruce Ackerman, Akhil Amar, Seyla Benhabib, Paul Bracken, David Cameron, John Gaddis, Alan Gerber, Donald Green, Jacob Hacker, Jolyon Howorth (*Visiting*), Stathis Kalyvas, Boris Kapustin (*Visiting*), Joseph LaPalombara (*Emeritus*), Theodore Marmor, David Mayhew, Barry Nalebuff, William Odom (*Adjunct*), Douglas Rae, John Roemer, Susan Rose-Ackerman, Frances Rosenbluth, Bruce Russett, Kenneth Scheve, James Scott, Ian Shapiro, Stephen Skowronek, David Smith (*Visiting*), Steven Smith, Susan Stokes, Alec Stone Sweet, Peter Swenson (*Chair*), Ivan Szelenyi, John Wargo, Elisabeth Wood

ASSOCIATE PROFESSORS

Gregory Huber, John Lapinski, Ellen Lust-Okar, Nicholas Sambanis, James Vreeland

ASSISTANT PROFESSORS

Gerald Baier (*Visiting*), Khalilah Brown-Dean, Seok-ju Cho, Keith Darden, Thad Dunning, Justin Fox, Bryan Garsten, Ange-Marie Hancock, Susan Hyde, Pierre Landry, Karuna Mantena, Nikolay Marinov, Paulina Ochoa Espejo, Rose Razaghian, Vivek Sharma, Ebonya Washington

SENIOR LECTURER

Robert Wokler

LECTURERS

Paul Bass, Harry Blair, Alexandra Dufresne, Cynthia Farrar, Stanley Flink, Carine Germond, Cynthia Horan, Jean Krasno, Matthew Levendusky, Matthew Light, Timothy Pachirat, Rachel Seher, Adam Simon, David Simon, James Sleeper, Sean Smith, Natalia Sobrevilla Perea, John Bryan Starr, Steven Teles, Harry Wexler, Annalisa Zinn

Political Science courses not designated by a star are lecture courses and are open to all students in Yale College. Starred courses are seminars; junior and senior majors receive first preference in admission to department seminars.

Students majoring in Political Science are expected to choose a member of the Political Science faculty as an adviser. Students are also encouraged to seek advice from other members of the department working in their particular field of interest. Students choosing a standard major in Political Science must secure written approval of course selections from the adviser or another member of the department faculty. All subsequent changes in a student's major program must also be approved. Seniors' schedules must be approved by the director of undergraduate studies.

Students are urged to take the initiative in shaping a coherent program suited to their interests. If they intend to write a senior essay requiring substantial empirical analysis, students should plan to acquire the appropriate level of training in statistics. Students should consult with their advisers frequently. The director of undergraduate studies and other members of the

department can give advice about special programs or problems. Opportunities for two majors, study abroad, and work-and-study arrangements are normally discussed with the director of undergraduate studies.

The standard major. Eleven term courses of political science are required, including introductory courses. No more than two introductory courses may be counted toward the major. (One term of DRST 003 may count as a Political Science course.) Two courses each in three of the five fields of political science—international relations, American government, political philosophy, analytical political theory, and comparative government—are required. Students expecting to major in Political Science should take several introductory-level courses in the department early in their college careers. This allows a student to make an informed choice of a field for specialization.

Students are urged to take related offerings in other departments. They may petition to have appropriate courses in other departments count toward the requirements for the major. College seminars may count toward the major only when taught by a member of the Political Science department.

Senior requirement. Students majoring in Political Science are required to take at least two seminars taught by members of the Political Science department. One seminar must be taken in the senior year. Admission to seminars is at the instructor's discretion. Students must complete a substantial paper, as described in "Senior essays" below, in at least one class taken during the senior year, either a seminar or a course specifically designated for that purpose (PLSC 480a or b). Senior essays written in the fall term are due December 1, 2006. Senior essays written in the spring term are due April 20, 2007. Two copies should be submitted to the office of the director of undergraduate studies and one to the essay adviser. In order to graduate from Yale College, a student majoring in Political Science must achieve a passing grade on the senior essay by the end of the senior year.

Seminar preregistration. Political Science majors are given first preference for admission to department seminars. The department has instituted a preregistration system that allows instructors of seminars to preregister up to twelve majors prior to the start of each term. The system is administered by the office of the director of undergraduate studies. All majors are eligible to participate in the preregistration system.

Senior essays. The senior essay provides an appropriate intellectual culmination to the student's work in the major and in Yale College. It should ordinarily be written on a topic in an area in which the student has previously done course work. It should rest on more extensive work than is typical for a seminar paper. The research should be appropriate to the subject matter, and should involve field research, statistical analysis, analytical reading of pertinent primary texts and secondary sources, and/or archival research, as the subject warrants. The suggested length is approximately twenty-five double-spaced pages. Students intending to write their senior essay in a seminar are responsible for notifying the seminar instructor at the beginning of the term so that a plan for the necessary additional work can be arranged. In researching and writing the essay the student should consult regularly with the seminar instructor or adviser.

The yearlong senior essay. Students who wish to undertake a more extensive research project than is possible in a single term may fulfill the senior requirement by enrolling in the two-term course sequence PLSC 490a, Senior Colloquium, and 491b, Senior Essay. In PLSC 490a students develop a research prospectus for the senior essay and begin their research. PLSC 490a

counts as a seminar in the major. In PLSC 491b students write the essay under the supervision of a member of the faculty who specializes in the area being investigated by the student. Yearlong senior essays are expected to be substantially longer than a regular term paper. While there is no fixed length, yearlong essays are normally expected to be fifty to sixty pages in length. Yearlong senior essays are due April 20, 2007.

Admission to the yearlong senior essay. Majors who wish to enroll in the yearlong senior essay apply for admission in the spring of their junior year. The deadline for the Class of 2008 is April 6, 2007. Students should submit to the office of the director of undergraduate studies: (1) a two-page statement of project, signed by a faculty adviser who has agreed to supervise the student's essay, and (2) an up-to-date transcript. Normally a successful candidate will have at least an A– average in political science courses and a B+ average outside the major. It is expected that no more than fifteen students will be admitted.

The major with an interdisciplinary concentration. Students majoring in Political Science may, if they wish, choose an interdisciplinary concentration, which allows them to pursue an area of study that crosses conventional disciplinary and department boundaries. Examples of interdisciplinary concentrations are international studies, urban studies, health politics and policy, and political economy. Students choosing such a concentration are required to take twelve term courses toward the major, at least seven of which must be in the field of concentration. As many as three courses in the concentration may be taken in other departments. The courses selected from other departments must be approved by the director of undergraduate studies. College seminars may not be included among the nondepartmental courses. In addition to taking seven courses in their field of concentration, interdisciplinary concentration majors must take two courses in each of two other fields in the department. The senior requirement is the same as for the standard major, with the proviso that the essay must be written on a subject that falls within the field of concentration.

The intensive major. The intensive major gives students an opportunity to undertake a program of original research designed to investigate in depth some aspect of politics, political philosophy, or international affairs. In order to carry out this research the student takes independent research courses in each of the last three terms (PLSC 474b in the junior year, PLSC 493 in the senior year).

Eleven term courses are required for the intensive major, including introductory courses and the research courses PLSC 474b and 493. The distribution requirement is the same as for the standard major. Intensive majors must take at least one Political Science seminar in the senior year.

The senior requirement for intensive majors is a senior essay. In the junior year, students admitted to the intensive major should make appropriate arrangements for preparing the senior essay. These might include registration in specific courses, study abroad, or special training in research methodology. Students must also take PLSC 474b, Directed Reading and Research for Junior Intensive Majors, with a member of the faculty knowledgeable in the area of the intended senior essay. Students wishing to continue in the intensive major must submit a satisfactory prospectus of their research project during the spring term of the junior year to their prospective senior essay adviser and the director of undergraduate studies. In the senior year, intensive majors take PLSC 493, a two-term senior essay, with their faculty essay adviser.

Students admitted to the intensive major may combine it with an interdisciplinary concentration major. This combination requires twelve term courses. Three terms of research (PLSC 474b, 493) substitute for three substantive courses. The intensive interdisciplinary concentration major must satisfy the distributional requirements expected of interdisciplinary concentration majors.

Admission to the intensive major. Juniors wishing to pursue an intensive major must apply to the director of undergraduate studies by November 17, 2006. Admission is based on performance and promise. The director of undergraduate studies and the prospective senior essay adviser serve as advisers to candidates for the intensive major in the junior year.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: *Standard major*—eleven term courses; *Interdisciplinary concentration*—twelve term courses

Specific courses required: None

Distribution of courses: *Standard major*—no more than two courses at intro level; two courses in each of three fields; *Interdisciplinary concentration*—two courses in each of two fields in addition to seven in field of concentration

Substitution permitted: *Standard major*—relevant college sems taught by PolSci faculty; other courses by petition to DUS; *Interdisciplinary concentration*—up to three courses in other depts; other courses by petition to DUS

Intensive major: Eleven term courses; two courses in each of three fields; PLSC 474b; PLSC 493; *Intensive major with interdisciplinary concentration*—twelve term courses as specified, up to three of which may be taken in other depts; PLSC 474b; PLSC 493

Senior requirement: Two sems, one in senior year, and senior essay

INTRODUCTORY COURSES

PLSC 111a, INTRODUCTION TO INTERNATIONAL RELATIONS.

Jolyon Howorth.

Th 1.30-2.20, 1 HTBA III So (26)

Exploration of world affairs in the unsettled aftermath of a half-century of Cold War traumas. The relative positions of the United States, Japan and Germany, Russia, China, and the Third World. Topics include the spread of capitalistic markets and democratic forms; nongovernmental activity across nation-state boundaries; and the precariousness of the status quo.

PLSC 113b, INTRODUCTION TO AMERICAN POLITICS. Steven Teles.

MW 9.30-10.20, 1 HTBA III So (32)

An introduction to American national government. Topics include 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.

PLSC 114a, INTRODUCTION TO POLITICAL PHILOSOPHY. Steven Smith.

MW 10.30-11.20, 1 HTBA III So (33)

A study of the first and most fundamental of all political concepts: the regime or constitution. Definitions of regime; how many kinds of regimes exist and which is best; what kinds of citizens different regimes produce; the major differences between ancient and modern conceptions of constitutional government. Readings from the works of Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, and Tocqueville.

PLSC 116b, INTRODUCTION TO COMPARATIVE POLITICS.

James Vreeland.

TTh 10.30-11.20, 1 HTBA III So (○)

Introduction to comparative political analysis, with focus on themes such as the state and its role in economic development, democracy and dictatorship, differences among democratic institutions, political parties, interest groups, social policy, political economy, economic reforms, and political participation and revolutions.

PLSC 118b, THE MORAL FOUNDATIONS OF POLITICS. Ian Shapiro.

MW 10.30-11.20, 1 HTBA III WR, So (33)

An introduction to contemporary discussions of the foundations of political argument. Emphasis on the relations between political theory and policy debate (e.g., social welfare provision and affirmative action). Readings from the works of Bentham, Mill, Marx, Rawls, Nozick, Rorty, MacIntyre, and others.

INTERNATIONAL RELATIONS

***PLSC 140a, THE LEGACY OF INEQUALITY: RACE AND ETHNICITY IN THE AMERICAS.** Natalia Sobrevilla Perea.

W 1.30-3.20 II or III Hu, So (○)

A comparative study of the incorporation of indigenous and slave populations into political life, focusing on countries in the Americas in the nineteenth and twentieth centuries. Topics include the relationship between the state and indigenous populations, the process of abolishing slavery, and legacies of social inequality as they influence current realities. (Formerly INTS 380a)

***PLSC 141a, ETHICS OF HUMANITARIAN INTERVENTION.**

Annalisa Zinn.

Th 1.30-3.20 III; Not CR/D/F So (○)

Exploration of key ethical dilemmas accompanying the practice of humanitarian intervention. Topics include ethical and political obligations of states to protect citizens of other states, justifications for “killing in order to save,” who can legitimately make the decision to intervene, and what criteria should guide humanitarian interventions in the twenty-first century.

***PLSC 142b, INTERNATIONAL HUMAN RIGHTS.** Annalisa Zinn.

Th 1.30-3.20 III; Not CR/D/F So (○)

Study of the historical development, institutional configuration, and philosophical underpinnings of the international human rights regime; key documents and cases in international human rights law; and state-level and nongovernmental strategies for the promotion of human rights.

***PLSC 143b/*INTS 321b, CITIZENSHIP AND THE MILITARY IN LATIN AMERICA.** Natalia Sobrevilla Perea.

W 1.30-3.20 II or III Hu, So (○)

Examination of the role of the military in Latin American state building. Exploration of the military’s connections to civilian power. Focus on the difficult relationship between the military, the state, and citizens. Topics include the recurrence of civil war, revolution, and insurgency throughout the nineteenth and twentieth centuries.

PLSC 146b/EVST 245b/F&ES 245b, INTERNATIONAL ENVIRONMENTAL POLICY AND GOVERNANCE. Benjamin Cashore.

For description see under Environmental Studies.

★PLSC 147b, THE UNITED NATIONS AND COLLECTIVE SECURITY.

Jean Krasno.

W 1.30-3.20 III; Not CR/D/F So (o)

Examination of the role of the United Nations in global politics, including analysis of the workings of the UN Security Council, the General Assembly, the International Court of Justice, and other UN agencies, funds, and programs. Topics include the International Criminal Court, cases of UN peacekeeping, and the imposition of sanctions.

PLSC 148a/INTS 376a, CENTRAL ISSUES IN AMERICAN FOREIGN POLICY.

Stuart Gottlieb.

For description see under International Studies.

PLSC 149a/INTS 334a, ECONOMIC SANCTIONS. Nikolay Marinov.

TTh 1-2.15 III So (26)

A study of economic sanctions, including questions of their effectiveness and appropriate use. Development of an appropriate analytical apparatus; study of the empirical record.

★PLSC 151a^G/★INTS 335a, INTERNATIONAL DIMENSIONS OF DEMOCRATIZATION. Nikolay Marinov.

T 9.30-11.20 III So (o)

Investigation of the role played by international factors such as socialization, coercion, and emulation in the current wave of democratizations around the world. Focus on the extent to which democratic processes can be affected from the outside.

★PLSC 152a/★EP&E 449a, GLOBAL FIRMS AND NATIONAL GOVERNMENTS.

Joseph LaPalombara.

M 1.30-3.20 III; Not CR/D/F So (o)

Challenges raised for political policy makers and governmental regulators and for managers of global corporations when the latter intend to make direct investments in foreign countries. Special attention paid to emergent exclusionary measures in advanced industrial countries.

PLSC 153b, THE EVOLUTION OF INTERNATIONAL POLITICS.

Keith Darden.

TTh 2.30-3.45 III So (27)

An examination of key shifts in world order from the Middle Ages to the present, focusing on the merits of theories of continuity and change in international relations. Particular attention to the rise, consequences, and potential decline of the system of sovereign states as international institutions spread.

PLSC 156a/INTS 252a, INTERNATIONAL ORGANIZATIONS. Susan Hyde.

MW 2.30-3.45 III So (o)

Examination of the role international organizations play in solving global problems. Focus on international organizations as prominent actors in the fields of global political economy, security, development, human rights, democracy promotion, and the environment. Discussion of prominent debates over the effects and relative importance of international organizations in world politics, using international relations theory and case studies.

★PLSC 158a^G/★EP&E 412a/★INTS 328a, NATIONALISM AND IDENTITY.

Keith Darden.

M 3.30-5.20 III; Not CR/D/F So (o)

Exploration of the formation of national identity and the expression of nationalist sentiments through ethnic parties, autonomy movements, resistance to occupation, and warfare. Particular focus on Europe and post-Soviet Eurasia.

***PLSC 160b^G/*INTS 317b, AMERICAN NATIONAL SECURITY POLICY.**

William Odom.

M 3.30-5.20 III; Not CR/D/F So (○)

An investigation of U.S. national security policy making, the institutions for its implementation, and the politics of providing capabilities for U.S. strategy in the contemporary epoch.

PLSC 166b, THE NEW EUROPE. David Cameron.

TTh 11.30-12.45 III So (24)

Examination of the causes and possible consequences of several recent changes in Europe—the collapse of communist regimes and the end of the Cold War, the creation of market economies and democratic polities in central and eastern Europe, and development of the European Union.

***PLSC 167b^G/*EP&E 408b, WAR AND PUBLIC HEALTH.** Bruce Russett.

T 1.30-3.20 III; Not CR/D/F So Meets RP (○)

A study of the indirect long-term casualties of war due to malnutrition, disease, and social disruptions. Examination of the causes of these casualties and their humanitarian and political implications.

PLSC 168a/INTS 232a, LAW AND POLITICS OF GLOBALIZATION.

Alec Stone Sweet.

TTh 10.30-11.20, I HTBA III So (23)

Examination of the relationship between globalization (primarily economic activity across national borders) and national, international, supranational, and transnational legal systems. Topics include global trade and the WTO, European integration, the new *lex mercatoria*, and corporate responsibility for violations of human rights and environmental law.

PLSC 172a^G, STRATEGY, TECHNOLOGY, AND WAR. Paul Bracken.

MW 11.30-12.45 III; Not CR/D/F So (34)

Study of how the interrelationship of strategy, foreign policy, and technology has shaped international relations from Napoleon to the global information grid (GIG). Analysis of the transformations arising from political change and technological advance. Topics include the role of “big” military organizations in the United States, Europe, and Asia; technological innovation; organizing for defense and intelligence; arms control; and the challenge of a second nuclear age.

***PLSC 173b^G, THEORIES OF WAR AND PEACE.** Bruce Russett.

W 3.30-5.20 III; Not CR/D/F So (37)

A comprehensive review and analysis of the theoretical literature on the causes of war and a survey of some major ongoing research programs on war and peace. Includes structural systemic, dyadic, domestic political, bureaucratic or organizational, and psychological approaches.

***PLSC 174b^G, SOCIAL FOUNDATIONS OF WAR.** Vivek Sharma.

T 3.30-5.20 III So (○)

Examination of the problems of conflict and violence in international politics. New perspectives on the concepts and assumptions underlying the dominant theoretical approaches to international war and peace. Topics include asking the right questions, creating an adequate conceptual framework, and understanding the nature and extent of the problem.

★PLSC 175a, AFTER COMMUNISM: THE POLITICS OF THE POST-SOVIET STATES. Matthew Light.

T 7-8.50 P.M. III; Not CR/D/F So (o)

In relation to all fifteen post-Soviet states, an examination of why states with such similar histories, and a similar burden of the Communist legacy, have produced such different political and economic trajectories after years of independence.

PLSC 176a/HIST 261a, THE COLD WAR. John Gaddis.

For description see under History.

★PLSC 177b/★EP&E 315b/★INTS 315b, EMERGENCE OF THE MODERN STATE. Vivek Sharma.

MW 2.30-3.45 III; Not CR/D/F So (o)

An examination of social science approaches to European state formation in the context of current debate on the nature of political authority in late medieval and early modern Europe. Applications of historical insights to modern issues of state building and failure. Topics include the difficulty of constructing viable and stable states in troubled regions of the world; the nature of the state; and the implications of historical literature for contemporary problems.

★PLSC 178a/★EP&E 316a/★INTS 316a, WAR AND PEACE IN THEORY AND HISTORY. Vivek Sharma.

MW 2.30-3.45 III; Not CR/D/F So (o)

Introduction to the leading theoretical approaches to war and peace in international relations within a historical context.

★PLSC 180b, NATIONALISM, ETHNICITY, AND WAR. Nicholas Sambanis.

M 1.30-3.20 III; Not CR/D/F So (o)

Exploration of the origins and evolution of nationalism and the conditions under which nationalist ideology leads to violent conflict. Focus on how ethnic identities can become mobilized to support nationalist claims and violence. Theories of identity formation and ethnic mobilization; assessment of recent evidence on the links between ethnic identity and violent conflict; the potential of political institutions to reduce the threat of ethno-nationalist conflict.

★PLSC 182bG, PEACEKEEPING AND PEACE BUILDING.

Nicholas Sambanis.

M 7-8.50 P.M. III; Not CR/D/F So (o)

A comprehensive analysis of theories and evidence on the uses of international organizations in postconflict peacekeeping and peace building.

★PLSC 183a, EUROPE, THE UNITED STATES, AND THE IRAQ CRISIS.

Jolyon Howorth.

T 3.30-5.20 III So (o)

Examination of the contrasting relations between the main European powers and the United States in their approaches to Iraq, in order to understand the divisions attending the 2003 war and the subsequent transfer of sovereignty. Topics include the Iran-Iraq War (1980-88), the first Persian Gulf crisis (1990-91), the sanctions regime (1991-2002), and the problems of peacekeeping and nation building.

★PLSC 184a/★INTS 378a, THE UNITED NATIONS AND THE MAINTENANCE OF INTERNATIONAL SECURITY. Jean Krasno.

W 1.30-3.20 III; Not CR/D/F So (o)

Consideration of the evolution of the United Nations and its role in a post-Cold War international system both in preventive diplomacy, with its use of force for peacekeeping and peace enforcement, and in peace building.

***PLSC 185aG/*EP&E 360a, SECESSION AND POLITICAL BOUNDARIES.**

Nicholas Sambanis.

M 7-8.50 P.M. III; Not CR/D/F So (0)

Analysis of the political economy of decentralization, secession, and political boundaries (both domestic and international). Explanation of why some countries have stable systems of political decentralization and others do not; why (and which) regions will demand more self-determination and where these demands might lead to violent conflict.

PLSC 187b/INTS 373b, TERRORISM AND COUNTERTERRORISM.

Stuart Gottlieb.

For description see under International Studies.

PLSC 188a/INTS 200a, INTERNATIONAL HUMAN RIGHTS. Molly Beutz.

For description see under International Studies.

***PLSC 190b/*INTS 353b, RETHINKING INTERNATIONAL RELATIONS THEORY THROUGH THE MIDDLE EAST.** Mine Eder.

For description see under International Studies.

PLSC 195a/INTS 323a, CIVIL WAR. Nicholas Sambanis.

MW 9-10.15 III; Not CR/D/F So (32)

Analysis of the causes of civil war, using a cross-national comparative perspective. Topics include the origins of civil war in nationalist conflict, the politics of identity, processes of political mobilization, the use of ethnicity to support violent conflict, and the impact of economic development and political institutions on countries' risk of civil war.

AMERICAN GOVERNMENT**PLSC 200b, INSTITUTIONS: THEORY AND EMPIRICAL APPLICATIONS.**

Rose Razaghian.

TTh 1-2.15 III So (26)

Introduction to the theoretical literature on institutions and to diverse empirical applications, including the U.S. Congress, U.S. bureaucracy, sovereign debt, central bank independence, and international institutions such as the League of Nations, United Nations, and IMF. Focus on the effect of political institutions on economic outcomes. *Recommended preparation:* PLSC 111a, 113b, or 116b.

PLSC 203b, INEQUALITY AND AMERICAN DEMOCRACY. Jacob Hacker.

TTh 2.30-3.20, 1 HTBA III WR, So (27)

Exploration of how inequalities across lines of class, race, and gender affect the working of American democracy. Analysis of ways that public policies contribute to or mitigate such inequalities. Interdisciplinary and multimedia inquiry into participation, policy making, and public policy in the United States.

***PLSC 204a, ETHICS AND THE MEDIA.** Stanley Flink.

Th 1.30-3.20 III; Not CR/D/F So (0)

Critical thinking about the history, theory, and practice of responsible journalism. The *New York Times*, the *Wall Street Journal*, major news magazines, and network newscasts used as sources of ethical issues for discussion. Students act as an editorial board—informing themselves and each other about the challenges of ethical journalism, among them the role of the news media in the age of terrorism. The independence and competence of generic newsrooms are central issues.

***PLSC 206b/*EP&E 326b, ELECTIONS AND REPRESENTATION.** Justin Fox.

M 3.30-5.20 III; Not CR/D/F So (0)

Examination of the critical role elections play in linking citizen preferences and public policies. Overview of alternative notions of representation; how the rules by which elections are contested structure the incentives of both politicians and voters; the role elections play in both disciplining incumbent behavior and enabling voters to select politicians who share their policy commitments. Particular attention to how changes in electoral laws (e.g., the laws governing campaign finance) affect the incentives of politicians to cater to certain constituencies while neglecting others.

★PLSC 209a, THE U.S. CONGRESS. Rose Razaghian.

T 3.30-5.20 III So (o)

Development of a detailed and critical understanding of the U.S. Congress, the primary democratic institution in the American political system. Focus on individual members of Congress, institutional features, the role of Congress within the larger separation-of-powers system, Congressional elections, and the shaping of legislation.

PLSC 213b, HEALTH CARE IN THE UNITED STATES. Elizabeth Bradley.

Tth 9-10.15 III So (22)

An introduction to the delivery, financing, and regulatory systems of health care in the United States. Analysis of health care problems in the United States using principles and methods from political science and health policy, economics, sociology, and history. Topics include paradoxes in the health care system, the degree to which stated health goals have been met, and proposed solutions to address cost, quality, and access issues in the current system.

★PLSC 214b, RACE AND VIOLENCE IN THE AMERICAN CITY. Paul Bass.

T 9.30-11.20 III; Not CR/D/F So (o)

An examination of racial violence in American cities in the closing years of the civil rights era, and of the implications of that violence for subsequent politics and policy. A central case study is the 1969 Black Panther murder of Alex Rackley, mistakenly identified as an FBI informer.

PLSC 215b/EVST 255b/F&ES 255b, ENVIRONMENTAL POLITICS AND LAW.

John Wargo.

For description see under Environmental Studies.

★PLSC 216a/★AFAM 243a, AFRICAN AMERICAN POLITICS.

Khalilah Brown-Dean.

T 3.30-5.20 III; Not CR/D/F So (o)

Exploration of the historical and contemporary political experiences of African Americans in the United States. Focus on both traditional and nontraditional strategies for gaining political inclusion. *Prerequisite:* PLSC 113b or equivalent.

★PLSC 217a^G, U.S. NATIONAL ELECTIONS. David Mayhew.

W 1.30-3.20 III; Not CR/D/F So (o)

An investigation of electoral realignments, voting for president and Congress, voter turnout, incumbency advantage, nominations, and campaign finance.

★PLSC 221a, U.S. IMMIGRATION LAW AND POLICY.

Alexandra Dufresne.

W 3.30-5.20 III; Not CR/D/F So (37)

Examination of the major themes and controversies in American immigration law and policy, including admission and deportation of noncitizens, protection of asylum-seekers and refugees, illegal immigration, strategies of immigration law enforcement, constitutional limits on executive power, the role of administrative agencies and federal courts, and civil rights of noncitizens before and after

September 11th. Emphasis on legal reasoning and analysis. *Prerequisites:* PLSC 113b and 233b.

★PLSC 225b, MODERN POLITICAL CAMPAIGNS. Sean Smith.

Th 3.30-5.20 III; Not CR/D/F So (o)

Examination of the practices of modern statewide and national political campaigns. Focus on how campaigns use communications and field strategies to inform, influence, and turn out voters.

★PLSC 227b, REFUGEE LAW AND POLICY. Alexandra Dufresne.

Th 3.30-5.20 III; Not CR/D/F So (o)

In-depth examination of major controversies and challenges in U.S. and international refugee law and policy, with a special focus on asylum law and practice in the United States. Emphasis on legal reasoning and analysis through close reading of statutes, regulations, and case law. Final project is a legal brief on behalf of a client. *Prerequisites:* PLSC 113b and 233b. *No prior experience in law required.*

★PLSC 228b, PERSPECTIVES ON THE CITY. Harry Wexler.

T 5.30-7.20 III; Not CR/D/F So (o)

Introduction for sophomores to the range of disciplines and methods appropriate to exploring the character and evolution of cities. Each week a scholar from a different field discusses that discipline's approach and methodology in its study of urban life.

PLSC 231a/PSYC 123a, THE PSYCHOLOGY, BIOLOGY, AND POLITICS OF FOOD. Kelly Brownell.

For description see under Psychology.

★PLSC 232a^G, BUREAUCRATIC POLITICS IN THE UNITED STATES.

Rose Razaghian.

T 1.30-3.20 III So (o)

Detailed examination of the organization of the U.S. bureaucracy. Topics include the role of information and delegation, agency design, direct and indirect oversight, the impact on public policy, and the bureaucracy's historical development. Particular attention to the choice of research questions and the methodology employed to address these questions.

PLSC 233b, CONSTITUTIONAL LAW. Akhil Amar.

TTh 11.30-12.45 III So (24)

An introduction to the main themes of the American Constitution—popular sovereignty, separation of powers, federalism, and rights—and to basic techniques of constitutional interpretation. Special emphasis on the interplay of constitutional text, judicial doctrine, and constitutional decision making outside the judiciary.

★PLSC 234a, INVESTIGATING PUBLIC DELIBERATION. Adam Simon.

Th 3.30-5.20 III So (o)

Review of normative, rational, and empirical approaches to public deliberation. Attempts to define deliberation and its effects, with an eye toward producing empirical investigations based on original data.

★PLSC 235b, AMERICAN POLITICAL THOUGHT. Rachel Seher.

TTh 4-5.15 III; Not CR/D/F So (o)

Examination of major political writings and debates relating to the American dream as it has been imagined in various historical periods. Topics include the birth of democratic institutions in post-revolutionary America, the challenges of slavery and democracy during the Civil War period, the social movements of the 1960s, and contemporary political debates ranging from same-sex marriage to

questions of race, gender, and class. Particular attention to the diversity of experiences in America. *Prerequisite*: PLSC 113b.

★PLSC 237b/★EP&E 329b, POLITICAL COMMUNICATION AND THE MEDIA.
Adam Simon.

Th 3.30-5.20 III; Not CR/D/F So (0)

A survey of research on contemporary and historical controversies in political communication with an emphasis on scientific designs. Readings and discussion lead to an appreciation for the differing points of view of relevant methodologies.

PLSC 240b, POLICY MAKING IN THE UNITED STATES, 1877 TO THE PRESENT. John Lapinski.

MW 10.30-11.20, I HTBA III So (33)

Investigation of the policy-making process in the United States from 1877 to 2006. Consideration of how policy construction and implementation change both over time and according to the particular issues addressed. *Recommended preparation*: PLSC 113b.

★PLSC 242b/★EP&E 445b, NEW CONCEPTIONS OF AMERICAN IDENTITY.
James Sleeper.

Th 9.30-11.20 III; Not CR/D/F So (0)

An exploration of how the American republic's civic-nationalist political culture contrasts with newer multiculturalist, universalist, and other critiques of nationalism and national identity. Final project integrates readings with narratives of American identity.

★PLSC 243b, U.S. NATIONAL POLICY MAKING. John Lapinski.

W 1.30-3.20 III; Not CR/D/F So (36)

A consideration of major instances of U.S. policy making such as the New Deal and the Great Society, as well as various theories that might underpin policy-making activity.

★PLSC 245a, URBAN POLITICS AND POLICY. Cynthia Horan.

Th 3.30-5.20 III; Not CR/D/F So (0)

An examination of alternative approaches to urban politics and political economy. Application of theories to contemporary policy issues such as policing, metropolitan disparities, and inner-city revitalization.

★PLSC 247b^G/★EP&E 424b, POLITICAL PARTICIPATION AND REPRESENTATION. Alan Gerber.

T 3.30-5.20 III; Not CR/D/F So (0)

Examination of the causes and consequences of observed patterns of participation in the electoral process, with a focus on voter turnout and campaign contributions. Theoretical models and empirical evidence are both considered. Readings include works by Verba, Schlozman, Brady, Rosenstone and Hansen, Downs, and Olsen.

★PLSC 248a, THE POLITICAL ECONOMY OF HEALTH CARE.

Peter Swenson.

M 1.30-3.20 III; Not CR/D/F So (0)

An examination of economic and political forces in systems for financing and delivering health care from the early twentieth century until the present. Topics include the failure of the ambitious universal health security legislation of the 1990s, managed care, the quality of health care delivery, rising costs, and declining health insurance coverage. Particular attention to the distinctive economics of health care and insurance markets and how they illuminate the politics of medicine. (Formerly PLSC 375b)

★PLSC 250b, AMERICAN NATIONAL INSTITUTIONS. Rose Razaghian.

T 3.30-5.20 III So (o)

A study of modern and classic debates about the political process that binds America's formal governmental institutions (Congress, the presidency, the bureaucracy, and the courts) together with informal institutions (parties and interest groups). Particular attention to the choice of research methods, techniques, and theoretical assumptions in published work on national institutions.

★PLSC 253b, BLACK POLITICS IN URBAN AMERICA. Cynthia Horan.

T 3.30-5.20 III; Not CR/D/F So (o)

A theoretical and empirical examination of African American politics in cities, with an emphasis on empowerment strategies. Topics include alternative approaches to race and power, the racial implications of economic restructuring, and federal policies. Case studies of mayors, community groups, and protest movements.

★PLSC 254b, COURTS, POLITICS, AND PUBLIC POLICY. Steven Teles.

M 1.30-3.20 III; Not CR/D/F So (o)

Examination of the role courts play in the development of American public policy. Focus on how legal change happens and on whether courts are effective at producing social change. Policy cases include racial and gender discrimination, prison reform, abortion, education, and the death penalty.

PLSC 255b, POLITICS AND THE MEDIA IN THE UNITED STATES.

Adam Simon.

TTh 1-2.15 III So (26)

An introduction to the major ideas, theories, and evidence in the study of political communication, in particular the effects of the mass media on public discourse, politics, and American government. Topics include democracy and deliberation; the political economy of news production; the creation and effects of political campaigns; and the use of critical and scientific methods in the study of politics and communication.

★PLSC 258a, ANALYSIS OF PRESIDENTIAL AND CONGRESSIONAL ELECTIONS. John Lapinski.

Th 3.30-5.20 III; Not CR/D/F So (o)

The conduct of American presidential campaigns, with special emphasis on the role of advertising in elections.

★PLSC 260a, PUBLIC SCHOOLS, POLITICS, AND POLICY.

John Bryan Starr.

M 3.30-5.20 III So Meets RP (o)

Investigation of how political decisions that affect public schools are made at local, state, and federal levels. Exploration of policy options on controversial education issues. Case studies from both districts and states. *Preference to students with training and experience in national, state, and local politics.*

PLSC 262a, PUBLIC OPINION. Adam Simon.

TTh 1-2.15 III So (26)

A review of the nature of public opinion in the United States: how political opinions are formed and later influenced, and how opinion in turn influences politics and public policy. Focus on voting behavior in federal elections.

★PLSC 264b, BIG CITY POLITICS IN AMERICA: NEW YORK, LOS ANGELES, CHICAGO. Cynthia Horan.

Th 3.30-5.20 III; Not CR/D/F So (o)

An exploration of scholarship on New York, Los Angeles, and Chicago, emphasizing key issues in urban political analysis. Topics include globalization, deindustrialization, transformations of urban space, racial conflicts, grassroots mobilizations, and urban governance.

PLSC 266a, THE POLITICS OF PUBLIC POLICY. Matthew Levendusky.

MW 1-2.15 III So (o)

A study of the politics of policy formation. Exploration of how interests compete within institutions to turn ideas into public policies.

★PLSC 268a/★AFAM 280a/★JDST 290a, BLACK AND JEWISH COMMUNITY POLITICS. Khalilah Brown-Dean.

T 1.30-3.20 III; Not CR/D/F So (o)

Study of the patterns of political conflict and coalescence between Black and Jewish communities in the United States. Attention to issues of identity, leadership, mobilization, and participation. Emphasis on the political motivations and consequences of events such as Oceanhill-Brownsville, Crown Heights, the civil rights movement, and the burning of Southern churches and synagogues. *Prerequisite*: PLSC 113b.

★PLSC 271b, NEW HAVEN AFTER URBAN RENEWAL. Paul Bass.

Th 1.30-3.20 III So (o)

Examination of New Haven's efforts to address urban challenges from 1970 to the present. Topics include public schools, public housing, downtown development, neighborhood renewal, community policing, community organizing, and the New Federalism.

POLITICAL PHILOSOPHY

PLSC 281a, MORAL, RELIGIOUS, AND SOCIAL ISSUES IN BIOETHICS.

David Smith.

TTh 9-10.15 III; Not CR/D/F So (22)

A selective survey of important issues in biomedical ethics. Comparison of different points of view from which the issues are approached, including religious vs. secular and liberal vs. conservative. Special attention to issues in research and at the beginning and end of life.

★PLSC 282b/★EP&E 349b, CAPITALISM VS. SOCIALISM: THE DEBATE.

John Roemer.

For description see under Ethics, Politics, & Economics.

PLSC 284a^G/HUMS 240a, DEMOCRATIC RHETORIC: DEMAGOGY, PERSUASION, AND DELIBERATION. Bryan Garsten.

MW 2.30-3.20, 1 HTBA III So (o)

Examination of the role of persuasion and persuasive speakers in democratic politics. Consideration of how to distinguish admirable orators from dangerous demagogues. Readings from speeches, classic texts of political philosophy, manuals of rhetorical instruction, and recent writings on deliberative democracy.

★PLSC 285b, BIOETHICS, RELIGION, AND THE LIMITS OF FREEDOM.

David Smith.

W 3.30-5.20 III; Not CR/D/F So (37)

Readings from the works of selected contemporary writers in biomedical ethics, with special attention to the authors' philosophical and theological methods. Focus on issues at the end of life and on questions of justice in health care. Discussion of the relationship among religion, ethics, and public policy.

***PLSC 288a^G/*EP&E 338a/*HUMS 373a, POSTCOLONIAL POLITICAL THOUGHT.** Karuna Mantena.

W 1.30-3.20 III; Not CR/D/F Hu, So (o)

Study of the writings of Mahatma Gandhi and Frantz Fanon, with some attention to more recent postcolonial theory. Consideration of how Gandhi and Fanon conceived of politics in the aftermath of colonialism; examination of their critical engagement with central questions of political theory, such as universality and freedom, revolution and history, progress, and emancipation. The relationship of European politics and ideas to the aspirations for and experience of freedom in the non-Western world.

PLSC 301a, AUTHORITY AND LEGITIMACY. Paulina Ochoa Espejo.

TTh 9-10.15 III So (o)

Examination of the concept of legitimate authority, focusing on how the writings of important political philosophers relate to both historical and contemporary political problems.

PLSC 302a^G, ANCIENT AND MEDIEVAL POLITICAL THOUGHT.

Robert Wokler.

TTh 2.30-3.45 III So (27)

An intensive study of the foundations of political philosophy. An analysis of the origins of political philosophy in Socratic and Platonic thought, followed by Machiavelli's comprehensive critique of the Socratic tradition.

***PLSC 305a/*EP&E 416a/*INTS 294a, CRITIQUE OF POLITICAL VIOLENCE.**

Boris Kapustin.

For description see under Ethics, Politics, & Economics.

***PLSC 306a, SOVEREIGNTY.** Paulina Ochoa Espejo.

T 3.30-5.20 III; Not CR/D/F So (o)

The history of the concept of sovereignty, including current debates over its meaning in political philosophy, international relations, and jurisprudence. Discussion of how these debates relate to both historical and contemporary political problems.

***PLSC 310b^G/*HIST 448b, THE AGE OF ENLIGHTENMENT AND ITS CRITICS.** Robert Wokler.

Th 1.30-3.20 III; Not CR/D/F WR, So (o)

Introduction to central themes and currents of European social and political thought in the eighteenth century, including notions of religious toleration, civilization and progress, and the emancipation of women, slaves, and Jews. Analysis of twentieth-century claims that modern totalitarianism and even the Holocaust may be traced to Enlightenment principles.

***PLSC 312b/*INTS 297b/*RSEE 385b, MORAL VALUES IN CIVIL SOCIETY.**

Boris Kapustin.

For description see under International Studies.

***PLSC 320b/*EP&E 332b/*PHIL 450b, LIBERALISM, GENDER, AND MULTICULTURALISM.** Seyla Benhabib.

For description see under Ethics, Politics, & Economics.

***PLSC 322b^G/*EP&E 354b/*HUMS 374b, EMPIRE AND MODERN POLITICAL THOUGHT.** Karuna Mantena.

W 1.30-3.20 III; Not CR/D/F So (o)

The development of modern political thought examined as it relates to the history of empire, focusing on how the imperial experience shaped central concepts

of political theory such as reason, liberty, rights, sovereignty, property, and progress. Readings from the works of Montaigne, Locke, Diderot, Kant, Herder, Burke, Marx, Mill, Tocqueville, and others.

★PLSC 324a^G/★EP&E 339a/★HUMS 380a, REPRESENTATION. Bryan Garsten.
T 3.30-5.20 III; Not CR/D/F So (0)

A historical survey of political thought about the principles of representative government. Topics include the prehistory of representation in ancient Athens and Rome; medieval, early modern, and Enlightenment theories, including those debated after the American and French Revolutions; and recent debates on representation in the United States and the European Union.

★PLSC 327a/★HUMS 376a, DIRECT DEMOCRACY, MODERN AND ANCIENT.
Cynthia Farrar.

T 1.30-3.20 III; Not CR/D/F So (26)

Exploration of the theory and practice of direct participation by citizens in decision making, government, and governance. The experience of the ancient Athenians is used to illuminate and assess various current initiatives to engage citizens, including “bowling together,” e-democracy, referenda and opinion polls, community organizing, and the Deliberative Poll. Attention to the question of whether democracy is missing from modern representative republics.

ANALYTICAL POLITICAL THEORY

★PLSC 341a/★EP&E 328a, POSITIVE POLITICAL THEORY. Seok-ju Cho.

T 9.30-11.20 III; Not CR/D/F So (22)

An introduction to the “rational choice” approach to understanding political phenomena. Topics include the properties of voting rules, vote trading in legislatures, the provision of public goods, and manipulation of the voting agenda.

COMPARATIVE GOVERNMENT

★PLSC 350b^G, THE DYNAMICS OF RUSSIAN POLITICS.
William Odom.

T 1.30-3.20 III; Not CR/D/F So (0)

Consideration of the question “Whither Russia?” with emphasis on comparative analytic concepts. Issues of political stability, constitutionalism, and institutions for political participation and governing examined in light of contemporary events and of the Soviet legacy.

PLSC 352b/FILM 318b, POLITICS AND FILM. Stathis Kalyvas.

MW 2.30-3.45; *screenings* HTBA III Hu, So (0)

A study of political development combining three types of material: films, historical case studies, and theoretical studies. Topics include nation and state formation, democracy and authoritarianism, decolonization and state building in the periphery, distributional conflicts, revolution, civil war, and genocide. Films include *The Leopard*, *The Grand Illusion*, *The Battle of Algiers*, and *The City of God*. Attention to the historical background of events depicted in the films and to theories that attempt to explain the general class of events depicted. *Recommended preparation*: PLSC 116b.

PLSC 359a/INTS 324a, VIOLENCE AND CIVIL STRIFE. Stathis Kalyvas.

MW 11.30-12.45 III So (34)

An examination of political violence with an emphasis on civil wars, presently the dominant form of war.

PLSC 360b/DEVN 190b/EVST 190b, MODERN CAPITALISM AND ENVIRONMENT: PATHWAYS TO SUSTAINABILITY OR END OF THE ROAD? James Gustave Speth.
For description see under DeVane Lecture Course.

PLSC 365a/SLAV 207a, LANGUAGES AND POLITICS. Robert Greenberg.
For description see under Slavic Languages & Literatures.

*PLSC 366a^G, EUROPEAN POLITICS. David Cameron.
T 1.30-3.20 III; Not CR/D/F So (0)

Comparison of the political systems of the major European countries. Topics include political institutions, electoral politics and political parties, public policies, and contemporary problems.

PLSC 367a, POLITICS IN INDIA. Karuna Mantena.
TTh 2.30-3.45 III; Not CR/D/F So (27)

Examination of the origins, institutions, and practices of India's democratic experiment. Exploration of three major themes: (1) the legacy of colonialism (the colonial state, nationalism, partition, and independence); (2) dilemmas of representation (caste, region, and ethnicity; secularism, religion, and politics; majoritarianism); and (3) the challenge of inequality (caste and class; poverty and development; liberalization and globalization).

PLSC 372b/EP&E 318b, POLITICS AND MARKETS. Peter Swenson.
TTh 4-5.15 III; Not CR/D/F So (27)

Examination of the interplay between market and political processes in different substantive realms, time periods, and countries. Inquiry into the developmental relationship between capitalism and democracy, including the developmental and functional relationships between the two. Investigation of the politics of regulation in areas such as property rights, social security, international finance, and product, labor, and service markets. Topics include the economic motives of interest groups and coalitions in the political process.

PLSC 373a, COMPARATIVE JUDICIAL POLITICS. Frances Rosenbluth.
MW 10.30-11.20, 1 HTBA III WR, So (33)

Exploration of the development of constitutional forms, historically and theoretically, with special attention to the judicial branch of government. Roman criminal and civil law and its transmission to European states; the origins and development of civil law versus common law systems; the structure and functioning of judicial systems across countries.

*PLSC 377b/*INTS 339b, POLITICAL ECONOMY OF THE MIDDLE EAST.
Isam Khafaji.
For description see under International Studies.

*PLSC 379a^G, JAPANESE POLITICS AND POLITICAL ECONOMY.
Frances Rosenbluth.
W 1.30-3.20 III; Not CR/D/F So (0)

Examination of Japan's political institutions and the way these affect the policy-making process. Consideration of Japan's emerging role in the world political economy.

PLSC 381a/AFST 381a, GOVERNMENT AND POLITICS IN AFRICA.
David Simon.

TTh 11.30-12.45 III; Not CR/D/F So (24)
An examination of the establishment and use of political power in selected countries of tropical Africa. Special attention to the political role of ethnic and class

cleavages, to military coups, and to the relation between politics and economic development.

PLSC 382a, COMPARATIVE POLITICS IN LATIN AMERICA. Susan Stokes.

TTh 9-10.15 III; Not CR/D/F So (22)

Introduction to major theories of political and economic change in Latin America, and to the political and economic systems of particular countries. Questions include why the continent has been prone to unstable democratic rule, why countries in the region have adopted alternatively state-centered and market-centered economic models, and, with the most recent wave of democratization, what the remaining obstacles might be to attaining high-quality democracy.

★PLSC 383b^G/★EP&E 324b, AUTHORITARIAN REGIMES. Pierre Landry.

W 1.30-3.20 III; Not CR/D/F So (o)

Introduction to the key literature on authoritarian regimes and their political evolution.

★PLSC 384a^G/★EP&E 317a, POWER AND AUTHORITY IN CHINA'S LOCALITIES. Pierre Landry.

W 1.30-3.20 III; Not CR/D/F So (o)

An examination of the relationship between "reforms" and the political evolution of Chinese localities in contemporary China. Topics include the "village" literature, namely the lowest level of aggregation of China's local institutions, and the issue of political authority in the broader contexts of cities and provinces.

★PLSC 391b^G/★INTS 383b^G, RESEARCHING ETHNIC POLITICS.

Thad Dunning.

For description see under International Studies.

PLSC 393a/INTS 382a, ETHNIC POLITICS IN COMPARATIVE PERSPECTIVE.

Thad Dunning.

For description see under International Studies.

★PLSC 397b/★INTS 270b, CANADIAN GOVERNMENT AND POLITICS.

Gerald Baier.

T 3.30-5.20 III; Not CR/D/F So (o)

A survey of Canadian government and politics. Introduction to the structure and operation of the Canadian political system and to current struggles and controversies in Canadian political life. Topics include constitutional change, Québécois sovereignty, aboriginal issues, and Canada's place within North America.

★PLSC 398a/★EP&E 457a, THE INTERNATIONAL MONETARY FUND AT A CROSSROADS. James Vreeland.

T 1.30-3.20 III; Not CR/D/F So (o)

A study of the purposes and effects of the International Monetary Fund. Who controls the IMF; why governments enter into its programs; whether governments comply with IMF arrangements; IMF reform.

★PLSC 401a, PROMOTING DEMOCRACY IN DEVELOPING COUNTRIES.

Harry Blair.

T 1.30-3.20 III; Not CR/D/F So (o)

Western efforts to promote democratization in developing countries over the past fifteen years through foreign aid programs. Emphasis on "applied democracy"—putting theory into action.

★PLSC 406a^G/★AFST 406a^G, SEXUAL VIOLENCE AND WAR.

Elisabeth Wood.

T 7-8.50 P.M. III; Not CR/D/F So (o)

Analysis of patterns of sexual violence in war. Assessment of how well the relevant literatures in sociology, political science, criminology, psychology, biology, and gender studies account for these patterns.

***PLSC 412a, TRANSITIONS IN CENTRAL AND EASTERN EUROPE.**

Matthew Light.

W 7-8.50 P.M. III; Not CR/D/F So (o)

Examination of the establishment, crisis, and collapse of communist regimes in central and eastern Europe; analysis of the politics of the transition period. Consideration of the relationship among the political, economic, and social aspects of transition.

***PLSC 413a/*HIST 458a, THE FRANCO-GERMAN RELATIONSHIP IN POSTWAR EUROPE.** Carine Germond.

For description see under History.

***PLSC 419b/*HIST 438b, THE EUROPEAN PROJECT, 1945 TO THE PRESENT.** Carine Germond.

For description see under History.

***PLSC 426b, WORLD FOOD ISSUES.** Harry Blair.

T 1.30-3.20 III; Not CR/D/F So (o)

Issues of food production, food policy, and food distribution in the United States and the developing world. Technological, economic, political, demographic, and nutritional aspects of food and hunger are analyzed.

***PLSC 430b/*AFST 420b, THE POLITICS OF DEVELOPMENT ASSISTANCE.**

David Simon.

T 3.30-5.20 III; Not CR/D/F So (o)

A study of development assistance, the dominant feature of the political economies of some of the world's poorest countries. Examination of the political and economic impact of aid in developing countries. Consideration of the potential of a series of proposals to make aid a more effective instrument of development.

PLSC 431b/AFST 431b, COMPARATIVE POLITICS OF DEVELOPMENT.

David Simon.

MW 1-2.15 III So (o)

Comparison of the development experiences of different countries and regions around the world. Focus on the policies, institutions, and other elements of the political context that account for divergence in development outcomes.

***PLSC 432b, DIRTY AND DANGEROUS WORK.** Timothy Pachirat.

W 7-8.50 P.M. III; Not CR/D/F So (o)

Analysis of power and efficiency as alternate explanations for the delegation and performance of unclean, demeaning, and dangerous jobs. Application of ideas from political economy, normative political theory, and social theory to case studies from domestic, assembly line, garbage, and slaughterhouse work.

***PLSC 437a, CONFRONTING THE "ISLAMIST THREAT."** Ellen Lust-Okar.

T 1.30-3.20 III; Not CR/D/F So (o)

Overview of the challenges posed by radical Islamist groups at the national and transnational levels. Topics include factors promoting the rise of political Islam, state strategies toward Islamist groups, the regional and transnational manifestations and implications of Islamist movements, and the resulting policy implications of these movements.

PLSC 438a/ANTH 275a/INTS 385a/WGSS 385a, MEN, WOMEN, AND FAMILY IN THE MUSLIM MIDDLE EAST. Amy Young.
For description see under Anthropology.

★PLSC 444b^G, THE POLITICAL ECONOMY OF GENDER.
Frances Rosenbluth.

T 9.30-11.20 III; Not CR/D/F So (o)

Evaluation of the empirical record of gender differences in wages, employment, political representation, and social status, over time and across countries. Methods of interpretation include classical political theory, neoclassical economics, and bargaining models from modern political economy.

PLSC 445a/INTS 336a, THE POLITICAL ECONOMY OF GREATER CHINA.
Pierre Landry.

TTh 2.30-3.45 III; Not CR/D/F So (o)

Overview of the politics of economic reform in China since 1978, including the interaction between the Chinese mainland, Hong Kong, and Taiwan. *Recommended preparation:* PLSC 116b or a survey course on China.

★PLSC 447a/★AFST 447a, THE RWANDAN GENOCIDE IN COMPARATIVE CONTEXT. David Simon.

W 3.30-5.20 III; Not CR/D/F So (o)

An examination of the 1994 Rwandan genocide, addressing the historical sources of the conflict, the motivations of the killers, the impact of the actions and reactions of outside actors, the efforts to reconstruct a post-genocide society, and continuation of the genocidal dynamic within the Great Lakes region. Consideration of other countries in similar situations, as well as other genocides in recent decades.

★PLSC 448a/★INTS 350a, CONTEMPORARY POLITICAL ECONOMY OF TURKEY AND THE MIDDLE EAST. Mine Eder.

For description see under International Studies.

★PLSC 449b, SOUTHEAST ASIAN POLITICS. Timothy Pachirat.

T 7-8.50 P.M. III; Not CR/D/F So (o)

An introduction to Southeast Asian politics. Topics include the politics and societies of each country in the region, and sociopolitical issues such as nationalism and nation building, ethnic and religious pluralism, developmentalism and the recent economic crisis, reformist movements, and regional initiatives. *Prior knowledge of one or more countries in the region helpful but not required.*

STATISTICAL AND MATHEMATICAL METHODS

PLSC 452a/EP&E 203a/STAT 102a^G, INTRODUCTION TO STATISTICS: POLITICAL SCIENCE. Jonathan Reuning-Scherer, Alan Gerber.

For description see under Statistics.

PLSC 453a/EP&E 209a/STAT 103a^G, INTRODUCTION TO STATISTICS: SOCIAL SCIENCES. Jonathan Reuning-Scherer.

For description see under Statistics.

ADVANCED COURSES

★PLSC 471a and 472b, INDIVIDUAL READING FOR MAJORS. Members of the department.

HTBA III; Not CR/D/F (o)

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.

★PLSC 474b, DIRECTED READING AND RESEARCH FOR JUNIOR

INTENSIVE MAJORS. Members of the department.

HTBA III; Not CR/D/F (○)

For juniors preparing to write 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.

★PLSC 480a or b, ONE-TERM SENIOR ESSAY. Members of the department.

HTBA III; Not CR/D/F (○)

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. Keith Darden.

M 1.30-3.20 III; Not CR/D/F (○)

Students present versions of their senior project research proposals for discussion by fellow students and faculty. Initial work on the first draft of the senior project is begun. *Enrollment limited to Political Science majors writing a yearlong senior essay.*

★PLSC 491b, THE SENIOR ESSAY. Members of the department.

HTBA III; Not CR/D/F (○)

Each student writing a yearlong senior essay establishes a regular consultation schedule with a department member who, working from the prospectus prepared in PLSC 490a, advises the student about preparation of the essay and changes to successive drafts. The final essay is submitted in April. *Enrollment limited to Political Science majors writing a yearlong senior essay.*

★PLSC 493, SENIOR ESSAY FOR INTENSIVE MAJORS. Members of the department.

HTBA III; Not CR/D/F (○)

Each student writing a senior essay establishes a regular consultation schedule with a department member who, working initially from the student's previously approved prospectus, advises the student about preparation of the essay and changes to successive drafts, as well as reporting the student's progress until submission of the final essay in April.

PORTUGUESE

Director of undergraduate studies: K. David Jackson, 82–90 Wall St., 432-1158, k.jackson@yale.edu

Portuguese is taught at Yale as part of the Department of Spanish and Portuguese; the names of departmental faculty members teaching Portuguese courses appear in the faculty list under “Spanish.”

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.

Students begin the study of Portuguese with PORT 115, an elementary course without prerequisites, or with PORT 118, an elementary course for students who are proficient in a Romance language. They continue with PORT 130, by the end of which students will have achieved intermediate proficiency in the language, sufficient to enable them to begin the study of advanced courses in Luso-Brazilian literature and culture.

The standard major, for which the prerequisite is PORT 130 or the equivalent, consists of twelve term courses. Students must take at least two term courses each in the literatures of Portugal and of Brazil. In completing their programs, students may elect up to four courses in other languages and literatures, anthropology, history, history of art, or from study abroad, that are related to their field of study and approved by the director of undergraduate studies. 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.

Senior requirement. All majors must either present a senior essay or take the departmental examination. The essay is written in PORT 491a or b or 492a or b. A maximum of two credits counts toward the major. The examination is both written and oral and covers three periods of Portuguese and Brazilian literatures.

Placement. 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 and those enrolling in courses designated L5. The departmental placement test covers reading, writing, speaking, and listening skills. The examination will be given on Sunday, September 3, from 2 to 4 P.M. and from 4.30 to 6.30 P.M., and in the spring term on Sunday, January 14, at 6 P.M.

• *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in Portuguese by successful completion of PORT 130. Alternatively, students may satisfy the requirement by scoring above the intermediate level on the departmental placement examination.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under "Distributional Requirements" in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisite: PORT 130 or equivalent

Number of courses: Twelve term courses beyond prerequisite (including the senior essay course, if elected)

Distribution of courses: At least two courses in lit of Portugal, two in lit of Brazil

Substitution permitted: With permission of DUS, up to four relevant courses from other depts or from study abroad

Senior requirement: Senior essay (PORT 491a or b or 492a or b) or dept exam, written and oral, covering three periods of Portuguese and Brazilian lits

★PORT 001b, LATIN AMERICAN SHORT FICTION. Paulo Moreira.

Th 9-10.15 Hu (○) Tr Fr sem

Introduction to Latin American literature through one of its highest achievements: the short narrative from Brazil and Spanish America. Works of Brazilian authors

(Machado de Assis, Guimarães Rosa, Graciliano Ramos, Clarice Lispector) compared with short stories from Spanish America (Quiroga, Rulfo, Carpentier, Borges) and the United States (Faulkner, Ellison, Chopin). Topics include narrative structure and expressive qualities of the texts; literary currents; and social, psychological, and existential themes. *Readings and discussion in English; texts available in the original languages. Enrollment limited to freshmen.*

PORT 115, ELEMENTARY PORTUGUESE. Staff.

I; Not CR/D/F L1–L2 3 C Credits Meets RP *Cr/Year only*

115-1: MTWThF 9.30-10.20 (61)

115-2: MTWThF 10.30-11.20 (61)

Basic vocabulary and fundamentals of grammar through practice in speaking, reading, and writing, with stress on audiolingual proficiency. Introduces Brazilian and Portuguese culture and civilization. To be followed by PORT 130. *Qualifies students for summer study abroad.*

*PORT 118, ELEMENTARY PORTUGUESE FOR ROMANCE LANGUAGE SPEAKERS.

I; Not CR/D/F L1–L2 3 C Credits Meets RP *Cr/Year only*

118-1: MTWThF 11.30-12.20 (61) Staff

118-2: MTWThF 3.30-4.20 (61) Marta Almeida

A comprehensive Portuguese course for students proficient in Spanish or another Romance language. Basic vocabulary and fundamentals of grammar through practice in speaking, reading, and writing. Includes laboratory practice. Conducted entirely in Portuguese. Normally prepares for PORT 130. *Qualifies students for summer study abroad.*

PORT 130, INTERMEDIATE PORTUGUESE. Marta Almeida.

MTWThF 2.30-3.20 I; Not CR/D/F L3–L4 3 C Credits

Meets RP (37)

Contemporary and colloquial usage of Portuguese, with emphasis on differences between the spoken and the written language of Brazil. Grammar review and writing practice. Readings enrich students' vocabulary, improve their command of Brazilian Portuguese, and introduce them to Brazilian literature.

*PORT 138b, ADVANCED PRACTICE IN PORTUGUESE.

Marta Almeida.

MWF 1.30-2.20 I; Not CR/D/F L5 Meets RP (0)

Advanced conversation and composition, with an introduction to Luso-Brazilian literature and culture. *After* PORT 130.

PORT 211a, PORTUGUESE LANGUAGE AND CULTURE. Marta Almeida.

MWF 1.30-2.20 I L5 (36)

Advanced study of Portuguese language and culture. Focus on developing an analytic and critical sense of current sociolinguistic trends, such as immigration, bilingualism, and language and gender in the Luso-Brazilian world.

PORT 246a/SPAN 245a, LATIN AMERICAN FILM: BRAZIL, MEXICO, AND ARGENTINA. Paulo Moreira.

TTh 1-2.15, 1 HTBA I or II Hu (26)

An overview of the best cinema produced in Brazil, Mexico, and Argentina; survey of recent films by influential directors from these countries. Comparative discussion of cultures, using the contexts of film production and content. *Conducted in English.*

PORT 249a, INTRODUCTION TO BRAZILIAN CULTURE. Paulo Moreira.

TTh 11.30-12.45 I L5, Hu (24)

Introduction to current cultural issues in Brazil, with an overview of the country's music, art, dance, theater, literature, and cinema. Source materials include literary and nonliterary texts in Portuguese, Web pages, music, and films. *Conducted in Portuguese.*

★PORT 341b^G/★LITR 191b, CULTURAL ENCOUNTERS OF THE PORTUGUESE.

K. David Jackson.

Th 9.30-11.20 I WR, Hu (o) Tr

A study of literary works that address cultural encounters of the Portuguese world, from colonial to modern and from Asia to Brazil. Topics include acculturation, crossing cultures, creolistics, miscegenation and hybrid cultures, indigenous peoples and languages, and the theory of space in between cultures. Readings include the epic, histories, memoirs and travel literature, and the *Cannibal Manifesto*. *Conducted in English.*

PORT 385b/LITR 290b/SPAN 390b, LATIN AMERICAN POETRY: BRAZIL AND MEXICO. Paulo Moreira.

For description see under Spanish.

PORT 393a/LITR 231a, MODERN BRAZILIAN AND PORTUGUESE FICTION IN TRANSLATION. K. David Jackson.

MW 1-2.15 I WR, Hu (o) Tr

An introduction to the major writers in modern Brazilian and Portuguese literatures, including Machado de Assis, Clarice Lispector, Guimarães Rosa, Fernando Pessoa, and José Saramago. *Conducted in English.*

PORT 396b/LITR 292b, MODERN BRAZILIAN LITERATURE IN TRANSLATION. K. David Jackson.

MW 1-2.15 I WR, Hu (o) Tr

Study of major writers, movements, and works in Brazilian literature, including drama, poetry, essay, memoirs, and fiction. Introduction to the essential canonical writers, works, and movements in modern Brazilian literature, including naturalism, realism, modernism, social realism, innovative writing, and postmodern trends. Provides a general introduction to key concepts in Brazilian civilization. Readings include theater, manifesto, essay, poetry, and fiction. *Conducted in English.*

PORT 410a^G/LITR 291a, THE BRAZILIAN SHORT STORY IN TRANSLATION.

K. David Jackson.

MW 2.30-3.45 I WR, Hu (o) Tr

The Brazilian short story from Machado de Assis to the present, confronting the European literary background with Brazilian linguistic, indigenous, and cultural realities. Authors from four literary periods, including Guimarães Rosa and Clarice Lispector, and dominant critical and thematic currents. *Conducted in English.*

★PORT 471a and 472b, DIRECTED READING OR DIRECTED RESEARCH.

Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

Individual study for qualified students under the supervision of a faculty member whom the student selects. *Approval of the director of undergraduate studies required.*

★PORT 491a or b and 492a or b, THE SENIOR ESSAY. K. David Jackson.

HTBA I; Not CR/D/F L5 (o)

A research project designed under a faculty director, resulting in a substantial paper written in Portuguese, submitted to the director of undergraduate studies and a second designated reader.

PSYCHOLOGY

Director of undergraduate studies: Woo-kyoung Ahn, 319 sss, 432-9626,
psychdus@yale.edu

FACULTY OF THE DEPARTMENT OF PSYCHOLOGY

PROFESSORS

Woo-kyoung Ahn, J. Truett Allison, Stephen Anderson, John Bargh, Linda Bartoshuk, Sidney Blatt, Paul Bloom, Thomas Brown, Kelly Brownell, Joseph Chang, Marvin Chun, Margaret Clark, Ravi Dhar, Carol Fowler (*Adjunct*), Louis Goldstein, Donald Green, Laurence Horn, Marcia Johnson, Alan Kazdin, Frank Keil, Marianne LaFrance, James Leckman, Lawrence Marks, Kathleen Merikangas, Susan Nolen-Hoeksema, David Pauls, Donald Quinlan, Peter Salovey, Fred Volkmar, Victor Vroom, Allan Wagner, Karen Wynn

ASSOCIATE PROFESSORS

Amy Arnsten, Larry Davidson, Karyn Frick, Elena Grigorenko, Jeannette Ickovics, Robert Kerns, Jr., Ami Klin, Joseph Mahoney, Linda Mayes, Brian Scholl, Mary Schwab-Stone, Kathleen Sikkema

ASSISTANT PROFESSORS

Maria Babyonyshev, William Corbin, Jeremy Gray, Julia Kim-Cohen, Douglas Mennin, Nathan Novemsky, Maria Piñango, Valerie Purdie-Vaughns, Laurie Santos, Mark Schaefer, Glenn Schafé, Teresa Treat, Charles Yang

LECTURERS

Marc Brackett, Nancy Close, Nelson Donegan, Carla Horwitz, Kent Kiehl, Kristi Lockhart, Christian Luhmann, Ewan McNay, Tina Newman, Burton Saxon

The introduction to psychology is PSYC 110a or b, the general survey course. All other courses have PSYC 110a or b as a prerequisite, except the courses listed under “Survey Courses without Prerequisite.”

Courses in the department are organized so that they are best taken in several parallel sequences. Courses numbered between 120 and 199 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 to 209 focus on statistics and general methodology. Courses numbered from 210 to 299 teach data collection in various areas of psychology. Courses numbered from 300 to 399 are more advanced courses in a particular specialization. Senior seminars, whose enrollment is limited to twenty students, are numbered from 400 to 489. These seminars are best taken once a student has appropriate background. Courses numbered from 490 to 499 are special tutorial courses for which permission of the adviser and the director of undergraduate studies is required.

The standard major. The major in Psychology requires twelve term courses beyond PSYC 110a or b, not including the senior requirement.

1. Because psychology is so diverse a subject, every student is required to take at least two courses from the social science point of view in psychology (List A) and at least two from the natural science point of view (List B). At least one course from each list must be a core course numbered from 120 to 199 and ending in zero. Students are expected to take those two core courses as early as possible in the major, normally within two terms after declaring their major.

List A: 123a, 125a, 127a, 128b, 140a, 150b, 180b, 325a, 342a, 350a, 355, 363a

List B: 120a, 130a, 137a, 163b, 170a, 171b, 176a, 240a, 318a, 322b, 331b, 371a, 372a

2. Because statistical techniques and the mode of reasoning they employ are fundamental in psychology, a course in statistics (PSYC 200a or equivalent) is required, preferably prior to the senior year. A student may substitute an examination arranged with the instructor of PSYC 200a for this requirement.

3. To assure some direct experience in collecting and analyzing data, the student must elect at least one course, preferably prior to the senior year, in which research is planned and carried out. Courses numbered between 210 and 299 fulfill this requirement. (The same course may satisfy both this and the first requirement.)

4. To encourage a consideration of the relation between psychology and other disciplines, students may count toward the major as many as three term courses in other related departments, including college seminars. That is, only nine of the twelve courses for the major must be in the Department of Psychology. Appropriate courses are offered by the departments of Anthropology; Computer Science; Ecology and Evolutionary Biology; Molecular, Cellular, and Developmental Biology; Philosophy; Political Science; and Sociology; and by the program in Cognitive Science. Some students may find courses in other departments related to their major. Students should consult with the director of undergraduate studies in Psychology about selecting outside courses to count toward the major. In all cases, courses in other departments must have substantial psychological content or clear links to topics in psychology.

5. Students are urged to take at least one seminar especially for seniors (400–489). They are also encouraged to take at least one of several tutorials (PSYC 490a, 491b, 492a, 493b) designed as independent study courses. No more than three tutorials may count toward the major. Students interested in research are encouraged to take a tutorial as early as the sophomore year.

Senior requirement. Every Psychology major is required to write a senior thesis. This senior requirement can be fulfilled either by engaging in an empirical research project, by analyzing an existing data set, or by writing a conceptual paper. In all cases, it is expected that the senior project represent a substantial body of work that includes significant original contributions. The senior thesis should be at least twenty double-spaced pages in length, and it should also conform to the specific guidelines provided by the senior thesis adviser. Completion of the project itself does not award academic credit. Students are strongly encouraged to choose an adviser or develop a concrete plan for their senior project by the end of the junior year.

There are three possible options for writing a senior thesis. First, a student may work with a senior thesis adviser without registering for any specific class. Second, a student may earn directed research or directed reading credit, taken as PSYC 490a, 491b, 492a, or 493b while completing the senior project. There is no restriction on how many of these courses may be applied to a senior project. In the case of two-term directed research or directed reading credit, a student must register in each term for PSYC 490a, 491b, 492a, or 493b, and must submit a report of activities and progress at the end of the fall term. The midyear report must represent a body of work distinct from what is submitted at the end of the spring term as the final product for the senior project. Third, a student may write a senior essay as the final paper for a senior seminar. 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 are open to interested juniors, but one must be taken in the senior year to fulfill the senior requirement. Seniors, with the permission of the director of undergraduate studies and

the instructor, may arrange to take other seminars to fulfill the senior essay requirement. If a student seeks directed research or directed reading credit for a project that is linked to a topic in a seminar, the work done must be equivalent to a full course above and beyond any work done in the seminar.

In all three of these options, a second reader will be appointed by the department to determine a final grade for the senior thesis in consultation with the primary adviser.

Computer Science and Psychology major. The interdepartmental major Computer Science and Psychology may be considered by students with interests lying squarely between the two disciplines. See under Computer Science and Psychology for more information.

Departmental advisers. Schedules for all majors must be discussed with, and approved by, the director of undergraduate studies or the advisers for the behavioral neuroscience and philosophy tracks in Psychology. Only then can a schedule be submitted to the residential college dean's office. For questions concerning credits for courses taken at other institutions or at Yale but outside the Department of Psychology, students should consult the director of undergraduate studies. For questions concerning special tracks, students should consult the advisers for the behavioral neuroscience and philosophy tracks in Psychology.

Psychology and early childhood teaching. It is possible to combine a major in Psychology with a program of study in the Teacher Preparation and Education Studies program to earn a Connecticut teaching certificate in early childhood education. This combination creates opportunities to join theory with practice through field experiences at early childhood centers in New Haven. See under Teacher Preparation and Education Studies for more information.

BEHAVIORAL NEUROSCIENCE TRACK IN PSYCHOLOGY

Adviser: Allan Wagner, 304 DL, 432-469I, allan.wagner@yale.edu

Students with a major interest in neuroscience may wish to elect the behavioral neuroscience track. 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.

Requirements for the behavioral neuroscience track are *the same as for the standard major, with the following exceptions:*

1. In addition to PSYC 110a or b, the student must take two introductory courses, MCDB 120a and E&EB 122b. Students with scores of 5 on the Advanced Placement test in Biology or 710 or higher on the SAT II subject test, or who have had an equivalent course, may be exempted from MCDB 120a and E&EB 122b at the discretion of the major adviser for the behavioral neuroscience track.

2. The student is expected to complete twelve term courses, including PSYC 170a and a data-collection course, PSYC 240a or 270b. (MCDB 360a may substitute for the PSYC 170a requirement, or MCDB 360a and 361La may substitute for the PSYC 240a or 270b requirement, but not both. If MCDB 360a is substituted for a psychology course, it cannot also be counted as one of the four additional courses outside the department.) At least six courses must be in the Psychology department, with at least two being from the Psychology List A. The List A courses do not need to be core courses with a number ending in zero. At least four courses must be chosen from the following: Ecology and Evolutionary Biology and Molecular, Cellular, and Developmental Biology courses numbered 200 and above that deal with human and/or

animal biology; ANTH 299a; BENG 421b; CPSC 475b and 477a; MB&B 300a, 301b, and 443b; MATH 222a or b, 225b, and 230; and STAT 241a. In addition to these courses, others may be selected in consultation with the behavioral neuroscience track adviser. Students should note that many of these courses have prerequisites which must be taken first. Students are encouraged to take accompanying laboratories where they exist. Laboratories in EEB or MCDB award one-half course credit toward the major. Organic chemistry and related laboratories cannot be substituted for any courses in the major.

3. The faculty adviser for the senior project may be a faculty member in another related department, subject to approval by the director of undergraduate studies. The appropriate courses for those wishing course credit are PSYC 490a and 491b, or 492a and 493b, regardless of whether the faculty adviser is in Psychology or another department. Such independent study courses require prior permission of the faculty adviser and the major adviser for the behavioral neuroscience track. Students are encouraged to discuss their plans for the senior project with the behavioral neuroscience track adviser by the spring term of their junior year.

Students interested in behavioral neuroscience should consult the listings of the neurobiology track offered by the Molecular, Cellular, and Developmental Biology department for an alternative method of satisfying these interests.

PHILOSOPHY TRACK IN PSYCHOLOGY

Adviser: Brian Scholl, 304 SSS, 432-4629, brian.scholl@yale.edu

Students with interests encompassing both philosophy and psychology may wish to elect the philosophy track. Students in this track are considered Psychology majors for whom the requirements have been modified to accommodate their interests in philosophy.

Requirements for the philosophy track are the same as for the standard major in Psychology except that five of the elective courses required for the major must be taken from the Philosophy department, with the remaining eight courses taken from the Psychology department. (This track thus precludes the possibility of counting any additional classes from other departments toward the major, as is possible in the standard major.) Students electing the philosophy track must still satisfy all other requirements of the major, including the requirements for introduction to psychology, statistics, research methods, List A and List B, and the senior project. Senior project advisers for students in this track may be chosen from either the Psychology or Philosophy departments. In selecting courses in philosophy, students are advised to consider the following aims: (1) to obtain a background through an introductory or historical course in philosophy; (2) to obtain breadth by taking at least one course in each major area defined in the description of the Philosophy major; (3) to include courses addressing problems especially pertinent to psychology.

Students interested in psychology and philosophy are also urged to consult the description of the psychology track offered by the Philosophy department for an alternative method of satisfying these interests.

REQUIREMENTS OF THE MAJOR IN PSYCHOLOGY

STANDARD MAJOR

Prerequisite: PSYC 110a or b

Number of courses: Twelve term courses beyond prerequisite

Specific course required: PSYC 200a

Distribution of courses: Two courses from List A, two courses from List B as specified; one Psych course numbered 210–299

Substitution permitted: For PSYC 200a, an exam arranged with instructor; up to three relevant courses in other depts, including college sems, with permission of DUS

Senior requirement: Senior project (may be done in PSYC 490a, 491b, or in 492a, 493b, or in sem course, 400–489, or without enrollment in a course)

BEHAVIORAL NEUROSCIENCE TRACK

Prerequisites: PSYC 110a or b; MCDB 120a; E&EB 122b

Number of courses: Same as for standard major

Specific courses required: PSYC 170a; PSYC 200a; PSYC 240a or 270b

Distribution of courses: At least six courses in Psych, at least two of which must be from List A. At least four courses from: EEB and MCDB courses numbered 200 or higher, dealing with human or animal biology; ANTH 299a; BENG 421b; CPSC 475b and 477a; MB&B 300a, 301b, and 443b; MATH 222a or b, 225b, and 230; STAT 241a

Substitution permitted: MCDB 360a for PSYC 170a or MCDB 360a and 361La for PSYC 240a or 270b

Senior requirement: Senior project (may be done in PSYC 490a and 491b, or in 492a and 493b, or in sem course, 400–489, or without enrollment in a course)

PHILOSOPHY TRACK

Prerequisite: PSYC 110a or b

Number of courses: Same as for standard major

Specific course required: PSYC 200a

Distribution of courses: Seven courses in Psych, five courses in Philosophy; two courses from List A, two courses from List B as specified; one Psych course numbered 210–299

Substitution permitted: For PSYC 200a, an exam arranged with the instructor

Senior requirement: Same as for standard major, with adviser from either Philosophy or Psych dept

INTRODUCTORY COURSE

PSYC 110a *or* b, INTRODUCTION TO PSYCHOLOGY. Marvin Chun [F], Paul Bloom [Sp].

TTh 2.30–3.45 III So (o)

A survey of major psychological approaches to the biological, cognitive, and social bases of behavior.

SURVEY COURSES WITHOUT PREREQUISITE

★PSYC 120a/★CGSC 201a, BRAIN AND THOUGHT: AN INTRODUCTION TO THE HUMAN BRAIN. Amy Arnsten.
For description see under Cognitive Science.

PSYC 123a/PLSC 231a, THE PSYCHOLOGY, BIOLOGY, AND POLITICS OF FOOD. Kelly Brownell.

MW 1–2.15 III So (o)

A study of eating as it affects the health and well-being of every human. Topics include taste preferences, food aversions, the regulation of hunger and satiety, food as comfort and friendship, eating as social ritual, and social norms of blame for food problems; the politics of food, including issues such as sustainable agriculture, organic farming, genetically modified foods, nutrition policy, and the influence of food and agriculture industries; food problems such as malnutrition, eating disorders, and the global obesity epidemic; the impact of food advertising aimed at children, poverty and food, and how each individual's eating is affected by the modern environment.

★PSYC 125a/★CHLD 125a/★TPRP 125a, CHILD DEVELOPMENT. Donna Bella, Nancy Close, Carla Horwitz, Jody Platner.
For description see under Child Study Center.

★PSYC 127a/★CHLD 127a/★TPRP 127a, EARLY CHILDHOOD METHODS. Carla Horwitz.
For description see under Child Study Center.

★PSYC 128b/★CHLD 128b/★TPRP 128b, LANGUAGE, LITERACY, AND PLAY. Nancy Close, Carla Horwitz, and staff.
For description see under Child Study Center.

★PSYC 129a/★STAT 129a, STATISTICS AS A WAY OF KNOWING. Nelson Donegan.

TTh 11.30-12.45 III or IV QR (24)

An introduction to basic concepts of statistics and probability that allow us to describe, evaluate, and understand aspects of the world and make informed choices. Exploration of relationships among statistical reasoning, cognitive psychology, and philosophical theories of knowledge. *Enrollment limited to freshmen and sophomores.*

PSYC 130a/CGSC 110a, INTRODUCTION TO COGNITIVE SCIENCE. Brian Scholl.
For description see under Cognitive Science.

PSYC 137a/LING 117a^G, LANGUAGE AND MIND. Maria Piñango.
For description see under Linguistics.

PSYC 147b, ANIMAL MODELS OF CLINICAL DISORDERS. Nelson Donegan.

MWF 10.30-11.20 III So (33)

An interdisciplinary approach to understanding and treating psychiatric disorders, integrating clinical psychology, psychiatry, and advances in basic neuroscience. Focus on how research with animal models, developed to simulate human disorders such as drug addiction, depression, Parkinson's disease, and schizophrenia, can advance our understanding of these disorders and generate more effective treatments for patients.

PSYC 163b/LING 163b^G, LANGUAGE ACQUISITION. Maria Babyonyshev.
For description see under Linguistics.

PSYC 171b, SEX, EVOLUTION, AND HUMAN NATURE. Laurie Santos.
TTh 4-5.15 III So (27)

Consideration of human behavior in a broad evolutionary context. Topics include basic evolutionary theory, human mating strategies, the biology of warfare, sex differences in behavior, love and lust, the evolution of morality, and the role of language and culture.

★PSYC 194a/★TPRP 194a, EDUCATIONAL PSYCHOLOGY. Burton Saxon.
For description see under Teacher Preparation & Education Studies.

SURVEY COURSES WITH PREREQUISITE

PSYC 110a or b is a prerequisite for the courses below.

PSYC 140a, DEVELOPMENTAL PSYCHOLOGY. Frank Keil.
TTh 9-10.15 III So (22)

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.

PSYC 150b, SOCIAL PSYCHOLOGY. Marianne LaFrance.

TTh 11.30-12.45 III So (0)

Study of social cognition, attitudes and persuasion, group processes, intergroup processes, prosocial behavior, aggression, and conformity. Theories, methodology, and applications of social psychology.

PSYC 170a, BEHAVIORAL NEUROSCIENCE. Ewan McNay.

TTh 9-10.15 III; Not CR/D/F Sc, So (22)

Examination of the way the nervous system controls behavior. Biological insights about neural cell function are used to develop an understanding of how such processes as learning, emotion, and perception may be generated.

PSYC 176a, BASICS OF LEARNING AND MEMORY. Thomas Brown.

MW 11.30-12.45 III; Not CR/D/F Sc, So (0)

The basic facts, general principles, and theories that describe how higher animals, from mice to humans, are changed by their experiences. The historically separate fields of learning and memory research desegregated under a neuroscientific perspective that recognizes the evolutionary continuity among higher animals. *Prerequisites: introductory courses in biology and psychology, or permission of instructor.*

PSYC 180b, ABNORMAL PSYCHOLOGY. Susan Nolen-Hoeksema.

MWF 10.30-11.20 III; Not CR/D/F So (33)

Focus on the major forms of psychopathology that appear in childhood and adult life. Topics include the symptomatology of mental disorders; their etiology from psychological, biological, and sociocultural perspectives; and issues pertaining to diagnosis and treatment.

STATISTICS AND GENERAL METHODOLOGY

PSYC 200a, STATISTICS. Christian Luhmann.

TTh 4.30-5.20, I HTBA III; Not CR/D/F QR (0)

Measures of central tendency, variability, association, and the application of probability concepts in determining the significance of research findings.

PSYC 205bG, MULTIVARIATE DATA ANALYSIS WITH LATENT VARIABLES.

Staff.

MWF 10.30-11.20 III; Not CR/D/F QR Meets RP (33)

A survey of multivariate techniques for discovering latent structure in psychological data; unidimensional and multidimensional scaling, clustering, and factor analysis. *Prerequisite: PSYC 200a or equivalent.*

DATA COLLECTION

PSYC 235b, RESEARCH METHODS IN PSYCHOLOGY.

Valerie Purdie-Vaughns.

TTh 9-10.15, I HTBA III So (22)

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. *No prerequisites.*

★PSYC 240a, RESEARCH METHODS IN CONDITIONING AND LEARNING.
Allan Wagner.

Th 1-2.15 III; Not CR/D/F Sc (26)

Laboratory examination of the basic procedures used in the investigation of animal learning. Topics include habituation, classical conditioning, and instrumental learning.

[PSYC 260a, RESEARCH METHODS IN SOCIAL PSYCHOLOGY]

[PSYC 270b, RESEARCH METHODS IN BEHAVIORAL NEUROSCIENCE]

ADVANCED COURSES

[PSYC 316a, CULTURE AND DIVERSITY IN PSYCHOLOGY]

PSYC 318a/LING 120a^G, GENERAL PHONETICS. Louis Goldstein.
For description see under Linguistics.

[PSYC 320b, COGNITIVE NEUROSCIENCE]

PSYC 322b/LING 130b^G, EVOLUTION OF LANGUAGE. Stephen Anderson.
For description see under Linguistics.

[PSYC 324b, COGNITIVE DEVELOPMENT]

PSYC 325a, SOCIAL DEVELOPMENT. Joseph Mahoney.
MW 9-10.15 III; Not CR/D/F So (o)

A critical review of the foundations and current theories of social development, including views on the development of attachments, empathy, aggression, morality, and friendships. *Prerequisite:* PSYC 140a.

★PSYC 326b^G/★LING 221b^G, THE RELATION OF SPEECH TO LANGUAGE.
Carol Fowler.
For description see under Linguistics.

PSYC 331b/LING 231b^G, NEUROLINGUISTICS. Maria Piñango.
For description see under Linguistics.

[PSYC 338a, NEUROPSYCHOLOGY OF AGING]

PSYC 342a/WGSS 315a, PSYCHOLOGY OF GENDER. Marianne LaFrance.
For description see under Women's, Gender, & Sexuality Studies.

★PSYC 350a/★CHLD 350a, AUTISM AND RELATED DISORDERS I.
Ami Klin, Fred Volkmar.
For description see under Child Study Center.

★PSYC 351b/★CHLD 351b, AUTISM AND RELATED DISORDERS II.
Ami Klin, Fred Volkmar.
For description see under Child Study Center.

★PSYC 355, CLINICAL PSYCHOLOGY IN THE COMMUNITY.
Kristi Lockhart.

Th 9.30-11.20 III; Not CR/D/F So (o) *Cr/Year only*

Examination of how mental disorders are treated within a community setting. Students participate in a fieldwork placement, working either one-on-one or in groups with the psychiatrically disabled. Weekly seminar meetings focus on such topics as the nature of severe mental disorders, the effects of deinstitutionalization,

counseling skills, and social policy issues related to mental health. *Prerequisite:* PSYC 180b.

★PSYC 363a/★CHLD 360a, LOVE AND ATTACHMENT. James Leckman,
Linda Mayes.

For description see under Child Study Center.

★PSYC 371a, LABORATORY IN ANIMAL COGNITION. Laurie Santos.

T 7-8.50 P.M. III; Not CR/D/F So (o)

An introduction to current issues, laboratory techniques, and field methods in animal cognition. Students help develop and pilot research projects on nonhuman primates. Topics include number, theory of mind, and causality.

★PSYC 372a/★LING 490a^G, RESEARCH METHODS IN LINGUISTICS.

Darya Kavitskaya.

For description see under Linguistics.

SENIOR SEMINARS

The seminars below may be used to fulfill the senior requirement.

★PSYC 402a^G, TOPICS IN INFANT STUDIES. Karen Wynn.

M 1.30-3.20 III; Not CR/D/F So (o)

Selected advanced topics in infant cognitive, social, and emotional development. Topic varies from year to year. Examples of topics are infants' concept of object, concept of number, early social cognition, and early emotional development.

[PSYC 403a^G, COGNITIVE SCIENCE OF FICTION AND IMAGINATION]

★PSYC 407b/★CGSC 407b, COGNITIVE SCIENCE OF CAUSALITY.

Frank Keil.

M 1.30-3.20 III So (o)

Examination of how people and animals track causal patterns in the world around them. Topics include the perception of causality; mechanistic, teleological, and psychological causation; variations in causal thinking across domains; the role of counterfactuals; biases and heuristics in causal thought; and the development of causal thinking.

★PSYC 412a^G, NEUROIMAGING ANALYSIS TECHNIQUES. Kent Kiehl.

Th 9.30-11.20 III; Not CR/D/F (o)

A study of techniques for the analysis of brain imaging data. Analysis techniques for electroencephalography (EEG); event-related potentials (ERPs); positron emission tomography (PET and SPECT); functional magnetic resonance imaging (fMRI); and magnet resonance spectroscopy (MRS). Emphasis on fMRI analyses using statistical parametric mapping (SPM). The course is designed for social scientists, and does not rely heavily on the mathematical implementation of image analyses.

[PSYC 429a, PSYCHOLOGICAL AND SOCIAL PROCESSES OF REALITY
MONITORING]

[PSYC 430a^G, CONSCIOUSNESS, VOLITION, AND RESPONSIBILITY]

[PSYC 437b^G, EMOTION FUNCTION AND DYSFUNCTION: APPLICATIONS
TO PSYCHOPATHOLOGY]

★PSYC 454b^G, SENSORY INFORMATION PROCESSING. Lawrence Marks.

T 9.30-11.20 III; Not CR/D/F Sc, So (o)

A functional examination of the ways that sensory systems transduce stimulus energies and information. Topics include sensory anatomy and physiology, psychophysical analysis of the qualitative dimensions of sensory experience, selective attention, and interactions among sensory, perceptual, and cognitive mechanisms.

★PSYC 457aG, CONCEPTS AND CATEGORIZATION. Woo-kyoung Ahn.

F 2.30-4.30 III; Not CR/D/F So (o)

Exploration of how people learn and represent concepts. Topics include prototype, exemplar, and “theory” theories of conceptual representation, computational models of concept acquisition, how concepts are changed and created, expert/novice differences in categorization, levels of concepts, natural kinds and artifacts, and applications of some of the issues.

★PSYC 459bG, ADDICTIVE BEHAVIORS: ALCOHOL AND OTHER DRUGS OF ABUSE. William Corbin.

T 2.30-4.20 III; Not CR/D/F So (o)

An introduction to the field of addictive behaviors. Areas of focus include defining, assessing, and diagnosing addictive behaviors; review of epidemiology research on alcohol and drug abuse and negative consequences of normative alcohol and drug use; factors that contribute to alcohol- and drug-related problems, including genetic, physiological, neurochemical, cognitive, and social factors; and current prevention and treatment approaches for addictive behaviors.

★PSYC 461b/★TPRP 195b, ISSUES IN SPECIAL EDUCATION. Tina Newman.

For description see under Teacher Preparation & Education Studies.

★PSYC 477b, PSYCHOPATHOLOGY AND THE FAMILY. Kristi Lockhart.

M 1.30-3.20 III; Not CR/D/F So (36)

An examination of familial influences on the development of abnormal behavior. Topics include how psychological, biological, and cultural factors in a family might contribute to such disorders as anorexia, depression, sexual abuse, and psychopathy, as well as family therapy approaches and techniques. *Prerequisite:* PSYC 180b.

[PSYC 486b, CELLULAR ANALYSIS OF LEARNING AND MEMORY: MODEL SYSTEMS]

★PSYC 488b, LEARNING THEORY. Allan Wagner.

T 1.30-3.20 III; Not CR/D/F So (o)

The development of learning theory from its beginnings in associationism, behaviorism, and the Darwinian revolution to its present “connectionistic” neural-network expressions.

★PSYC 489a, PRINCIPLES OF BEHAVIOR THERAPY. Alan Kazdin.

TTh 2.30-3.45 III; Not CR/D/F So (o)

An examination of the diverse theories, principles, and treatments in behavior therapy, including operant and classical conditioning, cognitive behavioral approaches, and social learning. *Open to senior Psychology majors only.*

TUTORIALS

★PSYC 490a and 491b, DIRECTED READING. Woo-kyoung Ahn.

HTBA III; Not CR/D/F (o)

Individual study for qualified students, primarily seniors, who wish to investigate an area of psychology not covered by regular departmental offerings. A student must be sponsored by a faculty member, who sets requirements and meets

regularly with the student. To register, the student must submit a written plan of study approved by the adviser to the director of undergraduate studies. The normal minimum requirement is a term paper, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms.

★PSYC 492a and 493b, DIRECTED RESEARCH. Woo-kyoung Ahn.
HTBA III; Not CR/D/F (O)

Empirical research projects for qualified students, primarily seniors. A student must be sponsored by a faculty member, who sets the requirements and supervises research. To register, the student must submit a written plan of study approved by the adviser to the director of undergraduate studies. The normal minimum requirement is a written report of the completed research, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms.

PSYCHOLOGY AND COMPUTER SCIENCE

(See under Computer Science and Psychology.)

PSYCHOLOGY AND PHILOSOPHY

(See under Philosophy or under Psychology.)

PUBLIC HEALTH

Courses relevant to public health are offered by many Yale College departments and programs, including African American Studies; Anthropology; Biomedical Engineering; Ecology and Evolutionary Biology; Economics; Geology and Geophysics; History; History of Science, History of Medicine; Humanities; International Studies; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; Philosophy; Political Science; Psychology; Sociology; Statistics; and Women's, Gender, and Sexuality Studies. A list of courses related to health studies is available on the Web at www.yale.edu/yalecollege/healthstudies/courses.html.

Undergraduates may also take graduate courses at the School of Public Health, subject to the restrictions on graduate and professional school enrollment described in chapter III, section K, of this bulletin. Information on graduate course offerings in public health may be viewed in the Epidemiology and Public Health bulletin or on line at www.yale.edu/courseinfo under Epidemiology and Public Health.

B.A.-B.S./M.P.H. degree program. The Select Program in Public Health gives 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 in a five-year joint program. During four years of Yale College enrollment, students complete a standard Yale College major and six course credits applicable toward the M.P.H. degree. Students are placed in a public health internship between the fourth and fifth years of the program and study at Epidemiology and Public Health (EPH) full time in the fifth year, when they complete the master's thesis and the remaining ten courses for the master's degree.

Students apply to EPH for the joint program in the spring term of their sophomore year. Candidates must present evidence of a commitment to public health, as well as a record of one year of college-level mathematics and either biology, chemistry, or physics. Applicants must complete the standard

EPH application forms, and must submit transcripts, SAT scores, three letters of recommendation, and a personal statement. Financial aid, if provided during the fifth year, comes from EPH.

Further information about this program may be obtained from the EPH Office of Student Affairs, 60 College Street, P.O. Box 208834, New Haven, CT 06520-8034, 785-6260, or on the Web at <http://publichealth.yale.edu>.

RELIGIOUS STUDIES

Director of undergraduate studies: Dale Martin, 451 College St., 432-0828, dale.martin@yale.edu

FACULTY OF THE DEPARTMENT OF RELIGIOUS STUDIES

PROFESSORS

Gerhard Böwering, Robert Brody, Jon Butler, Carlos Eire, Steven Fraade, Philip Gorski, Phyllis Granoff, W. Zev Harvey (*Visiting*), Christine Hayes, Paula Hyman, Bentley Layton, Ivan Marcus, Dale Martin, Gene Outka, David Smith (*Visiting*), Harry Stout (*Chair*), Denys Turner, Robert Wilson

ASSOCIATE PROFESSORS

Esther Chazon (*Visiting*), Stephen Davis, Frank Griffel

ASSISTANT PROFESSORS

Shannon Craigo-Snell, Jacob Dalton, Ludger Viefhues

SENIOR LECTURER

Koichi Shinohara

LECTURERS

Mara Benjamin (*Visiting*), Hugh Flick, Jr., Kenneth Garden, David Lambert (*Visiting*)

The study of religion investigates religious traditions, institutions, cultural practices, texts, and ideas in many different ways. Courses in the Religious Studies department concentrate on the history of religious traditions (Western and Eastern, ancient and modern) and the role of religion in shaping past human cultures and current events; on textual traditions and religious literatures of various kinds; and on ethical and philosophical issues central to religious reflection, such as the nature of the divine or the problem of evil and suffering. Because religious studies is an interdisciplinary field, it makes use of a wide variety of methods and academic disciplines. Students who want a broad introduction to the study of religions can choose courses listed under Groups A or B below, though courses listed under Group C are also open without prerequisite. Religious Studies majors develop specialized concentrations as they plan a major program in consultation with the director of undergraduate studies and other members of the faculty.

Religious Studies course offerings are arranged in four categories. Group A features general, comparative, and thematic courses that engage more than one religious tradition. Group B includes survey courses that provide a broad introduction to a particular religious tradition or scripture in historical context. Group C includes courses on specialized topics in religious studies, both introductory and intermediate. Group D offers advanced courses on specialized topics. Normally, courses in Groups A to C have no prerequisites while courses in Group D have a specific prerequisite or require the permission of the instructor.

The department offers two programs for students majoring in Religious Studies: the standard major and a major in which religious studies is combined with another subject closely related to the senior essay. Both programs require a core of courses and a two-term senior essay. For the Class of 2009

and subsequent classes, courses taken on a Credit/D/Fail basis may not be counted toward the requirements of the major, except with permission of the director of undergraduate studies.

Core requirement. A core of six term courses in Religious Studies is required of all majors. One core course examines world religions; qualifying courses include RLST 100b and 101a or others with permission of the director of undergraduate studies. Three core courses are in the historical or textual study of a specific religion, most commonly from Group B; each of the three courses must be on a different religion, and at least one must be focused on Judaism, Christianity, or Islam and one on Buddhism or Hinduism. One core course studies systematic thought (ethics, philosophy of religion, or theology); qualifying courses in 2006–2007 are RLST 163a, 164b, and 176a. The final core course is RLST 490b, the junior seminar on approaches to the study of religion. Before the end of the junior year, students must also complete a seminar (in addition to the junior seminar) that requires a major research paper. In Program I, this seminar must be an elective in Religious Studies. In Program II, it may be a course in Religious Studies, or it may constitute one of the four term courses outside the department.

I. THE STANDARD MAJOR

Program I consists of twelve term courses in Religious Studies, including the core of six required courses, the two-term senior essay, and four electives. The electives are usually selected from Groups C and D and form a coherent unit to help the student prepare for the senior essay. Certain cognate courses in other departments that investigate religious phenomena or literature and are integral to the student's area of concentration may count toward the major with permission of the director of undergraduate studies. Normally the number of cognate courses that may be applied is two. Two terms of an ancient language related to the study of religion may, with permission of the director of undergraduate studies, be counted.

II. RELIGIOUS STUDIES WITH ANOTHER SUBJECT

Program II consists of eight term courses in Religious Studies (the core of six required courses and the two-term senior essay) and four term courses outside the department, one of which may fulfill the seminar requirement outlined above. The four courses outside the department need not directly concern religion, but they must form a coherent unit. Through them students can develop expertise in a single methodological approach, cultural area, historical period, or body of literature contributing to the senior essay. Examples of successful combinations might be: four courses in Chinese history, language, and literature with a senior essay topic on Chinese Buddhism; four courses in early American history and literature with a topic on colonial American religion; four courses in a specific area of biology and medical science with a topic on biomedical ethics. Each student's petition to take this program will be judged on its contribution to the student's senior essay. Normally introductory courses in other departments may not count among the outside courses; appropriate language courses at a higher level may. Students electing Program II must, at the end of the junior year and in no case later than the beginning of the senior year, obtain approval for their proposed program from the director of undergraduate studies. Students who think they may elect this program should consult the director of undergraduate studies as early as possible in their studies to begin suitable selection of courses.

Senior requirement. Students in both programs must write a senior essay under the supervision of a faculty adviser in the student's area of concentration. In selecting a senior essay topic, students normally choose a topic on which they have completed course work before commencing the senior year. The essay counts as two term courses 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 director of undergraduate studies. The Senior Essay (RLST 491) includes research and writing assignments as well as colloquia in which seniors present and discuss their research. The student must submit at least ten pages of the essay to the director of undergraduate studies by the last day of classes of the first term in order to receive a grade of "satisfactory" for that term.

Students in Yale College are eligible to take certain courses in the Divinity School; those interested should consult its bulletin. Some Divinity School courses may count toward the major, with permission of the director of undergraduate studies.

Students majoring in Religious Studies who plan to do graduate work in the subject are strongly encouraged to study languages of which a reading knowledge will be needed for their graduate program.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: *Program I*—twelve term courses (including the two-term senior essay); *Program II*—eight term courses in Rel St (including the two-term senior essay), and four nonintroductory courses in another subject coherently linked with the senior essay, chosen in consultation with DUS

Specific course required: *Both programs*—RLST 490b

Distribution of courses: *Both programs*—one course in world religions; three courses in the historical or textual study of a specific religion, as specified; one course in systematic thought, as specified; one seminar other than the junior sem, as specified

Substitution permitted: *Program I*—related courses in other depts, including two courses in related ancient language, with permission of DUS; *Both programs*—courses in the Divinity School, with permission of DUS; related courses for world religions requirement, with permission of DUS

Senior requirement: *Both programs*—senior essay (RLST 491)

GENERAL, COMPARATIVE, AND THEMATIC COURSES (GROUP A)

★RLST 001a/★HIST 008a/★HUMS 080a, ESSENTIAL HERESIES. Carlos Eire.
For description see under History.

★RLST 005a/★AMST 005a/★HIST 004a, AMERICAN RELIGION, AMERICAN LIFE. Jon Butler.

For description see under History.

★RLST 006b, THE HISTORICAL JESUS. Dale Martin.

TTh 1-2.15 Hu (○) Fr sem

An analysis of the modern quest for the historical Jesus. Use of modern historical methods to construct what historiography can and cannot say about the life and death of Jesus of Nazareth. Study of scholarly and popular portrayals of Jesus, including Jesus in film. Examination of the philosophical and ideological assumptions of modern historiography. *No background in New Testament assumed. Enrollment limited to freshmen.*

RLST 100b, INTRODUCTION TO WORLD RELIGIONS.

Gerhard Böwering.

TTh 2.30-3.45 II Hu (o)

Introduction to the literature, ideals, concepts, practices, rituals, and institutions of four major world religions as they have appeared in history: Hinduism, Buddhism, Christianity, and Islam. A historical survey combined with a phenomenological treatment of principal topics.

RLST 101a, WORLD RELIGIONS IN NEW HAVEN. Ludger Viefhues.

MW 11.30-12.45 II Hu (o)

Introduction to the religions studied as “Buddhism,” “Judaism,” “Christianity,” and “Afro-Caribbean Religion,” with a focus on the interaction between the global representation of these traditions and local lived practice in New Haven. Thematic exploration of gender and sexuality in these traditions. Course work includes on-site visits, Internet research, and class presentations.

***RLST 110b^G, APOCALYPTIC RELIGION IN CROSS-CULTURAL PERSPECTIVE.** Robert Wilson.

Th 1.30-3.20 II; Not CR/D/F Hu (o)

An examination of millennial and “end-time” beliefs in a variety of cultures around the world. Attention given to Jewish and Christian texts as well as Native American traditions, African and Pacific Islander movements, and modern manifestations such as Jonestown, the Branch Davidians, and Heaven’s Gate.

[RLST 113b, RELIGIOUS ETHICS AND MODERN MORAL ISSUES]

SURVEYS OF RELIGIOUS TRADITIONS (GROUP B)**RLST 133a/EALL 201a, JAPANESE RELIGIONS.** Koichi Shinohara.

TTh 1-2.15, 1 HTBA II Hu (26)

A thematic introduction to Japanese religions. Study of selected aspects of Japanese religious life, including how they have shaped Japanese society and culture. Exploration of why Japanese people have found these practices attractive enough to continue going back to them over long periods of time.

[RLST 134b^G/EALL 200b, BUDDHISM IN CHINA AND JAPAN]**RLST 136a, CLASSICAL RELIGIONS OF INDIA I: BUDDHISM AND JAINISM.**

Phyllis Granoff.

TTh 11.30-12.45 II Hu (o)

Introduction to basic ideas and practices of Jainism and Buddhism, focusing on the theme of crime and karma.

[RLST 137b, INTRODUCTION TO HINDUISM]

[RLST 140a^G, Gnostic Religion and Literature]**RLST 145a/JDST 110a, INTRODUCTION TO THE OLD TESTAMENT (HEBREW BIBLE).** Christine Hayes.

MW 10.30-11.20, 1 HTBA II Hu (33)

The Old Testament (Hebrew Bible) as an expression of the religious life and thought of ancient Israel, and a foundational document of Western civilization. A wide range of methodologies, including source criticism and the historical-critical school, tradition criticism, redaction criticism, and literary and canonical approaches to the study and interpretation of the Bible. Special emphasis on the Bible against the backdrop of its historical and cultural setting in the ancient Near East.

RLST 146b/JDST 202b, JUDAISM: CONTINUITY AND CHANGE.

Christine Hayes.

MW 10.30-11.20, I HTBA II Hu (33)

An examination of the enduring ideas, values, and cultural expressions of the Jewish people as found in the Bible, Talmud, and Midrash, and in medieval, mystical, and modern texts. How, since the time of the ancient Israelites, Jews and Judaism have not merely survived but responded creatively to the challenges of their history and encounters with pagan culture, Christian culture, Islamic culture, philosophy, modernity, and secularism—constructing a panoply of rich and variegated subcultures in various geographical locations over the millennia.

RLST 147b/JDST 235b, INTRODUCTION TO JUDAISM IN THE ANCIENT WORLD: FROM TEMPLE TO TALMUD. Steven Fraade.

Tth 1-2.15 II Hu (26)

The emergence of classical Judaism in its historical setting. Jews and Hellenization; varieties of early Judaism; apocalyptic and postapocalyptic responses to suffering and catastrophe; worship and atonement without cult; interpretations of scriptures; religious imagination; law and life; the rabbi; faith in reason; Sabbath and festivals; history and its redemption. *No prior background in Jewish history assumed.* (Formerly RLST 117b)

RLST 148a^G/HIST 219a^G/JDST 200a^G, HISTORY OF JEWISH CULTURE TO THE REFORMATION. Ivan Marcus.

Tth 11.30-12.45 II Hu (24)

A broad introduction to the history of Jewish culture from its beginnings until the late Middle Ages, focusing on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Judaism, Christianity, and Islam. An overview of Jewish society and culture in its biblical, rabbinic, and medieval settings. *For History majors, counts toward either Middle Eastern or European distributional credit.*

[RLST 149b^G/HIST 293b^G/JDST 201b^G, HISTORY OF JEWISH CULTURE, 1500 TO THE PRESENT]

★RLST 150a^G/★JDST 115a^G, EXODUS AND EXILE IN THE HEBREW BIBLE.

David Lambert.

For description see under Judaic Studies.

★RLST 151b^G/★JDST 116b^G, GOOD DEEDS IN JUDAISM AND CHRISTIANITY.

David Lambert.

For description see under Judaic Studies.

[RLST 159a/HIST 204a, HISTORY OF CHRISTIANITY TO 1200]

RLST 163a^G/HUMS 386a, REASON, FAITH, AND FEELING: EARLY MODERN CHRISTIAN THOUGHT. Shannon Craigo-Snell.

Tth 10.30-11.20, I HTBA II Hu (0)

A survey of major developments in religious thought in the West from Descartes to Schleiermacher, focusing on the struggles to defend, discredit, or distance religious belief in relation to reason. Exploration of connections between theology, philosophy, and social history. *No background in religious studies assumed.*

RLST 164b^G/HUMS 387b, HISTORY, HOPE, AND THE SELF: MODERN CHRISTIAN THOUGHT. Shannon Craigo-Snell.

Tth 10.30-11.20, I HTBA II Hu (0)

An overview of important developments in Western religious thought during the nineteenth and twentieth centuries. Topics include changing understandings of

the significance and movement of history, challenges posed to religious traditions by growing historical knowledge, shifting conceptions of the human person, and contrasting estimations of the role of religious persons in secular and political life. Connections between philosophy, theology, and social history. Authors include Hegel, Tillich, Barth, Rahner, and Gutiérrez. *No background in religious studies assumed.*

[RLST 167a/JDST 250a, MODERN JEWISH THOUGHT]

RLST 170a, INTRODUCTION TO ISLAM. Gerhard Böwering.

TTh 2.30-3.45 II; Not CR/D/F Hu (27)

The rise of Islam in Arabia; Muhammad and the Qur'an; Muslim traditions and religious law; Islamic philosophy and theology; basic beliefs and practices of the Muslim community; religious institutions and modern trends.

RLST 176a^G, RELIGIOUS PLURALISM AND PHILOSOPHY. Ludger Viefhues.

TTh 11.30-12.45 II; Not CR/D/F Hu (0)

A critical survey of philosophical models addressing religious diversity in the twentieth century. Discussion of the methodological assumptions underlying constructions of religious diversity in philosophy of religion. How theories from religious studies, feminist philosophy, anthropology, and non-Western writings on religious life and practice change the understanding of what religious diversity is and how philosophy can learn from it.

RLST 179a/CLCV 182a/HSAR 240a, GREEK RELIGION: MYTH, BLOOD, AND FESTIVAL. Milette Gaifman.

For description see under Classical Languages & Literatures.

RLST 180a, BUDDHISM IN TIBET. Jacob Dalton.

TTh 2.30-3.45, I HTBA II Hu (27)

Chronological and thematic survey of Tibetan Buddhism. Study of Buddhism from its initial arrival into Tibet through to the present day. Themes include "treasure" (*gter ma*) revelation, hidden valleys, the Dalai Lamas, and exile.

*RLST 182b, DEATH, DREAMS, AND VISIONS IN INDO-TIBETAN BUDDHISM. Jacob Dalton.

W 2.30-4.20 II Hu (37)

Examination of how Tibetan Buddhists have turned the act of dying toward the realization of basic philosophical concepts of Buddhism. Topics include the transitional state between birth and death as an opportunity for transformation, and how this transformation is enacted through harnessing the dream state; how the Buddhist practitioner prepares for the crucial moment of death through tantric meditation practices, and how funerary rituals work to assist the dead to this end; how Western fascination with the Tibetan Book of the Dead has led to creative interpretations of this obscure text.

*RLST 183a^G, INTRODUCTION TO CLASSICAL TIBETAN TEXTS.

Jacob Dalton.

W 2.30-4.20 II (37)

Study of the classical Tibetan language, which has served as the liturgical language of Tibet, the Chinese court, and much of Central Asia. Introduction to the alphabet and grammar of classical Tibetan, followed by selected readings from Buddhist texts in Tibetan. Some attention to the religion and culture of Tibet.

TOPICS IN RELIGIOUS STUDIES (GROUP C)

[RLST 184b, THE RAMAYANA]

★RLST 185b, THE *MAHABHARATA*. Hugh Flick, Jr.

W 1.30-3.20 II; Not CR/D/F Hu (o) Tr

Examination of the religious and cultural significance of the world's longest epic poem within the Hindu bhakti religious tradition. Emphasis on the core narrative, the embedded narratives, and the internal philosophical discourses, including the Bhagavad Gita.

[RLST 189a, INTRODUCTION TO INDIAN PHILOSOPHY]

RLST 194a^G/JDST 255a^G, THE DEAD SEA SCROLLS AND THE HISTORY OF ANCIENT JUDAISM. Steven Fraade.

TTh 1-2.15 II; Not CR/D/F Hu (o)

An examination of the place of the Dead Sea Scrolls and the Qumran community within the history of ancient Judaism. Focus on the major genres of the sectarian scrolls, with an eye to understanding the community's history, religious ideology, social structures, and place within the broader varieties of Greco-Roman Judaism. *Readings available in English.*

★RLST 201a/★HIST 432a/★HUMS 432a/★JDST 270a, MEDIEVAL JEWS, CHRISTIANS, AND MUSLIMS IMAGINING EACH OTHER.

Ivan Marcus.

For description see under Humanities.

★RLST 207a^G/★JDST 271a^G, JEWISH PHILOSOPHY FROM MAIMONIDES TO SPINOZA. W. Zev Harvey.

For description see under Judaic Studies.

★RLST 217a^G/★HIST 422a^G/★JDST 390a^G, MEMORY, MEMOIRS, AND MODERN JEWISH HISTORY. Paula Hyman.

For description see under History.

★RLST 222b^G/★JDST 232b^G, THE DEAD SEA SCROLLS AND JEWISH PRAYER IN LATE ANTIQUITY. Esther Chazon.

For description see under Judaic Studies.

★RLST 223a^G/★JDST 251a^G, WEIMAR GERMAN-JEWISH THOUGHT. Mara Benjamin.

For description see under Judaic Studies.

[RLST 225a^G/JDST 385a^G, WOMEN AND JUDAISM]

RLST 230a^G/HIST 269a^G/JDST 286a^G, HOLOCAUST IN HISTORICAL PERSPECTIVE. Paula Hyman.

For description see under History.

[RLST 252a^G, PILGRIMS, MONKS, AND MARTYRS]

[RLST 256b^G, THE MAKING OF THE CHRISTIAN BIBLE]

[RLST 275a, SELF AND OTHER: THE INDIVIDUAL IN WESTERN RELIGIOUS THOUGHT]

[RLST 279b^G, FOUR ATHEIST CRITIQUES OF CHRISTIAN THEISM]

★RLST 281b, CURRENT ISSUES IN CHRISTIAN THEOLOGY.

Shannon Craigo-Snell.

M 1.30-3.20 II Hu (o)

Exploration of six topics in contemporary Western Christian thought: creation, sin, the problem of evil, the importance of the cross, the significance of the church,

and violence. Attention to both historical roots and philosophical questions raised. Analysis of race, class, and gender issues. Readings from the works of Protestant, Roman Catholic, and Anabaptist authors.

★RLST 289a^G, REVIVAL AND REFORM IN ISLAM. Kenneth Garden.

MW 2.30–3.45 II Hu (○)

Exploration of the doctrine and rhetoric of Muslim reformers, comparing treatment of common themes and sources of authority and legitimacy. Examination of works by nine Muslim revivalists of the past millennium.

RLST 293a, RELIGION IN AMERICAN SOCIETY, 1550–1870. Harry Stout.

TTTh 11.30–12.20, I HTBA II; Not CR/D/F Hu (24)

The role of religion in American history and society from European colonization through the Civil War. Topics include Puritanism, evangelical revivalism, religion and politics from the Revolution to antebellum reform, gender issues in American religion, religion and American bigotry, religion in African American culture, and religion in the Civil War.

ADVANCED TOPICS IN RELIGIOUS STUDIES (GROUP D)

★RLST 405a^G/★JDST 392a^G, MISHNAH SEMINAR: TRACTATE TA'ANIT ON FASTING. Steven Fraade.

Th 9.30–11.20 II; Not CR/D/F L5, Hu (○)

Close study of a section of the Mishnah, the earliest digest of Jewish law, treating procedures for public fasts in response to drought and other forms of collective adversity. Particular attention to the textual practices of rabbinic legal discourse in relation to its social function, and to the interplay of law and narrative. *Prerequisite: reading fluency in ancient Hebrew or two years of college-level Hebrew.*

[RLST 407b^G/JDST 391b^G, MIDRASH SEMINAR: MEKILTA NEZIQIN]

★RLST 410b^G/★JDST 410b, TALMUD SEMINAR: SOURCES OF JEWISH LAW AND RABBINIC AUTHORITY. Christine Hayes.

MW 1–2.15 II; Not CR/D/F Hu (○)

Exploration of the sources of Jewish law and authority in the Talmudic period. The interaction of divine revelation and human interpretation; the theoretical basis and practical application of the rabbis' authority to both administer and interpret—at times radically—biblical law. Attention to how a legal system based on an eternal and immutable revelation can grow and develop, and to the special anxieties that attend human administration of a divine legal system. Readings in comparative law, contemporary legal theory, and legal interpretation inform analysis of the Hebrew sources. *Prerequisite: reading knowledge of Hebrew.*

★RLST 420a^G/★HIST 415a/★NELC 380a, THE MAKING OF MONASTICISM. Bentley Layton.

T 2.30–4.20 II; Not CR/D/F Hu (○)

The history of Christian monasteries, hermits, ascetics, and monastic institutions and values in late antiquity, with special attention to the eastern Mediterranean world.

★RLST 422a/★CPTC 103a^G, EGYPTIAN MONASTIC LITERATURE IN COPTIC. Bentley Layton.

For description see under Near Eastern Languages & Civilizations.

★RLST 423b/★CPTC 102b^G, INTRODUCTION TO GNOSTIC TEXTS IN COPTIC. Bentley Layton.

For description see under Near Eastern Languages & Civilizations.

[RLST 432b/JDST 299b, CONTEMPORARY FEMINIST RELIGIOUS THOUGHT]

OTHER COURSES

★RLST 488a and 489b, INDIVIDUAL TUTORIAL. Consult the director of undergraduate studies.

HTBA II; Not CR/D/F (○)

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, SEMINAR ON APPROACHES TO THE STUDY OF RELIGION.

Ludger Viefhues.

W 3.30-5.20 II; Not CR/D/F (○)

Introduction to the study of religion in anthropology, sociology, phenomenology, philosophy, psychology, and history. Focus on current debates about how religion should be approached and on issues crucial to the investigation of religion in an academic setting. *Required for all junior majors; open to others with permission of the instructor.*

★RLST 491, THE SENIOR ESSAY. Consult the director of undergraduate studies.

W 7-8.50 P.M. II; Not CR/D/F (○) *Cr/Year only*

Students writing their senior essay meet periodically in the fall and weekly in the spring for the 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.

ADDITIONAL COURSE RELEVANT TO THE MAJOR

★NELC 490aG, INTRODUCTION TO CLASSICAL ARABIC AND ISLAMIC STUDIES. Dimitri Gutas, Beatrice Gruendler.

RENAISSANCE STUDIES

Director of undergraduate studies: to be announced

FACULTY ASSOCIATED WITH THE PROGRAM OF RENAISSANCE STUDIES

PROFESSORS

Leslie Brisman (*English*), §Edwin Duval (*French*), §Carlos Eire (*History*), Roberto González Echevarría (*Spanish & Portuguese*), Karsten Harries (*Philosophy*), K. David Jackson (*Spanish & Portuguese*), §Lawrence Manley (*English*), §Giuseppe Mazzotta (*Italian*), §David Quint (*Chair*) (*English*), §John Rogers (*English*), §Ellen Rosand (*Music*), §Christopher Wood (*History of Art*), Craig Wright (*Music*)

ASSISTANT PROFESSORS

Anne Dunlop (*History of Art*), James Kearney (*English*), Kristin Phillips-Court (*Italian*), Francesca Trivellato (*History*)

§Member of the Executive Committee for the program.

The major in Renaissance Studies is a special major in the humanities whose purpose is to contribute to an integrated understanding of the Western cultural tradition (see also Humanities). It is an interdisciplinary program

that introduces students to that period in European history conventionally termed the Renaissance—very roughly the fifteenth and sixteenth centuries in Italy, the sixteenth century in northern and western Europe, and 1500–1660 in England. Students choosing the major study several aspects of this rich civilization, including visual arts, social and political history, history of ideas and philosophy, religion, literature, and history of music. Such study of a distant era demands and fosters a capacity for intellectual flexibility; students in the program are invited to learn the various languages of the era’s visual arts, of early Protestantism and the Counter-Reformation, of records and objects, of Renaissance music, lyric poetry, epic, drama, and prose narrative. The program’s challenge lies partly in the need to grasp systems of communication different from our own but possessing their own coherence and intricate relationships to each other.

Competence in at least one foreign language is essential for an understanding of this complex period. A student entering the program is expected to have the equivalent of two years of college language study in French, German, Italian, Portuguese, Spanish, or Latin. Knowledge of a second language is not required but would be helpful. Beyond this prerequisite, a student majoring in Renaissance Studies takes at least twelve term courses focused wholly or mostly on some aspect of Renaissance culture. Four of the courses must be in different disciplines: one each in English literature, history, history of art, and a relevant foreign literature (French, German, Italian, Spanish, Portuguese, or Latin) at an advanced level. One course is required by the junior year: RNST 223a. Seniors are required to take a senior seminar, chosen in consultation with the director of undergraduate studies, and the senior essay, RNST 495a or b. The remaining courses required for the major may be taken in an area of concentration that the student chooses in consultation with the director of undergraduate studies.

Renaissance Studies as a second major. Students may wish to plan a major in Renaissance Studies in conjunction with a major in a related discipline, such as (but not limited to) a relevant language or literature program, English, Literature, History, History of Art, or Music.

Senior requirement. Students take a senior seminar, usually in the fall term of the senior year. They also write a senior essay, which should grow out of their previous study and which normally should involve more than one field. The senior essay is typically written in the spring term.

REQUIREMENTS OF THE MAJOR

Prerequisite: Two years of college-level French, German, Italian, Portuguese, Spanish, or Latin, or the equivalent

Number of courses: Twelve term courses beyond prerequisite (including the senior requirement)

Distribution of courses: One term course dealing with the Renaissance in each of the following: English lit, history, history of art, a foreign lit

Specific course required: RNST 223a

Senior requirement: Senior sem and senior essay (RNST 495a or b)

*RNST 201a^G/*HUMS 372a/*ITAL 201a^G/*LITR 303a^G, LITERARY CRITICISM AND RHETORIC FROM PLATO TO VICO. Staff.

For description see under Italian.

RNST 223a/HIST 223a/HUMS 260a, RENAISSANCE ITALY. Brian Noell.

For description see under History.

RNST 251a/HIST 251a, EARLY MODERN ENGLAND: POLITICS, RELIGION, AND SOCIETY UNDER THE TUDORS AND STUARTS.

Keith Wrightson.

For description see under History.

★RNST 341a/★ITAL 341a/★LITR 186a, ITALIAN RENAISSANCE DRAMA IN TRANSLATION. Staff.

For description see under Italian.

RNST 342b/HUMS 371b/ITAL 342b/LITR 187b, LITERATURE OF THE ART OF THE RENAISSANCE. Staff.

For description see under Italian.

★RNST 421b/★HSAR 438b/★HUMS 379b, SILK ROAD RENAISSANCE.

Anne Dunlop.

For description see under History of Art.

★RNST 495a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I or II; Not CR/D/F (o)

Preparation of a research paper about thirty pages long under the direction of a qualified instructor. The senior essay is written 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 instructor or with the director of undergraduate studies. *No student is permitted to enroll in RNST 495a or b without submitting a project statement, with the formal title of the essay and a brief description of the subject to be treated. The statement must be signed by the student's adviser and presented to the director of undergraduate studies before the student's schedule can be approved.*

The student must submit a suitable project outline and bibliography to the adviser and the director of undergraduate studies early in the term. The outline should indicate the focus and scope of the essay topic, as well as the proposed research methodology; the bibliography should be annotated. For essays submitted in the fall term, the deadline for the outline is September 29; for those in the spring term, February 2. Senior essays written in the fall term are due on December 1; those in the spring term on April 6. Two copies must be submitted to the director of undergraduate studies. Failure to comply with any deadline will be penalized by a lower final grade. No late essay will be considered for a prize in the department.

RUSSIAN

(See under *Slavic Languages and Literatures*.)

RUSSIAN AND EAST EUROPEAN STUDIES

Director of undergraduate studies: Ilya Kliger, 2699 HGS, 432-7023,
ilya.kliger@yale.edu

FACULTY ASSOCIATED WITH THE MAJOR

PROFESSORS

Vladimir Alexandrov (*Slavic Languages & Literatures*), Ivo Banac (*History*), Paul Bushkovitch (*History*), Katerina Clark (*Comparative Literature, Slavic Languages & Literatures*), Laura Engelstein (*History*), John Gaddis (*History*), Harvey Goldblatt (*Slavic Languages & Literatures*), Robert Greenberg (*Adjunct*) (*Slavic Languages & Literatures*), Benjamin Harshav (*Comparative Literature*), Ivan Szelenyi (*Sociology*), Tomas Venclova (*Slavic Languages & Literatures*)

ASSOCIATE PROFESSORS

Hilary Fink (*Slavic Languages & Literatures*), John MacKay (*Slavic Languages & Literatures*), Timothy Snyder (*History*)

ASSISTANT PROFESSORS

Keith Darden (*Political Science*), Kate Holland (*Slavic Languages & Literatures*), Ilya Kliger (*Slavic Languages & Literatures*)

SENIOR LECTORS

Irina Dolgova (*Slavic Languages & Literatures*), Rita Lipson (*Slavic Languages & Literatures*), Constantine Muravnik (*Slavic Languages & Literatures*), Slobodan Novak (*Slavic Languages & Literatures*), Julia Titus (*Slavic Languages & Literatures*), Karen von Kunes (*Slavic Languages & Literatures*)

The major in Russian and East European 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 regions in east central Europe; and the Balkans. The program is appropriate for students considering careers in international public policy, diplomacy, or business, and is also suited to students wishing to continue academic work.

Languages. A full understanding of the area demands a knowledge of its languages. Students must demonstrate either proficiency in Russian or intermediate-level ability in an East European language. Students may demonstrate proficiency in Russian by (1) completing fourth-year Russian (RUSS 141b); (2) passing a written examination to demonstrate equivalent ability; or (3) completing a literature course taught in Russian and approved by the director of undergraduate studies. Students may demonstrate intermediate-level ability in an East European language by (1) completing a two-year sequence in an East European language (currently Czech or Serbian and Croatian; students interested in studying other East European languages should contact the director of undergraduate studies); or (2) by passing a language examination demonstrating equivalent ability. Students are encouraged to learn more than one language.

Course requirements. Thirteen term courses taken for a letter grade are required for the major. Students must take one course from HIST 263a, 264b, or 290a. All East European language courses and third- and fourth-year Russian courses count toward the major. Elective courses are chosen from an annual list of offerings, in consultation with the director of undergraduate studies. Electives must include at least one course in a social science. Complete descriptions of courses originating in other programs appear in those departmental listings. Other undergraduate courses relevant to Russian and East European Studies, including residential college seminars, may also count toward the major if approved by the director of undergraduate studies. Qualified students may elect pertinent courses in the Graduate School with the permission of the instructor, the director of graduate studies, and the director of undergraduate studies.

Senior requirement. Every major must write a senior essay. At the beginning of the first term of the senior year, students enroll in RSEE 490 and arrange for a faculty member to serve as senior adviser. By the third Friday of October, senior majors submit a detailed prospectus of the essay, with bibliography, to the adviser. A draft of at least ten pages of the senior essay, or a detailed outline of the entire essay, is due to the adviser by the last day of reading period in the first term. The student provides the adviser with

a form that the adviser signs to notify the director of undergraduate studies that the first-term requirements have been met. Failure to meet these requirements results in loss of credit for the first term of the course. The senior essay takes the form of a substantial article, no longer than 13,000 words of text, excluding footnotes and bibliography. The essay is due on the second Friday in April, in triplicate, in the Russian and East European Studies office. A member of the faculty other than the student's adviser grades the essay.

Study and travel. Students should be aware of opportunities for study and travel in Russia and eastern Europe. The director of undergraduate studies can provide information on these programs and facilitate enrollment. Those students who spend all or part of the academic year in the region participating in established academic programs usually receive Yale College credit. Students are strongly encouraged to take advantage of study abroad opportunities during summers or through the Junior Year or Term Abroad program. Students wishing to travel abroad as part of the major should consult the director of undergraduate studies by October 1.

M.A. program. The European and Russian Studies program does not offer the simultaneous award of the B.A. and M.A. degrees. 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 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. Students must submit the standard application for admission to the M.A. program.

REQUIREMENTS OF THE MAJOR

Prerequisite or corequisite: Demonstrated proficiency in Russian or intermediate-level ability in an East European language

Number of courses: Thirteen term courses (including the senior essay and specified language courses)

Specific courses required: One from HIST 263a, 264b, or 290a

Distribution of courses: At least one course in the social sciences

Senior requirement: Senior essay (RSEE 490)

★RSEE 240a/★CZEC 246a/★FILM 364a, MILOS FORMAN AND HIS FILMS.
Karen von Kunes.

For description see under Slavic Languages & Literatures.

RSEE 255b/LITR 206b/RUSS 255b, STUDIES IN THE NOVEL: TOLSTOY.
Vladimir Alexandrov.

For description see under Slavic Languages & Literatures.

RSEE 256a/LITR 208a/RUSS 256a, STUDIES IN THE NOVEL: DOSTOEVSKY.
Kate Holland.

For description see under Slavic Languages & Literatures.

★RSEE 300b/★CZEC 301b/★LITR 220b, MILAN KUNDERA: THE CZECH NOVELIST AND FRENCH THINKER. Karen von Kunes.

For description see under Slavic Languages & Literatures.

★RSEE 385b/★INTS 297b/★PLSC 312b, MORAL VALUES IN CIVIL SOCIETY.
Boris Kapustin.
For description see under International Studies.

★RSEE 490, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F (o) *Cr/Year only*
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.*

COURSES IN OTHER DEPARTMENTS THAT COUNT TOWARD THE MAJOR

CZEC 115, ELEMENTARY CZECH. Karen von Kunes.
For description see under Slavic Languages & Literatures.

CZEC 130, INTERMEDIATE AND ADVANCED CZECH.
Karen von Kunes.
For description see under Slavic Languages & Literatures.

HIST 261a/PLSC 176a, THE COLD WAR. John Gaddis.
For description see under History.

HIST 263a, EASTERN EUROPE TO 1914. Ivo Banac, Timothy Snyder.

HIST 264b, EASTERN EUROPE SINCE 1914. Ivo Banac, Timothy Snyder.

HIST 290a, RUSSIA FROM THE NINTH CENTURY TO 1801.
Paul Bushkovitch.

★HIST 416b, RUSSIA AND THE EURASIAN STEPPE. Paul Bushkovitch.

★HIST 421a, THE RUSSIAN REVOLUTION. Laura Engelstein.

★HIST 424b, DIARIES AND MEMOIRS OF TWENTIETH-CENTURY EUROPE. Laura Engelstein.

JDST 282a^G/HIST 249a^G, JEWS AND MODERNITY IN EASTERN EUROPE AND RUSSIA. Marci Shore.
For description see under Judaic Studies.

★PLSC 158a^G/★EP&E 412a/★INTS 328a, NATIONALISM AND IDENTITY.
Keith Darden.
For description see under Political Science.

★PLSC 412a, TRANSITIONS IN CENTRAL AND EASTERN EUROPE.
Matthew Light.

RUSS 165b, CHEKHOV: DRAMA IN PROSE. Rita Lipson.
For description see under Slavic Languages & Literatures.

SBCR 115, ELEMENTARY SERBIAN AND CROATIAN. Slobodan Novak.
For description see under Slavic Languages & Literatures.

SBCR 130, INTERMEDIATE SERBIAN AND CROATIAN.
Slobodan Novak.
For description see under Slavic Languages & Literatures.

SANSKRIT

(See under Linguistics.)

SCIENCE

Yale College offers two special interdepartmental courses for freshmen with strong preparation in the sciences. SCIE 030, Current Topics in Science, is a freshman seminar designed for incoming students who have strong preparation in mathematics and science but who do not intend to major in the sciences. SCIE 198, Perspectives on Science, supplements the standard academic program of a selected group of freshmen who have unusually strong mathematics and science preparation and an interest in scientific research. It presents a broader range of topics than standard science courses and highlights the interdependence of the scientific disciplines.

Students may apply to one or the other of these programs during the summer before their freshman year. Application information is available on the Web at www.yale.edu/yalecollege/2010/special/seminars (SCIE 030) and www.yale.edu/yalecollege/2010/special/ps (SCIE 198).

★SCIE 030, CURRENT TOPICS IN SCIENCE. Charles Bailyn,
Douglas Kankel.

Lect. and disc. F 1.30-3 Sc 1 C Credit (0) Cr/Year only Fr sem

A series of modules in lecture and discussion format addressing scientific issues arising in current affairs. Topics are selected for their scientific interest and contemporary relevance, and may include global warming, human cloning, and the existence of extrasolar planets. *One course credit is awarded for successful completion of the year's work. Enrollment limited to freshmen.*

★SCIE 198, PERSPECTIVES ON SCIENCE. Charles Schmuttenmaer,
William Summers.

Lect. and disc. F 1.30-3 Sc 1 C Credit (0) Cr/Year only

A series of lectures—one every other week—by science and engineering faculty guest lecturers. In alternate weeks, groups of students and faculty participants meet to discuss the lecture topics more fully. *Students are expected to demonstrate their interest in science by enrolling in other science courses, usually with laboratory. One course credit is awarded for successful completion of the year's work.*

SERBIAN AND CROATIAN

(See under Slavic Languages and Literatures.)

SLAVIC LANGUAGES AND LITERATURES

Director of undergraduate studies: Ilya Kliger, 2699 HGS, 432-7023,
ilya.kliger@yale.edu; language coordinator: Irina Dolgova, 2704A HGS,
432-1307, irina.dolgova@yale.edu

FACULTY OF THE DEPARTMENT OF SLAVIC LANGUAGES AND LITERATURES

PROFESSORS

Vladimir Alexandrov (*Chair*), Katerina Clark, Laura Engelstein, Harvey Goldblatt,
Robert Greenberg (*Adjunct*), Benjamin Harshav, Tomas Venclova

ASSOCIATE PROFESSORS

Hilary Fink, John MacKay

ASSISTANT PROFESSORS

Kate Holland, Ilya Kliger

SENIOR LECTORS

Irina Dolgova, Rita Lipson, Constantine Muravnik, Slobodan Novak, Julia Titus,
Karen von Kunes

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 and East European Studies, an interdisciplinary program administered by the Department of Slavic Languages and Literatures.

Students majoring in Russian may concentrate exclusively on Russian language and literature (Program I), or they may elect to study Russian literature in the context of comparative studies of literature (Program II). For Program II, credit is given for work done in other departments. Specific courses in each program must be arranged with the director of undergraduate studies. Students interested in specializing in Russian or Slavic linguistics may arrange a special concentration in linguistics with the director of undergraduate studies.

The major. Prerequisite to the major in both programs is RUSS 130. The department offers two sequences of language courses to fulfill the prerequisite: either (1) RUSS 115, 122, and 130 or (2) RUSS 125 and 130. While completing the prerequisite, students are encouraged to begin fulfilling requirements of the major that do not presuppose advanced knowledge of Russian by taking courses in Russian history and Russian literature in translation. Prospective majors should complete RUSS 122 or 125 by the end of their sophomore year or accelerate their course of study by taking summer courses or studying abroad.

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. Two terms of Russian literature in translation, selected from RUSS 250a, 253b, 255b, and 256a.
2. RUSS 140a and 141b.
3. Two terms of Russian literature read and discussed in the original, typically selected from Group A courses numbered 160 or above.
4. At least two term courses in Russian literature of the nineteenth century and two in Russian literature of the twentieth century. Students should select courses from Group A and from the 240 and 250 series with this distribution requirement in mind.
5. RUSS 490a or b. 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.

In addition to the requirements above, each program requires the following:

Program I. One term course in the history or culture of Russia, selected in consultation with the director of undergraduate studies; three additional term courses in the Department of Slavic Languages and Literatures above RUSS 130. These may include literature courses taught either in translation or in the original, advanced language training courses, or graduate courses.

Program II. Four term courses relevant to the major in the context of comparative studies of literature in other departments, selected in consultation with the director of undergraduate studies.

Both programs. Selection of courses in the initial stage of study need not presuppose a working knowledge of Russian. Students are encouraged to take RUSS 250a, 253b, other courses in translation, and HIST 296b as early as possible, preferably in the sophomore year.

Study abroad. Students majoring in Russian are strongly encouraged to spend a summer or a term studying in the Russian Federation under the auspices of programs approved by the director of undergraduate studies. Language courses taken during the summer or during a term in Russia in approved programs may substitute for certain advanced Russian courses at Yale. Students interested in study abroad should consult the director of undergraduate studies well before their junior year.

Senior requirement. All majors write a senior essay (RUSS 490a or b), an independent project carried out under the guidance of a faculty member.

Placement examination. A departmental placement examination will be given on Sunday, September 3, at 2 P.M. in 221 HGS. Students who have studied Russian elsewhere must take the placement examination before enrolling in any Russian language course at Yale. For further information consult Irina Dolgova, language coordinator, 432-1307.

• *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in Russian by successful completion of RUSS 122, Second-Year Russian, or of RUSS 125, Intensive Elementary and Intermediate Russian, or of RUSS 137b, Russian for Bilingual Students II, or of any Russian course numbered higher than 125 and conducted in Russian except RUSS 136a.

In the other Slavic languages offered by the department, the requirement may be met by successful completion of CZEC 130, Intermediate and Advanced Czech, or SBCR 130, Intermediate Serbian and Croatian. Students may also fulfill the requirement in Czech, Russian, or Serbian and Croatian by passing a departmental examination that covers listening comprehension, reading, and writing skills equivalent to those represented by successful completion of an appropriate intermediate course. Students who wish to take such a departmental examination should contact the director of undergraduate studies.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under “Distributional Requirements” in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisite: RUSS 130

Number of courses: Eleven term courses beyond prerequisite (including the senior essay)

Distribution of courses: *Both programs*—two terms of nineteenth-century Russian lit; two terms of twentieth-century Russian lit; two courses from Group A numbered 160 or above; *Program I*—one course in hist or culture of Russia; three addtl courses in dept of Slavic Langs and Lits above the level of RUSS 130; *Program II*—four courses relevant to major in other depts, with DUS approval

Specific courses required: *Both programs*—two from RUSS 250a, 253b, 255b, 256a; RUSS 140a, 141b; *Program I*—HIST 296b

Senior requirement: Senior essay (RUSS 490a or b)

GROUP A COURSES

Unless otherwise noted, all Group A courses are conducted in Russian.

RUSS 115, FIRST-YEAR RUSSIAN. Irina Dolgova and staff.
 I; Not CR/D/F L1–L2 3 C Credits Meets RP (61) *Cr/Year only*
 115-1: MTWThF 9.30-10.20
 115-2: MTWThF 10.30-11.20
 115-3: MTWThF 11.30-12.20

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.

RUSS 122, SECOND-YEAR RUSSIAN. Irina Dolgova and staff.
 I; Not CR/D/F L3–L4 3 C Credits Meets RP (61)
 122-1: MTWThF 9.30-10.20
 122-2: MTWThF 10.30-11.20

An intermediate course designed to promote all language skills, as well as to introduce students to the wealth of Russian history and culture. Focus on the Russian poet Alexander Pushkin. Readings in and discussion of Pushkin's personal life and creative endeavors as seen against the backdrop of Russian history and culture. Systematic in-depth review of basic grammar structures; the mechanics and semantics of Russian syntax and morphology. *After RUSS 115 or equivalent.*

RUSS 125, INTENSIVE ELEMENTARY AND INTERMEDIATE RUSSIAN.
 Constantine Muravnik.
 MTWThF 10.30-11.20; TWTh 11.30-12.20 I; Not CR/D/F L1–L4
 4 C Credits Meets RP (33)

A yearlong intensive course for students of superior linguistic ability covering the first year of Russian in the fall and the second in the spring. Intensive study of Russian grammar; practice in conversation, reading, and composition. *Recommended for prospective majors in Russian and in Russian and East European Studies.*

RUSS 130, THIRD-YEAR RUSSIAN. Constantine Muravnik.
 MWF 12.30-1.20, TTh 2 HTBA I; Not CR/D/F L5 3 C Credits
 Meets RP (35)

Intensive practice in conversation and composition accompanied by review and refinement of grammar. Readings from nineteenth- and twentieth-century literature, selected readings in Russian history and current events, and videotapes and films are used as the basis of structured conversation, composition, and grammatical exercises. Oral and written examinations. *Audiovisual work in the Center for Language Study required. After RUSS 122 or 125 or equivalent.*

***RUSS 134a, RUSSIAN FOR LITERARY AND CULTURAL INTERPRETATION.**
 Constantine Muravnik.
 TTh 1-2.15 I L5, Hu (26)

Close reading, interpretation, and discussion of Russian fiction, poetry, and discursive prose in history and philosophy. Special attention to cultural significance, stylistics, and aesthetics, as well as to grammatical structures and syntax. Use of translation as a method for interpretation. Grammar review and extensive vocabulary building. Readings include works by Babel, Nabokov, Bulgakov, Mandelstam, Tsvetaeva, Karamzin, Chaadaev, and Victor Erofeev. *Conducted in Russian and English. Prerequisite: RUSS 122 or 125 or permission of instructor.*

RUSS 136a, RUSSIAN FOR BILINGUAL STUDENTS I. Rita Lipson.
 MWF 11.30-12.20 I; Not CR/D/F L1–L2 (34)

A comprehensive Russian course for students proficient in spoken Russian whose formal education has been in English. Review of the writing system, case, conjunction, and syntax. Weekly translation exercises and compositions.

RUSS 137b, RUSSIAN FOR BILINGUAL STUDENTS II. Rita Lipson.

MWF 11.30-12.20 I; Not CR/D/F L3-L4 (34)

Continuation of RUSS 136a. Focus on reading, writing, and building vocabulary. Weekly translation exercises and compositions. *After* RUSS 136a *or equivalent*.

RUSS 140a and 141b, FOURTH-YEAR RUSSIAN. Julia Titus.

MWF 12.30-1.20 I; Not CR/D/F L5 (35)

Development of advanced skills in speaking, listening, reading, and writing Russian. Classwork centers on discussion and analysis of videotapes, literary texts, newspaper articles, and readings about Russian intellectual life and culture. Weekly compositions or translations, oral reports, intensive review, and refinement of syntactical and lexical topics. *After* RUSS 130 *or equivalent*.

★RUSS 142a, ADVANCED CONVERSATION IN CONTEMPORARY RUSSIA.

Irina Dolgova.

MW 1-2.15 I L5 (0)

A course for intermediate and advanced students, with a focus on achieving the level of oral and written proficiency necessary for engaging in intelligent discourse on current issues. Attention to the sociopolitical, economic, and cultural realities of the modern Russian Federation and Russian-speaking world. Extensive exposure to materials of various media; intensive conversation practice. *Prerequisite*: RUSS 130 *or equivalent*.

★RUSS 145b, RUSSIAN THROUGH THEATER. Julia Titus.

MW 2.30-3.45 I; Not CR/D/F L5 (0)

Close reading and discussion of major Russian playwrights; staging of a play in Russian as a final project. Open to all students of Russian after two years of language study or equivalent who wish to improve their Russian pronunciation and intonation while learning more about Russian theater. *After* RUSS 122 *or* 125 *or equivalent*.

RUSS 161a, INTRODUCTION TO NINETEENTH-CENTURY RUSSIAN

LITERATURE: POETRY. Tomas Venclova.

TTh 11.30-12.45 I; Not CR/D/F L5 (0)

An in-depth analysis of Pushkin's verse. *After* RUSS 122 *or* 125.

RUSS 162a, INTRODUCTION TO NINETEENTH-CENTURY RUSSIAN

LITERATURE: PROSE. Rita Lipson.

MW 9-10.15 I; Not CR/D/F L5, Hu (0)

Gogol and Dostoevsky. Appreciation of Russian masterpieces in the original. *After* RUSS 130.

RUSS 165b, CHEKHOV: DRAMA IN PROSE. Rita Lipson.

MW 2.30-3.45 I; Not CR/D/F Hu (0)

A study of Chekhov's stories from the 1880s until 1904, with emphasis on the dramatic element in Chekhov's prose. *After* RUSS 130.

★RUSS 166b, CHEKHOV IN RUSSIAN AND WORLD CINEMA. Rita Lipson.

MW 4-5.15; screenings M 7 P.M. I; Not CR/D/F L5, Hu (0)

Exploration of the fascination of filmmakers around the world with Chekhov's writings. Readings from Chekhov's prose and plays, as well as from critical texts on the author and on theory of adaptation. Screenings of pertinent films. *Prerequisite*: RUSS 130.

RUSS 167b, INTRODUCTION TO TWENTIETH-CENTURY RUSSIAN LITERATURE: POETRY. Tomas Venclova.

TTh 11.30-12.45 I; Not CR/D/F L5, Hu (o)
Symbolism, acmeism, futurism. *After* RUSS 130.

GROUP B COURSES

These courses, conducted in English, are open to all Yale College students and are considered particularly appropriate for students in the Literature major.

★RUSS 022a, THE DIVINE AND THE HUMAN IN RUSSIAN FICTION.

Vladimir Alexandrov.

MW 2.30-3.45 Hu (o) Tr Fr sem

A study of major works by several of the greatest writers in nineteenth- and twentieth-century Russian literature: Dostoevsky, Tolstoy, Bely, Nabokov, and Bulgakov. Primary attention to the ways the authors embody in their themes, devices, and forms the link between the human realm and the transcendent, a central preoccupation of Russian culture. *Readings and discussion in English. Enrollment limited to freshmen.*

SLAV 207a/PLSC 365a, LANGUAGES AND POLITICS. Robert Greenberg.

TTh 4-5.15 III; Not CR/D/F So (27)

Exploration of political controversies surrounding issues of language planning and language policy. Consideration to how social and political actors differentiate languages and dialects, and how nationalist ideology has shaped language choices. Topics include the English-only movements in the United States; the policy of official bilingualism in Canada; and language policies in Europe, with emphasis on Slavic countries.

★SLAV 210b/★LING 249b, INTRODUCTION TO SLAVIC LANGUAGES.

Robert Greenberg.

T 3.30-5.20 III So (27)

Study of the historical development of the Slavic languages from the time of an assumed Slavic unity through the modern period. Consideration of linguistic, cultural, historical, and social factors to explain how more than a dozen Slavic languages emerged as standard languages in the past two centuries. Topics include the role of elites in shaping new Slavic languages, the influence of neighboring languages on the development of Slavic, and the natural linguistic differentiation that occurred in the Slavic lands. *No previous knowledge of Slavic languages required.*

RUSS 250a, LITERATURE AND EMPIRE IN RUSSIA. Ilya Klinger.

TTh 1-2.15 I Hu (26) Tr

A survey of nineteenth-century Russian literature in its historical context. Examination of artistic meditations on justice and rebellion; on national identity and the nature of the individual, as these issues are embodied in texts by Pushkin, Gogol, Turgenev, Dostoevsky, Tolstoy, and Chekhov. Special emphasis on social, ethical, and psychological conflicts of the period. *Readings and discussion in English.*

RUSS 253b, LITERATURE AND REVOLUTION IN RUSSIA, 1892 TO THE PRESENT. Hilary Fink.

MW 1-2.15 I Hu (36) Tr

A survey of major writers and literary movements, focusing on the intersection between art and revolution in twentieth-century Russian literature. Topics include the Symbolists and Decadents at the end of the nineteenth century; the reception of the 1917 Revolution by Russian writers in the 1920s; the formation

of Stalinist literary orthodoxy and reactions against it; and contemporary literary rebellions against the political and artistic legacies of the past. Readings include works by Blok, Bely, Babel, Olesha, Bunin, Akhmatova, and Bulgakov. *Readings and discussion in English.*

RUSS 255b/LITR 206b/RSEE 255b, STUDIES IN THE NOVEL: TOLSTOY.

Vladimir Alexandrov.

MW 2.30-3.20, I HTBA I Hu (37) Tr

A survey of Leo Tolstoy's legacy. Readings include early stories, *War and Peace* and *Anna Karenina*, and short later works. Close textual analyses, with primary attention to the interrelation of theme, form, and literary and cultural contexts. *Readings and discussion in English.*

RUSS 256a/LITR 208a/RSEE 256a, STUDIES IN THE NOVEL: DOSTOEVSKY.

Kate Holland.

MW 2.30-3.20, I HTBA I Hu (37) Tr

An exploration of the literary and intellectual legacy of Fyodor Dostoevsky. Focus on *Crime and Punishment* and *The Brothers Karamazov*; consideration of several short stories and novellas. Special attention to Dostoevsky's concept of modernity. Close textual analysis is accompanied by discussion of the historical, biographical, literary, and philosophical contexts of Dostoevsky's novels. *Readings and discussion in English.*

★RUSS 315b/★LITR 235b, PLACE AND TIME IN RUSSIAN LITERATURE.

Ilya Kliger.

Th 3.30-5.20 I; Not CR/D/F Hu (○) Tr

Exploration of Russian literature and culture through the study of nineteenth- and twentieth-century Russian prose. Focus on representations of certain key locations, including St. Petersburg, Moscow, Siberia, the Caucasus, and the countryside. Readings from the works of Lermontov, Gogol, Goncharov, Dostoevsky, Tolstoy, Bely, Bulgakov, Solzhenitsyn, and Pelevin.

★RUSS 317b/★LITR 211b, THE NOVEL AND THE FAMILY IN THE NINETEENTH CENTURY. Kate Holland.

M 1.30-3.20 I; Not CR/D/F Hu (36) Tr

An examination of the development of the nineteenth-century European novel (mainly Russian and French) from the perspective of changing representations of the family. Topics include the novel of the aristocratic family, the novel of adultery, the family as the central sphere of social and political conflict, the novel and illegitimacy, and the family as locus of inherited madness, degeneracy, and criminality. Authors include Stendhal, Balzac, Flaubert, Tolstoy, Turgenyev, Shchedrin, and Dostoevsky. *Readings and discussion in English.*

★RUSS 318b, RUSSIAN REJECTIONS OF REALISM. Kate Holland.

W 1.30-3.20 I; Not CR/D/F Hu (36) Tr

Examination of different ways in which Russian writers challenged the reigning realist aesthetic during the nineteenth and twentieth centuries. Topics include literature and madness, the grotesque, the literature of the absurd, the literature of violence, surrealism, and postmodernism. Authors include Pushkin, Gogol, Chekhov, Olesha, Bulgakov, Nabokov, Erofeev, and Pelevin. *Readings and discussion in English.*

★RUSS 319b/★LITR 236b, CRIMINALITY AND THE NOVEL. Kate Holland.

W 1.30-3.20 I; Not CR/D/F Hu (○) Tr

Criminals and criminality as they are represented in the nineteenth-century European novel. Topics include the criminal as social deviant, the novelistic narrator

as criminologist, the language of criminals, crime in the city and in the provinces, political crimes, sexual crimes, and changing interpretations of the causes of crime. Readings include novels by Balzac, Gogol, Hugo, and Dostoevsky, and nonfictional writings by Vidocq and Nechaev. *Readings and discussion in English.*

GROUP C COURSES

★RUSS 480, DIRECTED READING IN RUSSIAN LITERATURE. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (○)

Individual study under the supervision of a faculty member selected by the student. Applicants must submit a prospectus approved by the adviser to the director of undergraduate studies by the end of the first week of classes in the term in which the course is taken. The student meets with the adviser at least one hour each week, and takes a final examination or writes a term paper. *No credit granted without prior approval of the director of undergraduate studies.*

★SLAV 485a or b, DIRECTED READING OR INDIVIDUAL RESEARCH IN SLAVIC LANGUAGES AND LITERATURES. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (○)

Individual study under the supervision of a faculty member selected by the student. Applicants must submit a prospectus approved by the adviser to the director of undergraduate studies by the end of the first week of classes in the term in which the course is taken. The student meets with the adviser at least one hour each week, and takes a final examination or writes a term paper. *No credit granted without prior approval of the director of undergraduate studies.*

★RUSS 490a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (○)

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. *Required for all majors.*

CZEC 115, ELEMENTARY CZECH. Karen von Kunes.

TTh 11.30–12.45, MW 7–7.50 P.M. I; Not CR/D/F L1–L2 3 C Credits
Meets RP (24) *Cr/Year only*

A comprehensive introduction to Czech for students with no previous knowledge of the language. Essentials of grammar with emphasis on oral proficiency, reading, writing, and listening comprehension. Newspaper articles, annotated excerpts from Capek's *R.U.R.*, Hašek's *Švejk*, Kundera's *Joke* and *Unbearable Lightness of Being*, and Havel's *Private View*. Audio- and videotapes.

★CZEC 119b, READING IN CZECH. Karen von Kunes.

MW 4–5.15 I; Not CR/D/F Meets RP (37)

Acquisition of skills that allow students to read Czech newspapers and literature of average difficulty. Study of grammar and syntax for reading purposes; basic speaking. Texts include daily news and works by Milan Kundera and Václav Havel.

CZEC 130, INTERMEDIATE AND ADVANCED CZECH. Karen von Kunes.

TTh 9–10.15, MW 8–8.50 P.M. I; Not CR/D/F L3–L4 3 C Credits
Meets RP (22)

A continuation of CZEC 115. Grammar and usage, with emphasis on idiomatic expressions, syntax, and stylistics in the first term; writing skills and spoken

literary Czech in the second. Readings in modern Czech history, prose, and poetry, and discussions of economic, political, and social issues. *After CZECH 115 or equivalent.*

★CZEC 246a/★FILM 364a/★RSEE 240a, MILOS FORMAN AND HIS FILMS.
Karen von Kunes.

Th 1.30-3.20; *screenings* HTBA I; Not CR/D/F Hu (o)

An in-depth examination of selected films by Milos Forman and the representatives of the New Wave, *cinéma vérité* in Czech filmmaking. Special attention to Forman's artistic and aesthetic development as a Hollywood director in such films as *Hair*, *One Flew over the Cuckoo's Nest*, *Ragtime*, and *Amadeus*. *Viewings and discussion in English.*

★CZEC 301b/★LITR 220b/★RSEE 300b, MILAN KUNDERA: THE CZECH NOVELIST AND FRENCH THINKER. Karen von Kunes.

Th 1.30-3.20 I; Not CR/D/F Hu (26) Tr

Close reading of Kundera's novels. Analysis of the author's aesthetics and artistic development, and his ties to French, German, and Spanish literatures, as well as to history, philosophy, music, and art. Topics include paradoxes of public and private life, the irrational in erotic behavior, the duality of body and soul, the interplay of imagination and reality, the function of literary metaphor, and the art of composition. *Readings and discussion in English.*

SBCR 115, ELEMENTARY SERBIAN AND CROATIAN. Slobodan Novak.

MTWThF 2.30-3.20 I; Not CR/D/F L1-L2 3 C Credits Meets RP

(61) *Cr/Year only*

A comprehensive introduction to elementary Serbian and Croatian grammar and conversation.

SBCR 130, INTERMEDIATE SERBIAN AND CROATIAN. Slobodan Novak.

MTWThF 3.30-4.20 I; Not CR/D/F L3-L4 3 C Credits Meets RP

(61) *Cr/Year only*

A reading and conversation course conducted in Serbian and Croatian. Systematic review of grammar; practice in speaking and composition; reading of selected texts.

★SBCR 247b, BALKAN FILM AND LITERATURES. Slobodan Novak.

TTh 1-2.15 I; Not CR/D/F Hu (o)

An investigation of the cultural politics of the Balkans through an analysis of the ways that history and conflict have been represented in film, literature, and the media. Authors include Ivo Andric and Danilo Kis; film directors include Dusan Makavejev and Emir Kusturica. *Readings and discussion in English.*

GRADUATE COURSES

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 director of undergraduate studies.

SOCIOLOGY

Director of undergraduate studies: Ivan Szelenyi, 140 Prospect St., 432-3323,
ivan.szelenyi@yale.edu

FACULTY OF THE DEPARTMENT OF SOCIOLOGY

PROFESSORS

Julia Adams, Jeffrey Alexander, Scott Boorman, Deborah Davis, Ron Eyerman,
Philip Gorski, Karl Ulrich Mayer, Joel Podolny, Ivan Szelenyi

ASSOCIATE PROFESSORS

Hannah Brueckner, Christopher Rhomberg

ASSISTANT PROFESSORS

Jennifer Bair, Averil Clarke, Matthew McKeever (*Visiting*), Alondra Nelson, Rachel Sherman, Philip Smith

LECTURERS

Ulrich Schreiterer, Peter Stamatov

Sociology is the disciplined effort to understand the social and cultural relations, institutions, and collective beliefs that structure societies.

The Sociology department offers two undergraduate programs leading to the B.A. degree. The central feature of each program is an encounter with social life. Any methodology can be used to accomplish this, including analysis of survey data, ethnographic field research, and historical analysis. The standard program provides a rigorous introduction to sociological concepts, theories, and methods, and prepares students for graduate study or for professional work in the social sciences. The combined program—sociology with another subject—introduces students to sociological perspectives, principles, and research as a contribution to a general liberal arts education.

A major in Sociology is by no means restricted to students who plan careers in the social sciences. Sociology provides the tools with which to make sense of many social experiences—interpersonal relations, encounters with organizations and institutions, political involvements, jobs, religious commitments, and so on. With these tools, students can be more effective at whatever they choose to do. Indeed, sociology provides a stimulating and relevant background for students planning careers in, for example, business, education, law, public health, or public service. Courses especially relevant to particular careers are listed below.

Business: SOCY 133a, 214b, 219b

Education: SOCY 115a, 133a, 143a, 236a, 335b

Law: SOCY 115a, 130a, 141b, 147b, 342a

Public health: SOCY 130a, 314b, 337b

Public service: SOCY 115a, 143a, 147b, 161b, 214b, 219b

Admission to the major. Students interested in the Sociology major should complete at least one introductory course (110a–148a) by the end of the sophomore year. This course may be applied to meet the requirements of the major. Students who have not completed an introductory Sociology course may be admitted to the major at the discretion of the director of undergraduate studies. All students interested in the Sociology major should meet with the director of undergraduate studies no later than the beginning of the junior year to elect a program of study.

Division of courses. Courses in Sociology are divided by level, with introductory courses numbered in the range from 100 to 149, courses in sociological theory from 150 to 159, courses in sociological methods from 160 to 169, intermediate courses from 150 to 299, advanced courses in the 300s, and individual study and research courses in the 400s. In addition, qualified students may elect to enroll in graduate courses, with permission of the instructor and of the director of graduate studies. A list of graduate courses and descriptions is available from the director of undergraduate studies.

PROGRAM I. THE STANDARD PROGRAM

The requirements for the standard program are:

1. Thirteen term courses in sociology, of which normally no more than two may be drawn from outside the Sociology department. At least one Sociology course must be at the introductory level, but no more than two introductory courses may count toward this total.

2. Two courses in sociological theory and two in sociological methods, normally completed by the end of the junior year. SOCY 151a, Foundations of Modern Social Theory, and 152b, Topics in Contemporary Theory, are the required courses for theory. SOCY 160a, Methods of Inquiry, and one additional Sociology course numbered between 161 and 169 are required for methods.

3. One advanced seminar in Sociology (SOCY 300–399).

4. A two-term senior essay and colloquium for students electing the intensive major. Students in the intensive major attend a yearlong biweekly colloquium (SOCY 493) that provides them with an opportunity to share their research experiences. Students in the nonintensive major take one additional 300-level seminar in Sociology and write a one-term senior essay in SOCY 491a or 492b.

PROGRAM II. SOCIOLOGY WITH ANOTHER SUBJECT

The combined program allows students to unite the study of sociology with the study of another discipline or substantive area, such as American studies, anthropology, biology, computer science, economics, history, philosophy, political science, psychology, religious studies, or an area program. The requirements are:

1. Thirteen term courses, of which at least nine and no more than ten are selected from Sociology, the remainder being chosen from another department or program. At least one Sociology course must be at the introductory level, but no more than two introductory courses in any department or program may count toward this total. The courses outside Sociology must constitute a coherent unit alone and form a logical whole when combined with the Sociology courses.

2. Two courses in sociological theory and two in sociological methods, normally completed by the end of the junior year. SOCY 151a, Foundations of Modern Social Theory, and 152b, Topics in Contemporary Theory, are the required courses for theory. SOCY 160a, Methods of Inquiry, and one additional Sociology course numbered between 161 and 169 are required for methods.

3. One advanced seminar in Sociology (SOCY 300–399).

4. A one- or two-term senior essay in which the student integrates sociology and the other subject chosen. Students opting for the intensive major write a two-term senior essay and attend a yearlong biweekly colloquium (SOCY 493). The colloquium provides students with an opportunity to share their research experiences. Students in the nonintensive major take one additional 300-level seminar in Sociology and write a one-term senior essay in SOCY 491a or 492b.

The combined program allows students to design a program to satisfy their own substantive interests and future career plans. By the beginning of the junior year, participants in the combined program are expected to consult with the director of undergraduate studies in order to obtain approval for their course of study.

Senior requirement for the nonintensive major. Students electing the nonintensive major take one additional seminar in Sociology (SOCY 300–399) and write a one-credit senior essay during the final term of the senior year (SOCY 491a or 492b). The senior essay for nonintensive majors is intended to be an in-depth scholarly review and critical analysis based on secondary sources. The student is expected to extend some topic covered in one of the two required seminars (one of which is to be completed by the end of the first term of the senior year). All nonintensive majors are required to enroll in SOCY 491a or 492b 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 director of undergraduate studies no later than the end of registration period during the last term of the senior year. The faculty adviser is normally the instructor of one of the two required seminars. Nonintensive majors are not eligible to graduate with Distinction in the Major.

Senior requirement 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 subfield. Students select primary and secondary advisers from the faculty. Students in the intensive major enroll in SOCY 493, Senior Essay and Colloquium for Intensive Majors, during their senior year. The purpose of the colloquium is to provide a forum for discussing the research process and for presenting the student's research at various stages in its development. Intensive majors are eligible to graduate with Distinction in the Major if they meet the grade standards for distinction (see chapter I) and submit a senior essay written in SOCY 493.

Admission to the intensive major. Students should apply to the director of undergraduate studies no later than the last day of classes in the spring term of their junior year. In special circumstances, applications may be accepted through the end of registration period in the first term of the senior year. Applications should include a one-page statement of interest that includes a list of relevant courses taken and identifies a prospective senior essay adviser. Admission is based on performance and promise. The director of undergraduate studies and the senior essay adviser serve as advisers to candidates for the intensive major.

Procedures. All seniors are advised by the director of undergraduate studies at least once at the beginning of the fall term. All programs must be approved by the director of undergraduate studies. Juniors must secure approval of their programs from the director of undergraduate studies as well.

REQUIREMENTS OF THE MAJOR

Prerequisite: One intro course (SOCY 110a–148a)

Number of courses: Thirteen term courses (including the prerequisite and the senior essay)

Specific courses required: SOCY 151a, 152b, 160a, one addtl Sociology course numbered 161–169

Distribution of courses: *Program I*—at least eleven term courses at intermed and adv levels, one 300-level Sociology sem; *Program II*—at least nine and no more than ten term courses in Sociology, at least one 300-level Sociology sem, no more than two courses in any dept or program at the introductory level

Senior requirement: *Nonintensive major*—one addtl 300-level Sociology sem and senior essay (SOCY 491a or 492b); *Intensive major*—senior essay and colloquium for intensive majors (SOCY 493)

FRESHMAN SEMINARS

[SOCY 015a, SOCIAL RELATIONS AND SOCIETY]

★SOCY 041a, SOCIOLOGY OF SOCIAL CONTROL AND CRIMINAL JUSTICE.

Philip Smith.

F 3.30-5.30 So (37) Fr sem

Exploration of the criminal justice system from a sociological perspective. Special attention to transformations in social control arising with the onset of modernity. Topics include policing, courts, the law, and prisons; costs and benefits of various contemporary solutions to the problem of social control; and the role of power and culture in shaping current policy and activity. Readings from the works of Durkheim, Foucault, and Weber as well as from more current writings in the fields of criminology, legal studies, and social theory. *Enrollment limited to freshmen.*

[SOCY 086a, CHINESE SOCIETY SINCE MAO]

INTRODUCTORY COURSES

[SOCY 110a, HUMAN SOCIETIES]

SOCY 115a, CONTEMPORARY AMERICAN SOCIETY. Julia Adams,

Ron Eyerman, Philip Gorski, Karl Ulrich Mayer.

MW 10.30-11.20, 1 HTBA III So (33)

Examination of the central tensions and dynamics in American society at the beginning of the twenty-first century. Attention to the major fault lines in American society and how they are experienced; how social structures shape social landscapes. Use of sociological theory to inform understandings of how the national past shapes present and future possibilities in American society. Topics include inequality and stratification, religion, urban poverty, the politics of family, popular culture, welfare and warfare, ethnicity and community, and America and the world.

SOCY 121b, THE SOCIOLOGICAL IMAGINATION. Julia Adams.

MW 10.30-11.20, 1 HTBA III So (33)

Introduction to the study of modernity and sociology. Topics include the dramatic rise of capitalism and colonialism, new forms of social inequality, the advent of democracy and bureaucracy, and the contested role of religion in modernity. Readings from contemporary writings on postmodern social life that are informed by, and react against, the classical sociological tradition.

SOCY 130a, SOCIAL PROBLEMS. Peter Stamatov.

MW 1.30-2.20, 1 HTBA III; Not CR/D/F So (36)

Examination of social problems as a constituent part of public discourse. Overview of theories of social problems. Attention to the role of organizations and media of mass communication in the production of social problems and in the elaboration of policies to address these problems domestically and globally.

SOCY 131b, SOCIOLOGY OF THE ARTS AND POPULAR CULTURE.

Ron Eyerman.

HTBA III; Not CR/D/F So (50)

An introduction to sociological perspectives on the arts and popular culture. Topics include the relationship between culture and society; the role and meaning of the arts from a sociological perspective; mass culture and the culture industry; culture and commerce, art, and politics. Analysis of artworks, classical and popular music, film, and literature. *Offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

SOCY 133a, COMPUTERS AND SOCIETY. Scott Boorman.

TTh 1-2.15 III So (26)

The impact of computers on social behavior, organizational life, and human consciousness. The computer's effects on law, medicine, and business; problems of power, social control, and inequality; the computer's threat to humanistic culture; fashioning law and ethics appropriate to the computer age. *No prior experience with computers required.*

SOCY 134a/WGSS 311a, SEX AND GENDER IN SOCIETY. Jennifer Bair.

TTh 10.30-11.20, I HTBA III; Not CR/D/F So (23)

Exploration of the relationship between sex, gender, sexuality, and society. Questions of how sex and gender shape the way individuals experience the world and how these identities are shaped by social structures and processes. Topics include sexual inequality; sex, gender, and the body; gender and work; gender and the state; and masculinity.

[SOCY 140b, FOUR GIANTS OF THE MODERN WORLD: A COMPARISON OF SOCIETIES]

SOCY 141b, SOCIOLOGY OF CRIME AND DEVIANCE. Philip Smith.

TTh 1.30-2.20, I HTBA III; Not CR/D/F So (26)

An introduction to sociological approaches to crime and deviance. Review of the patterns of criminal and deviant activity within society; exploration of major theoretical accounts. Topics include drug use, violence, and white-collar crime.

[SOCY 143a, RACE AND ETHNICITY]

SOCY 147b, INTRODUCTION TO SOCIAL POLICY ANALYSIS.

Scott Boorman.

TTh 1-2.15 III So (26)

An introduction to the analysis of efficiency and equity in complex social and legal structures; comparison of approaches based on social-structural, legal, and economic modes of reasoning.

[SOCY 148a, COMPARATIVE POLITICAL ECONOMY]

COURSES IN SOCIOLOGICAL THEORY

Open to all students without prerequisite.

SOCY 151a *or* b/HUMS 284a *or* b, FOUNDATIONS OF MODERN SOCIAL THEORY. Ivan Szelenyi [F], Ron Eyerman [Sp].

MW 9.30-10.20, I HTBA III; Not CR/D/F So (0)

Major works of social thought from the beginning of the modern era through the 1920s. Attention to social and intellectual contexts, conceptual frameworks and methods, and contributions to contemporary social analysis. Writers include Hobbes, Locke, Rousseau, Montesquieu, Adam Smith, Marx, Weber, and Durkheim. *Spring term offered in Beijing, China. For application procedures see under Peking University–Yale University Joint Undergraduate Program.*

*SOCY 152b, TOPICS IN CONTEMPORARY THEORY. Peter Stamatov.

T 9.30-11.20 III; Not CR/D/F WR, So (0)

Overview of developments in social theory since the 1950s, including structural functionalism, hermeneutical approaches, interactionist and phenomenological perspectives, rational choice, network theory, the new institutionalism, and theories of globalization. Examination of the work of influential theorists.

COURSES IN SOCIOLOGICAL METHODS

★SOCY 160a, METHODS OF INQUIRY. Ivan Szelenyi.

MW 1-2.15 III; Not CR/D/F So (36)

Basic methods of social research ranging from fieldwork and ethnography to survey research and content analysis of written or visual materials. Hands-on experience in designing and implementing a research project.

★SOCY 161b, SURVEY METHODS. Matthew McKeever.

TTh 11.30-12.45 III; Not CR/D/F So (0)

Exploration of theory and practice of survey design, including conceptualization, measurement issues, sample design, questionnaire construction, interviewing, data analysis, publication of results, and limitations and ethical aspects of survey research. The National Longitudinal Study of Adolescent Health (Add Health) used as an example of an ambitious and innovative survey design.

★SOCY 166b, METHOD AND PRACTICE OF FIELD WORK. Staff.

MW 1-2.15 III; Not CR/D/F WR, So (0)

A practical introduction to theoretical and methodological issues in qualitative sociology. *Recommended preparation:* SOCY 160a.

[SOCY 168b, HISTORICAL APPROACHES IN SOCIOLOGY]

INTERMEDIATE COURSES

The prerequisite for intermediate courses is one introductory Sociology course or permission of the instructor.

[SOCY 180a, DEVELOPMENT AND UNDERDEVELOPMENT]

[SOCY 183b, URBAN AMERICA]

[SOCY 214b, GENDER INEQUALITY]

★SOCY 216a/★EP&E 355a/★WGSS 314a, SOCIAL MOVEMENTS. Ron Eyerman.

M 1.30-3.20 III; Not CR/D/F So (36)

An introduction to sociological perspectives on social movements and collective action, exploring civil rights, student movements, global justice, nationalism, and radical fundamentalism.

★SOCY 219b/★EP&E 301b, ECONOMIC SOCIOLOGY. Jennifer Bair.

TTh 9-10.15 III; Not CR/D/F So (0)

An introduction to the field of economic sociology, with attention to understandings of economic institutions and processes. Focus on the works of Karl Marx and Max Weber. Neoclassical economic theories contrasted with neoclassical sociological theories of economic, political, and ideological outcomes, including processes of globalization and racial identity formation.

[SOCY 224a/WGSS 345a, MARRIAGE AND FAMILY]

[SOCY 236a, WORKING IN AMERICA]

ADVANCED COURSES

Courses in this category are open to students who have completed one intermediate course and any other specified requirement, or by permission of the instructor. Preference is given to Sociology majors in their junior and senior years.

***SOCY 306aG/*EP&E 337a, EMPIRES AND IMPERIALISM.** Peter Stamatov.

M 3.30-5.20 III; Not CR/D/F WR, So (o)

A study of empire as a territorial organization of political power. Comparison of empire in different historical periods, from antiquity to European overseas expansion in the fifteenth through twentieth centuries, and in different geographic contexts in Africa, Asia, and Europe. Review of economic, political, and cultural theories of imperialism, colonialism, and decolonization.

***SOCY 314b, SOCIAL INEQUALITY.** Karl Ulrich Mayer.

M 1.30-3.20 III; Not CR/D/F So (o)

A study of social and economic inequalities based on race, gender, and social class; such inequalities as a dimension of individual life chances and life aspirations as well as of the structure and organization of societies. Discussion of theoretical, political, empirical, and methodological issues.

***SOCY 320aG, KNOWLEDGE IN SOCIETY.** Ulrich Schreiterer.

T 1.30-3.20 III So (o)

Examination of the social foundations of and changes in knowledge regimes, epistemic cultures, and the value of knowledge. Topics include discursive orders, disciplines, and experts; the economic significance of knowledge; and dynamics of innovation, property rights, and the governance of science.

[SOCY 325bG, TOPICS IN CONTEMPORARY CHINESE SOCIETY]

***SOCY 327a, SOCIOLOGICAL VIEWS ON MODERN ART.**

Ulrich Schreiterer.

Th 1.30-3.20 III Hu, So (o)

Exploration of sociological approaches to the analysis of art worlds and works of art. Discussion of visual art as a social field. Topics include the role of artists, markets, and institutions; modernity and avant-garde; art consumption as positional good; art as a self-regulating communicative system; the demise of beauty and the sublime as aesthetic concepts; and conceptual (minimal) art and the work of Gerhard Richter as beacons of postmodernity.

***SOCY 330a/*EP&E 303a, CIVIL SOCIETY AND DEMOCRACY.**

Jeffrey Alexander.

W 3.30-5.30 III Hu, So (37)

Examination of normative and sociological theories of civil society and of empirical studies of its culture. Attention to organizations such as polls, mass media, law, and office, which provide ways of partially institutionalizing civil society. The civil rights movement and multiculturalism as illustrations of struggles inside the civil sphere. Discussion of whether a global civil society is possible.

[SOCY 334bG, POSTCOMMUNIST TRANSITIONS]

***SOCY 335b/*TPRP 335b, SOCIOLOGY OF EDUCATION.**

Ulrich Schreiterer.

Th 1.30-3.20 III So (o)

Exploration of the central issues surrounding educational organization and policies, drawing on both theoretical conceptions and empirical evidence. Topics include the social stratification and segmentation of schools and colleges, inequalities and equity, governance and accountability, market forces and choice, institutional reforms, and strategic change.

***SOCY 337b, URBAN POVERTY AND POLICY.** Ivan Szelenyi.

W 1.30-3.20 III; Not CR/D/F So (o)

Study of aspects of urban poverty such as unemployment, homelessness, welfare dependence, isolation, and educational deprivation in the context of recent, current, and proposed policies.

★SOCY 340a/★EP&E 304a, SOCIAL STUDIES OF SCIENCE AND TECHNOLOGY. Frederic Vandenberghe.
For description see under Ethics, Politics, & Economics.

[SOCY 342a, LABOR RELATIONS IN THE UNITED STATES]

★SOCY 350a/★EP&E 357a, MODERNITY AND BEYOND.
Frederic Vandenberghe.
For description see under Ethics, Politics, & Economics.

★SOCY 352b, MATERIAL CULTURE. Jeffrey Alexander.
Th 1.30-3.20 III; Not CR/D/F Hu, So (26)
Exploration of how and why modern and postmodern societies have continued to sustain material symbolism and iconic consciousness. Study of theoretical approaches to debates about icons and symbols in philosophy, sociology, linguistics, psychoanalysis, and semiotics. Use of case studies to analyze modern iconography in advertisements and branding, food and bodies, nature, fashion, celebrities, popular culture, art, and politics.

[SOCY 358a/EP&E 356a, CLASS AND CULTURE]

★SOCY 363a/★ER&M 362a, GENOCIDE AND ETHNIC CONFLICT.
Jasmina Besirevic-Regan.
W 1.30-3.20 III; Not CR/D/F So (o)
An exploration of genocide and violent ethnic conflict in the past fifty years, including contributory historical and political elements. Consideration of ways to prevent or resolve such conflicts. Discussion of identity, religion, class, and nationhood as related to violence and conflict. Rwanda and the former Yugoslavia used as case studies to develop an analytical framework.

★SOCY 367b, CITIZENSHIP AND CIVIC ENGAGEMENT. Peter Stamatov.
T 1.30-3.20 III So (o)
Examination of citizenship and civic engagement in historical and theoretical perspective. Exploration of citizenship as an instrument of social closure, as a determinant of social policies, as a normative ideal in political philosophy, and as a model for political participation. Discussion of debates on the decline of civic participation and on the emergence of global civil society.

[SOCY 385bG/WGSS 437b, RACE, GENDER, AND THE AFRICAN AMERICAN EXPERIENCE]

★SOCY 395a/★EAST 408a, WEALTH AND POVERTY IN MODERN CHINA.
Deborah Davis.
T 1.30-3.20 III; Not CR/D/F So Meets RP (o)
Discussion of how access to property, capital, education, and political power have affected poverty and the distribution of wealth in China since 1911, with emphasis on contemporary inequality and social stratification. Extensive use of documentary and online sources. *Optional discussion section conducted in Chinese.*

INDIVIDUAL STUDY AND RESEARCH COURSES

★SOCY 471a and 472b, INDIVIDUAL STUDY. Consult the director of undergraduate studies.
HTBA III; Not CR/D/F (o)

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.

★SOCY 491a and 492b, SENIOR ESSAY AND COLLOQUIUM FOR NONINTENSIVE MAJORS. Consult the director of undergraduate studies.

Alt. T 3.30–5.20 III; Not CR/D/F (O)

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 during the last term of the senior year. The course meets biweekly, beginning on Tuesday, September 12, in the fall term and Tuesday, January 16, in the spring term.

★SOCY 493, SENIOR ESSAY AND COLLOQUIUM FOR INTENSIVE MAJORS. Consult the director of undergraduate studies.

Alt. T 3.30–5.20 III; Not CR/D/F (O)

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. The first meeting is on Tuesday, September 19, in the fall term and Tuesday, January 23, in the spring term.

SOUTH ASIAN STUDIES

Council on South Asian Studies, 232 LUCE, 432-5596; council chair:

Phyllis Granoff, 451 College St., 432-0837, phyllis.granoff@yale.edu

FACULTY ASSOCIATED WITH THE COUNCIL ON SOUTH ASIAN STUDIES

PROFESSORS

Akhil Amar (*Law School*), E. Annamalai (*Anthropology*) (*Visiting, Emeritus*), William Burch (*Forestry & Environmental Studies*), Michael Dove (*Forestry & Environmental Studies, Anthropology*), Sara Suleri Goodyear (*English*), Phyllis Granoff (*Religious Studies*), Stanley Insler (*Linguistics*), K. David Jackson (*Spanish & Portuguese*), Ravindran Kannan (*Computer Science*), Bernard Lytton (*Emeritus*) (*School of Medicine*), Gustav Ranis (*Emeritus*) (*Economics*), T. N. Srinivasan (*Economics*), Shyam Sunder (*School of Management*)

ASSOCIATE PROFESSORS

Nihal de Lanerolle (*School of Medicine*), William Deresiewicz (*English*), Rohini Pande (*Economics*)

ASSISTANT PROFESSORS

Bernard Bate (*Anthropology*), Jacob Dalton (*Religious Studies*), Ravi Durvasula (*School of Medicine*), El Mokhtar Ghambou (*English*), Karuna Mantena (*Political Science*), Mridu Rai (*History*)

LECTURERS

Robert Brubaker (*Anthropology, Religious Studies*), Carol Carpenter (*Forestry & Environmental Studies, Anthropology*), Geetanjali Singh Chanda (*English, Women's, Gender, & Sexuality Studies*), Hugh Flick, Jr. (*Religious Studies*), Dhooleka Raj (*Anthropology*)

SENIOR LECTOR

Seema Khurana

The Council on South Asian Studies aims to bring together faculty and students sharing an interest in South Asia, and it supplements the undergraduate curriculum with seminars, conferences, and special lectures. Yale College

does not offer a degree in South Asian studies. Students can pursue an interest in South Asian studies as part of a program in the humanities or the social sciences. Related courses can be found in the listings of Anthropology, Economics, History, Political Science, and Religious Studies. Language instruction is offered in Tamil and in Hindi. Sanskrit is offered through the Department of Linguistics.

COURSES RELEVANT TO SOUTH ASIAN STUDIES

AMST 322a/WGSS 371a, GENDER, FAMILY, AND CULTURAL IDENTITY IN ASIA AND THE UNITED STATES: A DIALOGUE.

Gectanjali Singh Chanda.

For description see under American Studies.

ANTH 151a, INTRODUCTION TO EARLY SOUTH ASIA. Robert Brubaker.

ANTH 210b/ER&M 230b, TWENTIETH-CENTURY ANTHROPOLOGICAL THEORY. Bernard Bate.

For description see under Anthropology.

ANTH 223b, ETHNIC VIOLENCE IN GLOBAL PERSPECTIVE. Staff.

ANTH 225b, SOUTH ASIA AND THE WIDER WORLD FROM PREHISTORY TO 1600. Robert Brubaker.

ANTH 236a, ANTHROPOLOGY OF POLITICS. Dhooleka Raj.

★ANTH 298a/★ER&M 298a/★WGSS 298a, THE ANTHROPOLOGY OF ORATORY AND RHETORIC. Bernard Bate.

For description see under Anthropology.

★ANTH 348b^G/★WGSS 378b, GENDER AND MEDIA IN INDIA.

Bernard Bate.

For description see under Anthropology.

★ANTH 370b^G, LANGUAGE, POLITICS, AND SOCIETY IN COLONIAL INDIA.

E. Annamalai.

★ANTH 419a^G, LANGUAGE AND THE PUBLIC SPHERE. Bernard Bate.

ECON 300a, INTERNATIONAL TRADE THEORY AND POLICY.

T. N. Srinivasan, Ernesto Zedillo.

ENGL 343a/AFST 343a/LITR 269a, INTRODUCTION TO POSTCOLONIAL LITERATURES. Sara Suleri Goodyear.

For description see under English Language & Literature.

HNDI 115^G, ELEMENTARY HINDI. Seema Khurana.

1st 1-2.15, W 2.30-3.45, M 1 HTBA I; Not CR/D/F LI-L2 3 C Credits

(o) Cr/Year only

An in-depth introduction to modern Hindi, including the Devanagari script. Through 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 placed on spontaneous self-expression in the language. *No prior background in Hindi assumed.*

HNDI 130a^G, INTERMEDIATE HINDI I. Seema Khurana.

TTh 2.30-3.45, W 4-5.15 I; Not CR/D/F L3 1½ C Credits (o)
 First half of a two-term sequence designed to develop proficiency in the four language skill areas. 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 various Hindi literary traditions. Emphasis on spontaneous self-expression in the language. *After* HNDI 115 *or equivalent*.

HNDI 131b^G, INTERMEDIATE HINDI II. Seema Khurana.

TTh 2.30-3.45, W 4-5.15 I; Not CR/D/F L4 1½ C Credits (o)
 Continuation of HNDI 130a, focusing on further development of proficiency in the four language skill areas. *After* HNDI 130a *or equivalent*.

HNDI 140a^G, ADVANCED HINDI. Seema Khurana.

TTh 4-5.15 I; Not CR/D/F L5 (o)
 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 131b *or permission of instructor*.

*HNDI 157b^G, HINDI IN THE DIASPORA. Seema Khurana.

TTh 4-5.15 I; Not CR/D/F L5 (o)
 An advanced language course focused on reading and discussion. Development of overall proficiency in the language and knowledge of issues affecting the Hindi-speaking diaspora through exposure to selected Hindi literature and popular culture including film, theater, and news reports. *Prerequisite*: HNDI 140a *or permission of instructor*.

*HNDI 198a^G *or* b^G, ADVANCED TUTORIAL. Seema Khurana.

HTBA I; Not CR/D/F L5 (o)
 For students with advanced Hindi language skills who wish to engage in concentrated reading and research on material not otherwise offered by the department. 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 language studies coordinator. *Prerequisite*: HNDI 140a *or permission of instructor*.

*LING 113a^G, INTRODUCTION TO INDO-EUROPEAN. Stanley Insler.

LING 115^G, ELEMENTARY SANSKRIT. Stanley Insler [F], Ashwini Deo [Sp].

PLSC 367a, POLITICS IN INDIA. Karuna Mantena.

RLST 136a, CLASSICAL RELIGIONS OF INDIA I: BUDDHISM AND JAINISM.
 Phyllis Granoff.

RLST 180a, BUDDHISM IN TIBET. Jacob Dalton.

*RLST 182b, DEATH, DREAMS, AND VISIONS IN INDO-TIBETAN
 BUDDHISM. Jacob Dalton.

*RLST 183a^G, INTRODUCTION TO CLASSICAL TIBETAN TEXTS.
 Jacob Dalton.

TAML 115^G, INTRODUCTORY TAMIL. E. Annamalai.

MTWThF 9.30-10.20 I; Not CR/D/F L1-L2 3 C Credits (32)
Cr/Year only

An in-depth introduction to modern Tamil, focusing on comprehension, speaking, reading, and writing skills 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.*

TAML 130a, INTERMEDIATE TAMIL I. E. Annamalai.
MTWThF 10.30-11.20 I; Not CR/D/F L3 1½ C Credits
Meets RP (33)

First half of a two-term sequence designed to develop proficiency in the four language skill areas. Focus on improving comprehension, speaking, reading, and writing skills through the use of visual media, newspapers and magazines, modern fiction and poetry, and public communications such as pamphlets, advertisements, and government announcements. *Prerequisite: TAML 115 or equivalent.*

TAML 131b, INTERMEDIATE TAMIL II. E. Annamalai.
MTWThF 10.30-11.20 I; Not CR/D/F L4 1½ C Credits
Meets RP (33)

Continuation of TAML 130a, focusing on further development of proficiency in the four language skill areas. Students are prepared to begin conducting field work in Tamil. *Prerequisite: TAML 130a or equivalent.*

★TAML 150b, ADVANCED TAMIL. E. Annamalai.
MW 2.30-3.45 I; Not CR/D/F L5 Meets RP (37)

An advanced language course designed to help students understand speech from the public platform, conduct interviews in Tamil, and analyze texts through critical reading, discussion, writing, and translation. Texts may include creative literature of the modern period, contemporary cultural and political writings, and other genres as determined by student interests. *Prerequisite: TAML 131b or equivalent.*

★WGSS 449b, FICTIONS OF INDIAN WOMEN. Geetanjali Singh Chanda.

SOUTHEAST ASIA STUDIES

Language studies coordinator: J. Joseph Errington, Southeast Asia Studies Council, 311 LUCE, 432-3431, seas@yale.edu, www.yale.edu/seas

FACULTY ASSOCIATED WITH THE COUNCIL ON SOUTHEAST ASIA STUDIES

PROFESSORS

William Burch (*Forestry & Environmental Studies*), Michael Dove (*Forestry & Environmental Studies*), J. Joseph Errington (*Chair*) (*Anthropology*), Robert Evenson (*Economics*), William Kelly (*Anthropology*), Benedict Kiernan (*History*), James Scott (*Political Science*), Mimi Yiengpruksawan (*History of Art*)

ASSOCIATE PROFESSOR

Lisa Curran (*Forestry & Environmental Studies*)

ASSISTANT PROFESSOR

Sarah Weiss (*Music*)

LECTURERS

Carol Carpenter (*Forestry & Environmental Studies, Anthropology*), Amity Doolittle (*Forestry & Environmental Studies*)

SENIOR LECTORS

Indriyo Sukmono, Quang Phu Van

The Council on Southeast Asia Studies oversees an interdisciplinary program that brings together faculty and students sharing an interest in Southeast Asia and supplements the undergraduate curriculum with an annual seminar series, periodic conferences, and special lectures. Yale does not offer a degree

in Southeast Asia studies. Majors in any department may consult with Council faculty regarding a senior essay on a Southeast Asian topic, and in certain circumstances it may be possible for students who have a special interest in the region to explore the possibility of a Special Divisional Major. Students planning to undertake field research or language study in Southeast Asia may apply to the Council for summer fellowship support.

Courses featuring Southeast Asian content are offered within a variety of departments each year, including Anthropology, Economics, History, History of Art, Music, Philosophy, Political Science, and Forestry & Environmental Studies. A list of courses for the current year can be obtained through the Council office or Web site. Yale maintains extensive library and research collections on Southeast Asia.

Language instruction is offered in two Southeast Asian languages, Indonesian and Vietnamese. The Council on Southeast Asia Studies supports language tables and tutoring in other Southeast Asian languages by special arrangement.

INDN 115^G, ELEMENTARY INDONESIAN. Indriyo Sukmono.

5 HTBA I; Not CR/D/F L1–L2 3 C Credits (61) *Cr/Year only*

An introductory course in standard Indonesian with emphasis on developing communicative skills through a systematic survey of grammar and graded exercises. Introduction to reading in the second term, leading to mastery of language patterns, essential vocabulary, and basic cultural competence.

*INDN 130^G, INTERMEDIATE INDONESIAN. Indriyo Sukmono.

3 HTBA I; Not CR/D/F L3–L4 (61) *Cr/Year only*

Continued practice in colloquial Indonesian conversation and reading and discussion of texts. *After* INDN 115 *or equivalent*.

*INDN 470a and 471b, INDEPENDENT TUTORIAL. Consult the language studies coordinator.

HTBA I; Not CR/D/F L5 (0)

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. *Permission to enroll requires submission of a detailed project proposal and its approval by the language studies coordinator.*

*PHIL 210a, EASTERN PHILOSOPHY. Quang Phu Van.

VIET 115^G, ELEMENTARY VIETNAMESE. Quang Phu Van.

MTWThF 9.30–10.20 I; Not CR/D/F L1–L2 3 C Credits Meets RP
(32) *Cr/Year only*

Students acquire basic working ability in Vietnamese, including sociocultural knowledge. Attention to integrated skills such as speaking, listening, writing (Roman script), and reading. *No previous knowledge of or experience with Vietnamese language required.*

*VIET 130^G, INTERMEDIATE VIETNAMESE. Quang Phu Van.

MTWThF 10.30–11.20 I; Not CR/D/F L3–L4 3 C Credits
Meets RP (33)

An integrated approach to language learning aimed at strengthening students' listening, speaking, reading, and writing skills in Vietnamese. Students are thoroughly grounded in communicative activities such as conversations, performance

simulation, drills, role plays, and games. Discussion of aspects of Vietnamese society and culture. *After VIET 115 or equivalent.*

★VIET 470a and 471b, INDEPENDENT TUTORIAL. Consult the language studies coordinator.

HTBA I; Not CR/D/F L5 (o)

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 language studies coordinator.*

SPANISH

Director of undergraduate studies: Jason Cortés, 82–90 Wall St., 432-1157, jason.cortes@yale.edu; language director: Sonia Valle, Rm. 215, 82–90 Wall St., 432-1159, sonia.valle@yale.edu

FACULTY OF THE DEPARTMENT OF SPANISH AND PORTUGUESE

PROFESSORS

Rolena Adorno (*Chair*), Aníbal González, Roberto González Echevarría, K. David Jackson, María Rosa Menocal, Noël Valis

ASSISTANT PROFESSORS

Jason Cortés, Iván Fernández Peláez, Oscar Martín, Paula Moreira

LECTURER

Priscilla Meléndez

SENIOR LECTORS

Sybil Alexandrov, Teresa Carballal, Mercedes Carreras, Lissette Reymundi, Dina Rivera, Lourdes Sabé-Colom, Terry Seymour, Margherita Tórtora, Sonia Valle, Alicia van Altena

LECTORS

Marta Almeida, Yovanna Cifuentes, Sebastián Díaz, Oscar González-Barreto, Isabel Jaén-Portillo, María Jordán, Beatriz Peña, Juliana Ramos-Ruano

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 in the list above.

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 and Latin America. Today Spanish is the second language of the United States and one of the three most important and widely spoken languages in the world. The program in Spanish provides students with the opportunity to acquire thorough linguistic proficiency as well as in-depth knowledge of both cultural and literary topics.

The major in Spanish is complementary to interests in a wide range of other disciplines including anthropology, international studies, history, Latin American and Iberian studies, comparative literature, economics, environmental studies, humanities, and political science, among others. Students majoring in these or other areas, as well as those considering a career in medicine or law, are encouraged to consider completing the Spanish major as one of two majors.

Among the Spanish offerings, Group A includes beginning and intermediate language courses designed to help students develop fluency in understanding, speaking, reading, and writing Spanish. Group B courses seek to provide students with a broad but solid introduction to the fields of Hispanic literatures and cultures, and to strengthen their linguistic competence through courses in advanced grammar and composition. Group C allows students to perfect their linguistic and critical skills with courses organized around a specific problem or issue, e.g., a literary genre, a type of literary or cultural representation, or a specific writer or text. It is strongly recommended that students complete SPAN 243a or b, 244a or b, and at least one other Group B course before enrolling in any Group C courses taught in Spanish. Students desiring more information about either language or literature offerings should consult the director of undergraduate studies.

Beginning students ordinarily enroll in SPAN 115a or b or 117a or b. Students who take SPAN 115a or b must continue with 116a or b in the following term, and no credit is awarded for 115a or b until 116a or b has been successfully completed.

Freshmen offering Spanish for admission are placed according to their scores on the Advanced Placement tests in Spanish Language and/or Literature or on the Yale Spanish departmental placement examination, given at the beginning of every term. Students with a score of 4 or above on either of the Spanish Advanced Placement tests, or an appropriate score on the departmental placement examination, may enroll in any Group B or C course or in SPAN 138.

Students wishing to take intensive Spanish may, with the instructor's permission, enroll in SPAN 117a or b, which covers the same material as SPAN 115a or b and 116a or b, but in one term. Students wishing to take intensive intermediate Spanish may, with the instructor's permission, enroll in SPAN 132a or b, which covers the same material as SPAN 130a or b and 131a or b, also in one term. SPAN 135a and 136b are especially designed for heritage speakers and are open only to them; interested students should contact the instructor.

Regardless of previous Spanish study, students without adequate scores on either of the Advanced Placement tests must take the departmental placement examination in order to enroll in any course above SPAN 115a or b or 117a or b.

The standard major, for which the prerequisite is SPAN 131a or b or the equivalent, consists of twelve term courses from Groups B and C, including the senior requirement. Students are required to take SPAN 243a or b, 244a or b, two courses chosen from SPAN 261b, 262a, 266a, or 267b, and at least five courses from Group C. With prior permission of the director of undergraduate studies, two relevant courses from other departments may be applied toward the major. Successful completion of a special examination given at the beginning of each term may exempt Spanish majors from SPAN 243a or b; details about the examination may be obtained from the course instructor.

Juniors and seniors majoring in Spanish may, with the permission of the instructor and the director of graduate studies, enroll in graduate literature courses in Spanish. A list of pertinent graduate courses is available at the office of the director of undergraduate studies.

Senior requirement. Seniors write the senior essay in SPAN 491b in the spring of their senior year under the individual direction of a faculty adviser. Students expecting to complete their degree requirements in December write the senior essay in SPAN 491a in the fall of their senior year. Seniors in SPAN 491b or 491a are expected to submit their completed essay to the director of

undergraduate studies at 82–90 Wall Street by 4 P.M. on April 20 in the spring term, or by 4 P.M. on December 8 in the fall term. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade, though no essay that would otherwise pass will be failed because it is late. Students in the intensive major both present the essay and take the departmental examination.

Study abroad. Students are encouraged to apply to the eight-week summer language course offered by Yale Summer Session in New Haven and Bilbao, Spain. More information about Yale Summer Session is available on the Web at www.yale.edu/summer. For information about the Junior Year or Term Abroad program, refer to chapter III of this bulletin.

Departmental placement examination. The placement examination will be given on Sunday, September 3, from 2 to 4 P.M., and from 4.30 to 6.30 P.M. in LC 101 and 102. No preregistration is required. In the spring term the examination will be given on Sunday, January 14, from 6 to 8 P.M. in LC 101 and 102. All students, including native speakers, who wish to enroll in a Spanish course above SPAN 115a or b or 117a or b and who have not earned a score of 4 or above on either of the Spanish Advanced Placement tests must take the placement examination. Students who have already taken one year or more of Spanish instruction before coming to Yale are required to take the placement examination before enrolling in a Spanish course. The results of the placement examination are valid for one year from the date on which it was taken.

• *Foreign language requirement (Class of 2008 and previous classes).* Students in the Class of 2008 and previous classes may satisfy the foreign language distributional requirement in Spanish by a score of 4 or higher on either of the Advanced Placement tests in Spanish (Spanish Language, Spanish Literature). The requirement may also be met by successful completion of SPAN 130a or b and 131a or b, Intermediate Spanish I and II; SPAN 132a or b, Intensive Intermediate Spanish; or SPAN 135a and 136b, Spanish for Heritage Speakers I and II. Alternatively, students may satisfy the requirement by scoring above the intermediate level on the departmental placement examination.

Foreign language distributional requirement (Class of 2009 and subsequent classes). Details of the foreign language distributional requirement for the Class of 2009 and subsequent classes are contained under "Distributional Requirements" in chapter III, section A.

REQUIREMENTS OF THE MAJOR

Prerequisite: SPAN 131a or b, 132a or b, 136b, or equivalent

Number of courses: Twelve term courses beyond prerequisite (including the senior requirement)

Specific courses required: SPAN 243a or b, 244a or b, and two from SPAN 261b, 262a, 266a, 267b

Distribution of courses: At least five courses in Group C

Substitution permitted: Up to two relevant courses in other depts, with permission of DUS

Senior requirement: Senior essay (SPAN 491a or b)

Intensive major: Senior requirement and dept exam

COURSE FOR FRESHMEN

*SPAN 060a, FRESHMAN COLLOQUIUM: LITERARY STUDIES IN SPANISH.

Jason Cortés.

MW 2.30-3.45 L5, Hu (0) Fr sem

Introduction to the study of literature in general and to some of the most important texts in Hispanic literature. Selected texts in Spanish include narratives (Borges, García Márquez, Fuentes, Unamuno), essays (Paz, Fuentes, Sor Juana), lyric (Neruda, Paz, Valle-Inclán), and theater (Lope de Vega, García Lorca). *Conducted in Spanish. Counts toward the requirements for the Spanish major. Enrollment limited to freshmen.*

GROUP A COURSES

SPAN 115a or b, ELEMENTARY SPANISH I. Lourdes Sabé-Colom and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L1 1½ C Credits Meets RP (61)

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 116a or b. Credit only on completion of SPAN 116a or b.*

SPAN 116a or b, ELEMENTARY SPANISH II. Sybil Alexandrov and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L2 1½ C Credits Meets RP (61)

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 115a or b or in accordance with placement results. Admits to SPAN 130a or b or 132a or b.*

*SPAN 117a or b, INTENSIVE ELEMENTARY SPANISH. Sybil Alexandrov, Lourdes Sabé-Colom, and staff.

MTWThF 2 HTBA I; Not CR/D/F L1–L2 2 C Credits

Meets RP (61)

An intensive beginning course in spoken and written Spanish that covers the material of SPAN 115a or b and 116a or b in one term. Meets for two periods daily, five days a week. *Conducted in Spanish. Admits to SPAN 130a or b or 132a or b. Not open to students who have completed SPAN 115a or b or 116a or b.* (Formerly SPAN 116a or b)

SPAN 130a or b, INTERMEDIATE SPANISH I. Lissette Reymundi and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L3 1½ C Credits Meets RP (61)

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. *Conducted in Spanish. Admits to SPAN 131a or b.*

SPAN 131a or b, INTERMEDIATE SPANISH II. Beatriz Peña and staff.

MTWThF 1 HTBA For sections see www.yale.edu/courseinfo

I; Not CR/D/F L4 1½ C Credits Meets RP (61)

A continuation of SPAN 130a or b. 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.*

★SPAN 132a or b, INTENSIVE INTERMEDIATE SPANISH. Beatriz Peña, Lissette Reymundi, and staff.

MTWThF 2 HTBA I; Not CR/D/F L3–L4 2 C Credits
Meets RP (61)

An intensive intermediate course in spoken and written Spanish that covers the material of SPAN 130a or b and 131a or b in one term. Meets for two periods daily, five days a week. *Conducted in Spanish. Admits to L5 courses. Not open to students who have completed SPAN 130a or b or 131a or b.* (Formerly SPAN 131a or b)

★SPAN 135a, SPANISH FOR HERITAGE SPEAKERS I. Sybil Alexandrov.

MWF 10.30–11.20 I; Not CR/D/F L1–L2 (33)

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. *Admission in accordance with placement results.*

★SPAN 136b, SPANISH FOR HERITAGE SPEAKERS II. Sybil Alexandrov.

MWF 10.30–11.20 I; Not CR/D/F L3–L4 (33)

A continuation of SPAN 135a. 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 135a or in accordance with placement results.*

SPAN 138, ADVANCED CONVERSATIONAL SPANISH. Teresa Carballal and staff.

MWF 1 HTBA For sections see www.yale.edu/courseinfo
I; Not CR/D/F L5 Meets RP (0)

Intended to improve active command of the language through readings, discussions, and reports. Conversational skills are stressed. Reading selections include commentaries on political and social problems as well as cultural topics. Prepares students for practical situations and for advanced literature courses. *Conducted in Spanish. May be taken for credit by students who have completed courses with higher numbers. SPAN 138 does not count toward the major. After SPAN 131a or b or 132a or b, or in accordance with placement results. Not open to students who have completed SPAN 135a or 136b. Admits to Group B and C courses.*

★SPAN 180b, SPANISH FOR READING. María Jordán.

MW 1–2.15 I; Not CR/D/F L5 (0)

A fast-paced language course designed for students interested primarily in learning to read Spanish. Review of linguistic structures and syntax as well as textual analysis of passages, both fiction and nonfiction, from a wide variety of sources and disciplines. *Conducted in Spanish. After SPAN 131a or b or 132a or b, or in accordance with placement results.*

GROUP B COURSES

Open to all students who have placed into L5 courses. Unless otherwise noted, all courses in this group are conducted in Spanish.

★SPAN 220a, THEATER AND POETRY WORKSHOP. Sonia Valle.

Th 1–2.15 I; Not CR/D/F L5 (0)

Exploration of the dynamics of figurative language, advanced linguistic structures, and aural comprehension through close reading of original Latin American and Spanish dramatic and poetic texts reflecting on time, memory, identity,

and love. Students participate in performance and creation of short dramatic and poetic texts.

***SPAN 222a, LEGAL SPANISH.** Mercedes Carreras.

222a-1: MW 9-10.15 I; Not CR/D/F L₅ (○)

222a-2: TTh 9-10.15 I; Not CR/D/F L₅ (○)

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.

***SPAN 223b, SPANISH IN FILM: AN INTRODUCTION TO THE NEW LATIN AMERICAN CINEMA.** Margherita Tórtora.

MW 1-2.15 I; Not CR/D/F L₅ (○)

Development of proficiency in Spanish through the analysis of critically acclaimed Latin American films. Includes basic vocabulary of film criticism in Spanish as well as discussion and language exercises.

***SPAN 224a or b, SPANISH IN POLITICS, INTERNATIONAL RELATIONS, AND THE MEDIA.** Teresa Carballal.

MW 1-2.15 I; Not CR/D/F L₅ (○)

Issues of domestic and international politics are integrated with advanced usage of the Spanish language. A cross-cultural approach is used to analyze Spanish (vocabulary, style, content, and objectives) in political discourse, diplomatic relations, and the media.

SPAN 225b, SPANISH FOR THE MEDICAL PROFESSIONS.

Mercedes Carreras.

225b-1: MW 9-10.15 I L₅ (32)

225b-2: TTh 9-10.15 I L₅ (22)

Topics in health and welfare. Conversation, reading, and writing about medical issues for advanced Spanish-language students, including those considering careers in medical professions.

SPAN 226b, THE UNITY AND DIVERSITY OF SPANISH. Lissette Reymundi.

TTh 11.30-12.45 I L₅ Meets RP (24)

A sociolinguistic survey of the Spanish-speaking world (Africa, the Americas, Asia, and Europe). Exploration of the unity and diversity of the Spanish language and Spanish-speaking people through the study of such topics as types of language variation, language and identity, language and society, and multilingualism (including Spanish in the United States).

***SPAN 227a, CREATIVE WRITING.** María Jordán.

MW 1-2.15 I; Not CR/D/F L₅ (○)

An introduction to the craft and practice of creative writing (fiction, poetry, and essays). Focus on the development of writing skills and awareness of a variety of genres and techniques through reading of exemplary works and critical assessment of student work. Emphasis on the ability to write about abstract ideas, sentiments, dreams, and the imaginary world.

***SPAN 235a, ADVANCED SPANISH FOR HERITAGE SPEAKERS.**

Dina Rivera.

MWF 11.30-12.20 I; Not CR/D/F L₅ (○)

Intended for heritage speakers with some previous training in Spanish grammar and writing. Development and refinement of reading, writing, and oral skills in

standard Spanish to native-level fluency. Through literature, film, newspapers, and the Internet, an examination of different aspects of the Hispanic world. *May be taken alone or as a continuation of SPAN 135a or 136b.*

SPAN 243a or b, ADVANCED SPANISH GRAMMAR. Alicia van Altena.

MWF 1 HTBA For sections see www.yale.edu/courseinfo I; Not CR/D/F

L5 (61)

A comprehensive, in-depth study of Spanish grammar intended to improve students' spoken and written command of Spanish. Linguistic analysis of literary selections; some English-to-Spanish translation.

SPAN 244a or b, WRITING IN SPANISH. Margherita Tórtora and staff.

3 HTBA For sections see www.yale.edu/courseinfo I L5 (61)

Intensive instruction and practice in writing as a means of developing critical thinking. Recommended for students considering courses in literature. Analysis of fiction and nonfiction forms, techniques, and styles. Classes conducted in a workshop format.

SPAN 245a/PORT 246a, LATIN AMERICAN FILM: BRAZIL, MEXICO, AND ARGENTINA. Paulo Moreira.

For description see under Portuguese.

SPAN 246b, CULTURAL STUDIES: SPAIN. Oscar Martín.

TTh 11.30-12.45 I L5, Hu (24)

Study of various aspects of Spanish culture, including its continuing relation to the societies of Latin America. Examination of Spanish politics, history, religions, art forms, music, and literatures, from ancient times to the present. Primary sources and critical studies are read in the original.

SPAN 247a, CULTURAL STUDIES: LATIN AMERICA. Jason Cortés.

MW 1-2.15 I L5, Hu (0)

A cross-disciplinary and thematic approach to Latin American cultural studies. Examination of politics, history, religions, art forms, literatures, music, cinema, and popular culture, from pre-Columbian civilizations to the present. Primary sources and critical texts are read in the original.

SPAN 261b, STUDIES IN SPANISH LITERATURE I.

Iván Fernández Peláez.

TTh 1-2.15 I L5, Hu (26)

An introduction to Spanish prose, drama, and lyric poetry from their medieval multicultural origins through the Golden Age in the seventeenth century. Readings include *El Cid*, *La Celestina*, *Conde Lucanor*, *Don Quijote*, and *La vida es sueño*.

SPAN 262a, STUDIES IN SPANISH LITERATURE II. Oscar Martín.

TTh 9-10.15 I L5, Hu (22)

An introduction to Spanish prose, drama, and lyric poetry from the eighteenth century to the present. Texts by Unamuno, García Lorca, Clarín, Jiménez, Cernuda, and others.

SPAN 266a, STUDIES IN LATIN AMERICAN LITERATURE I.

Aníbal González.

TTh 11.30-12.45 I L5, Hu (24)

An introduction to Spanish American literature from the Conquest to the nineteenth century. Writings of adventurers, poets, and patriots who won the New World in the sixteenth century, forged new cultural identities in the seventeenth and eighteenth centuries, and fought for independence in the nineteenth century.

SPAN 267b, STUDIES IN LATIN AMERICAN LITERATURE II.

Rolena Adorno.

MW 2.30-3.45 I L5, Hu (37)

An introduction to Latin American literature from the nineteenth century to the present. Readings include works by Borges, García Márquez, Paz, Neruda, Cortázar, and others.

GROUP C COURSES

Open to students who have placed into L5 courses. It is strongly recommended that students take SPAN 243a or b, 244a or b, and at least one other Group B course before enrolling in any Group C course taught in Spanish. Unless otherwise noted, all courses in Group C are conducted in Spanish.

SPAN 300a^G/LITR 189a^G, CERVANTES' *DON QUIJOTE*.

Roberto González Echevarría.

TTh 2.30-3.45 I; Not CR/D/F Hu (27) Tr

A detailed study of the *Quijote* in the aesthetic and historical context of Renaissance and baroque Spain. Topics include the significance of the *Quijote* for modern European and Latin American fiction. Readings also include Cervantes' *Exemplary Stories* and Elliott's *Imperial Spain*. Conducted in English; a section in Spanish available depending on demand.

*SPAN 328a, MEDIEVAL FANTASY AND WONDER. Oscar Martín.

TTh 11.30-12.45 I L5, Hu (0)

Study of the use and function of fantastic literature in medieval and early modern Spain. Special emphasis on the ideological and imaginative functions of this literature and its sociopolitical context. Topics include miracle accounts, dreams, love fictions, and medieval theory on wonder and fantasy. Texts include *El Poema de mio Cid*, *Santa Maria Egipcíaca*, the *Libro de Alexandre*, the *Libro de buen amor*, *Cancionero* poetry, and *La Celestina*.

*SPAN 329a, EARLY MODERN SPANISH DRAMA. Iván Fernández Peláez.

MW 4-5.15 I; Not CR/D/F L5, Hu (0)

A study of selected works of sixteenth- and seventeenth-century Spanish drama. Discussion of theater as an immensely popular genre during the period, appealing to every social class. Consideration of theater as either the essence of the Spanish character, an instrument of monarchic and patriarchal ideology, or a critique of precisely these principles. Authors include Cervantes, Lope de Vega, Tirso de Molina, Ana Caro, and Calderón.

*SPAN 330b, CONTEMPORARY SPANISH AUTOBIOGRAPHY.

Iván Fernández Peláez.

TTh 11.30-12.45 I; Not CR/D/F L5, Hu (0)

Exploration of several autobiographical texts produced in Spain from the eighteenth century to the twentieth, as well as other texts centered around the self, such as first-person fiction and lyrical poetry. Theoretical readings and discussions on the nature of autobiography.

*SPAN 333a, IMAGES OF WOMEN IN EARLY MODERN SPAIN.

Iván Fernández Peláez.

MW 2.30-3.45 I; Not CR/D/F L5, Hu (0)

Examination of a variety of early modern Spanish texts, with a focus on the presence and conflicts of gender. Study of the rhetorical means by which patriarchal ideology reproduced itself, and of the possibilities for submission or resistance. Texts are by both male and female authors and comprise a wide variety of genres, including poetry, drama, fiction, autobiography, and essay.

★SPAN 343a, HUMOR IN CONTEMPORARY SPANISH AMERICAN NARRATIVE. Aníbal González.

TTh 1-2.15 I; Not CR/D/F L5, Hu (o)

With the use of theoretical and philosophical discussions of humor, examination of how contemporary Spanish American narrative deploys humor for a variety of purposes: from social satire and critical reflection to the promotion of harmony among individuals and social groups. Authors include Bryce Echenique, Luis Rafael Sánchez, Cabrera Infante, and Augusto Monterroso.

★SPAN 345a, TWENTIETH-CENTURY SPANISH AMERICAN REVOLUTIONS. Priscilla Meléndez.

MW 11.30-12.45 I; Not CR/D/F L5, Hu (o)

Exploration of the relationship between revolution and the visual arts in the Mexican muralist movement (Orozco, Rivera, Siqueiros); the development of revolutionary poetry in Nicaragua (Cardenal, Belli); and Cuban postrevolutionary film (Solas, Gutiérrez Alea). Discussion of ways that radical political changes interact with the exploration of artistic interpretations of reality.

★SPAN 346b, GENEALOGY AND SPANISH AMERICAN WOMEN'S WRITING. Priscilla Meléndez.

MW 11.30-12.45 I; Not CR/D/F L5, Hu (o)

A study of Spanish American women writers who reconstruct and rewrite a family past, with emphasis on the open, changing, and antiauthoritarian nature of their narrative works. Authors include Nellie Campobello, Rosario Castellanos, Rosario Ferré, Isabel Allende, and Elena Poniatowska.

★SPAN 375b/★HUMS 227b/★LITR 182b, TOLEDO: THE THREE FAITHS AND THE FOUNDATIONS OF MEDIEVAL EUROPE.

María Rosa Menocal.

For description see under Humanities.

★SPAN 386b, LATIN AMERICAN THEATER. Priscilla Meléndez.

MW 1-2.15 I L5, Hu (o)

An exploration of the development of Latin American theater, from colonial missionary plays to the theatrical experiments of the second half of the twentieth century. Plays by Dragún, Carballido, and Casas, among others. Texts on dramatic history, theater, and criticism include those by Villegas, Dauster, Artaud, and Grotowski.

SPAN 390b/LITR 290b/PORT 385b, LATIN AMERICAN POETRY: BRAZIL AND MEXICO. Paulo Moreira.

TTh 1-2.15 I L5, Hu (o)

Exploration of the connections between two of the strongest poetic traditions in Latin America, the Mexican and the Brazilian. Comparative study of representative works by twentieth-century poets from Mexico and Brazil.

★SPAN 393b/★LITR 420b, THE JUNGLE BOOKS.

Roberto González Echevarría.

For description see under Literature.

★SPAN 394a/★LITR 449a, DICTATOR NOVELS ACROSS THE AMERICAS.

Maira Fradinger.

For description see under Literature.

★SPAN 478a and 479b, DIRECTED READINGS AND/OR INDIVIDUAL RESEARCH. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F (o)

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 or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I; Not CR/D/F L5 (o)

A research project completed under faculty supervision and resulting in a paper of considerable length, in Spanish.

GRADUATE COURSES OF INTEREST TO UNDERGRADUATES

Graduate courses in Spanish are open to qualified undergraduates. Descriptions of courses are listed in the Graduate School bulletin and are available in the Spanish department office. Permission of the instructor and of the director of graduate studies is required.

SPECIAL DIVISIONAL MAJORS

Director of undergraduate studies: Jasmina Beširević-Regan, Dean's Office TC, 432-0722, jasmina.besirevic@yale.edu

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 two patterns prevail. Some majors combine two disciplines (e.g., music and English, religious studies and anthropology), while others draw from several departments to focus on a particular culture, period, or problem (e.g., French studies, medieval studies, urban studies). A Special Divisional Major may not be offered as one of two majors.

Students considering a Special Divisional Major should be aware of its special 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 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.

Application. Students considering a Special Divisional Major are invited to talk with directors of undergraduate studies 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 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 Trumbull 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 Trumbull 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 directors of undergraduate studies and other faculty members to judge whether or not this is the case.

Requirements of the major. 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.

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 director of undergraduate studies 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 director of undergraduate studies. 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.

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 491a, 492b, 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.

Advisers. Candidates must arrange for faculty advisers before applying. Directors of undergraduate studies 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.

REQUIREMENTS OF THE MAJOR

Prerequisite: Approval of two faculty advisers and Committee on Honors and Academic Standing

Number of courses: Thirteen term courses (including a one-term senior essay) or fourteen term courses (including a two-term senior essay)

Distribution of courses: Advanced courses in two or more appropriate departments; graduate courses, college seminars, or tutorials with permission of DUS

Senior requirement: Senior essay or project (SPEC 491a and/or 492b), or, with permission of DUS, written or oral examination, or graduate course, or tutorial

*SPEC 491a and 492b, THE SENIOR PROJECT. Director of undergraduate studies.

HTBA I, II, III, or IV; Not CR/D/F (○)

An essay or project, prepared during one or two terms by senior Special Divisional Majors. Conducted under the supervision of the student's primary adviser and with the approval of the Committee on Honors and Academic Standing in connection with an approved Special Divisional Major. Spring-term essays are due no later than two weeks before the last day of classes.

STATISTICS

Director of undergraduate studies: Andrew Barron, 24 Hillhouse Ave.,
432-0634, andrew.barron@yale.edu

FACULTY OF THE DEPARTMENT OF STATISTICS

PROFESSORS

†Donald Andrews, Andrew Barron, Joseph Chang, †Donald Green, John Hartigan,
†Theodore Holford, †Peter Phillips, David Pollard, †Edward Tufte, †Heping Zhang

ASSOCIATE PROFESSOR

Hannes Leeb

ASSISTANT PROFESSORS

Lisha Chen, John Emerson, Mokshay Madiman, †Sekhar Tatikonda, †Edmund Yeh,
Harrison Zhou

LECTURER

Jonathan Reuning-Scherer

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

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.

The Statistics program at Yale is a blend of the mathematical theory of probability and statistical inference, the philosophy of inference under uncertainty, computational techniques, the practice of data analysis, and statistical analysis applied to economics, biology, medicine, engineering, and other areas. Statistical methods are widely used in the sciences, medicine, industry, business, and government; graduates can work in these areas or go on to graduate study.

Interested students are invited to consider the Statistics concentration within the Applied Mathematics major. This program requires four courses in Statistics in addition to the introductory courses in probability and the theory of statistics required of all Applied Mathematics majors. Courses may be chosen from STAT 230b, 251b, 312a, 330b, 361a, 364b, and 365b, as well as from graduate courses. Applied Mathematics majors with a concentration in Statistics have access to the research facilities of the department. Further information is available from the director of undergraduate studies.

Unless otherwise indicated, courses in Statistics do not count toward the natural science requirement for the Class of 2008 and previous classes.

STAT 100b, INTRODUCTORY STATISTICS. John Emerson.

MWF 10.30-11.20 IV QR (33)

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.

STAT 101–106, INTRODUCTION TO STATISTICS.

A basic introduction to statistics, including numerical and graphical summaries of data, probability, hypothesis testing, confidence intervals, and regression. Each course focuses on applications to a particular field of study and is taught jointly by two instructors, one specializing in statistics and the other in the relevant area of application. The first seven weeks of classes are attended by all students together, as general concepts and methods of statistics are developed. The remaining weeks are divided into field-specific sections that develop the concepts with examples and applications. Computers are used for data analysis. These courses are alternatives; they do not form a sequence and only one may be taken for credit. *No prerequisites beyond high school algebra. May not be taken after STAT 100b.*

STAT 101a^G/E&EB 210a^G/MCDB 215a, INTRODUCTION TO STATISTICS: LIFE SCIENCES. Jonathan Reuning-Scherer, Günter Wagner.

TTh 1-2.15 IV QR (26)

Statistical and probabilistic analysis of biological problems presented with a unified foundation in basic statistical theory. Problems are drawn from genetics, ecology, epidemiology, and bioinformatics.

STAT 102a^G/EP&E 203a/PLSC 452a, INTRODUCTION TO STATISTICS: POLITICAL SCIENCE. Jonathan Reuning-Scherer, Alan Gerber.

TTh 1-2.15 III or IV QR (26)

Statistical analysis of politics, elections, and political psychology. Problems presented with reference to a wide array of examples: public opinion, campaign finance, racially motivated crime, and public policy.

STAT 103a^G/EP&E 209a/PLSC 453a, INTRODUCTION TO STATISTICS: SOCIAL SCIENCES. Jonathan Reuning-Scherer.

TTh 1-2.15 III or IV QR (26)

Descriptive and inferential statistics applied to analysis of data from the social sciences. Introduction of concepts and skills for understanding and conducting quantitative research.

STAT 105a, INTRODUCTION TO STATISTICS: MEDICINE.

Jonathan Reuning-Scherer and staff.

TTh 1-2.15 IV QR (26)

Statistical methods relied upon in medicine and medical research. Practice in reading medical literature competently and critically, as well as practical experience performing statistical analysis of medical data.

STAT 106a^G, INTRODUCTION TO STATISTICS: DATA ANALYSIS.

Jonathan Reuning-Scherer, Andrew Barron.

TTh 1-2.15 IV QR (26)

An introduction to probability and statistics with emphasis on data analysis.

*STAT 129a/*PSYC 129a, STATISTICS AS A WAY OF KNOWING.

Nelson Donegan.

For description see under Psychology.

STAT 230b^G/MATH 235b, INTRODUCTORY DATA ANALYSIS. Joseph Chang.
MW 2.30-3.45 IV QR (○)

Survey of statistical methods: plots, transformations, regression, analysis of variance, clustering, principal components, contingency tables, and time series analysis. The S computing language and Web data sources are used.

STAT 238a^G, PROBABILITY AND STATISTICS. Joseph Chang.

MWF 2.30-3.20 IV QR (37)

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 MATH 118a or b or 120a or b. Some acquaintance with matrix algebra and computing assumed.*

STAT 241a^G/MATH 241a, PROBABILITY THEORY. Harrison Zhou.

MWF 9.30-10.20 IV QR (32)

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 120a or b or equivalent.*

STAT 242b^G/MATH 242b, THEORY OF STATISTICS. Harrison Zhou.

MWF 9.30-10.20 IV QR (32)

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 STAT 241a and concurrently with or after MATH 222a or b or 225b, or equivalents.*

STAT 251b^G/MATH 251b, STOCHASTIC PROCESSES. Andrew Barron.

MW 1-2.15 IV QR (0)

Introduction to the study of random processes, including Markov chains, Markov random fields, martingales, random walks, Brownian motion, and diffusions. Techniques in probability, such as coupling and large deviations. Applications to image reconstruction, Bayesian statistics, finance, probabilistic analysis of algorithms, and genetics and evolution. *After STAT 241a or equivalent.*

STAT 312a^G, LINEAR MODELS. Hannes Leeb.

TTh 9-10.15 IV QR (22)

The geometry of least squares; distribution theory for normal errors; regression, analysis of variance, and designed experiments; numerical algorithms (with particular reference to S-Plus); alternatives to least squares. Generalized linear models. *Linear algebra and some acquaintance with statistics assumed. After STAT 242b and MATH 222a or b or 225b.*

STAT 330b^G/MATH 330b, ADVANCED PROBABILITY. David Pollard.

TTh 2.30-3.45 IV QR (0)

Measure theoretic probability, conditioning, laws of large numbers, convergence in distribution, characteristic functions, central limit theorems, martingales. *Some knowledge of real analysis assumed.*

STAT 361a^G/AMTH 361a^G, DATA ANALYSIS. Lisha Chen, John Emerson.

MW 2.30-3.45 IV QR (0)

Through analysis of data sets using the S statistical computing language, study of a selection of statistical topics such as linear and nonlinear models, maximum likelihood, resampling methods, curve estimation, model selection, classification, and clustering. Weekly sessions in the Statistical Computing laboratory. *After* STAT 242b and MATH 222a or b or 225b, or equivalents.

STAT 364b^G/AMTH 364b^G/EENG 454b, INFORMATION THEORY.

Sekhar Tatikonda.

TTh 9-10.15 IV QR (22)

Foundations of information theory in communications, statistical inference, statistical mechanics, probability, and algorithmic complexity. Quantities of information and their properties: entropy, conditional entropy, divergence, mutual information, channel capacity. Basic theorems of data compression and coding for noisy channels. Applications in statistics, communication networks, and finance. *After* STAT 241a.

STAT 365b^G, DATA MINING AND MACHINE LEARNING. Lisha Chen.

MW 11.30-12.45 IV QR (○)

Techniques for data mining and machine learning from both statistical and computational perspectives, including support vector machines, bagging, boosting, neural networks, and other nonlinear and nonparametric regression methods. Discussion includes the basic ideas and intuition behind these methods, a more formal understanding of how and why they work, and opportunities to experiment with machine learning algorithms and to apply them to data. *After* STAT 242b.

GRADUATE COURSES OF PARTICULAR INTEREST TO UNDERGRADUATES

Courses in the Graduate School are open to qualified undergraduates. Descriptions of graduate courses in Statistics are available in the department office. Permission of the instructor and of the director of graduate studies is required.

STUDY OF THE CITY

Students interested in an introduction to problems in the study of the city are invited to consider the course described below.

STCY 176b, INTRODUCTION TO THE STUDY OF THE CITY.

Alexander Garvin.

T 6.45-9.15 P.M. III So (27)

An examination of forces shaping American cities and strategies for dealing with them. Topics include housing, commercial development, parks, zoning, urban renewal, landmark preservation, new towns, and suburbs. The course includes games, simulated problems, fieldwork, lectures, and discussion.

SWAHILI

(*See under African Studies.*)

SYRIAC

(*See under Near Eastern Languages and Civilizations.*)

TAMIL

(See under *South Asian Studies*.)

TEACHER PREPARATION AND EDUCATION STUDIES

Director: Jonathon Gillette, Rm. 302, 55 Whitney Ave., 432-1896,
jonathon.gillette@yale.edu; www.yale.edu/tprep

COMMITTEE OF THE TEACHER PREPARATION PROGRAM

Jill Campbell (*English*), Gordon Geballe (*Forestry & Environmental Studies*), Jonathon Gillette (*Sociology*), Joseph Gordon (*Yale College Dean's Office*), Judith Hackman (*Yale College Dean's Office*), Roger Howe (*Mathematics*), Matthew Jacobson (*History*), Frank Keil (*Psychology, Linguistics*), Stephen Lassonde (*History*), Michael Morand (*Office of New Haven and State Affairs*), Robert Wyman (*Molecular, Cellular, & Developmental Biology*)

The Teacher Preparation and Education Studies program offers a variety of courses on educational issues including school reform, policy, pedagogy, and instructional design. Courses are organized around two different tracks, education studies and teacher preparation.

Education studies. Courses in the education studies track are designed to examine the system of education as a civic institution. The goal is to introduce ways of challenging and disciplining thinking about educational issues from a historical or sociological perspective. Courses are open to all students.

Teacher preparation. The program also offers a course of study for those interested in teaching. Completion of the full course of study, begun in the sophomore year, fulfills the requirements for a license to teach in any American public school either in an early childhood setting (birth through kindergarten) or in a secondary school setting (grades seven through twelve). Those who complete part of the program have a strong basis for teaching in a private or alternative setting such as Teach for America. For students considering elementary education, the program offers a flexible noncertified course of study called Elementary Explorations for either private school teaching or preparation for graduate school certification programs.

The teacher preparation course of study emphasizes the ability to think about teaching and the creation of learning environments for a wide range of students. Experiences in local schools and classrooms provide opportunities to explore students' individual styles of teaching. Most graduates of the program, especially in the early education area, move into positions of leadership at either the school or the policy level. Courses are offered on a space-available basis to students not enrolled in the program.

Undergraduates interested in the program should consult the director during the freshman year or early in the sophomore year in order to plan a schedule that includes both the required courses and sufficient time for student teaching. Applications close in early April of each year; students are informed by the Admissions Committee of its decisions by mid-April.

To be eligible for certification, participants must complete the following program: secondary school teachers—a major in an academic field, sufficient course work in a subject taught in middle and high schools (English, history, modern languages, Latin, science, mathematics, music), and certain required professional courses; early childhood teachers—a major in an academic field,

a designated series of courses for early childhood preparation, and certain required professional courses. The usual secondary school sequence is:

Junior Year

TPRP 190a
 TPRP 194a
 TPRP 195b
 TPRP 199b

Senior Year

TPRP 290a–296a
 TPRP 299a or b

The usual early childhood sequence is:

Junior Year

TPRP 125a
 TPRP 128b
 TPRP 190a
 TPRP 191b
 TPRP 192a
 TPRP 195b
 Electives in Psychology

Senior Year

TPRP 127a
 TPRP 299a or b

Changes in a student's schedule must be approved by the director. All courses in the program must be taken for a letter grade. Students are encouraged to elect courses that complement their work in teacher preparation and provide links with their academic major.

EDUCATION STUDIES

TPRP 150b, EXAMINING EDUCATION. Jonathon Gillette.

MW 2.30–3.45 III So (o)

Introduction of a number of ways to challenge and discipline thinking about educational issues. Topics are presented through a series of disciplinary lenses beginning with a historical perspective and moving to psychology, political science, and sociology. Examination of one particular topic—the role of race in education—from two different disciplinary vantage points, psychology and anthropology. A comparison between China and the United States illuminates the American system. Issues of school reform are presented using a variety of interdisciplinary approaches.

★TPRP 335b/★SOCY 335b, SOCIOLOGY OF EDUCATION. Ulrich Schreiterer.
 For description see under Sociology.

★TPRP 437a/★HIST 437a, CHILDHOOD IN AMERICA. Stephen Lassonde.
 For description see under History.

★TPRP 456b/★HIST 454b, TRANSFORMATION IN AMERICAN EDUCATION.
 John Mangan.
 For description see under History.

TEACHER PREPARATION

★TPRP 125a/★CHLD 125a/★PSYC 125a, CHILD DEVELOPMENT. Donna Bella, Nancy Close, Carla Horwitz, Jody Platner.
 For description see under Child Study Center.

★TPRP 127a/★CHLD 127a/★PSYC 127a, EARLY CHILDHOOD METHODS.
 Carla Horwitz.
 For description see under Child Study Center.

★TPRP 128b/★CHLD 128b/★PSYC 128b, LANGUAGE, LITERACY, AND PLAY.
Nancy Close, Carla Horwitz, and staff.
For description see under Child Study Center.

★TPRP 190a^G, SCHOOLS, COMMUNITIES, AND THE TEACHER.
Jonathon Gillette.

Tth 1-2.15 III; Not CR/D/F So Meets RP (o)

An introduction to the study of schooling in America. The cultural and historical context of schools, and major philosophies of education, discussed along with consideration of contemporary developments in schooling.

★TPRP 191a or b/★CHLD 126a or b, CLINICAL CHILD DEVELOPMENT AND ASSESSMENT OF YOUNG CHILDREN. Nancy Close.
2 HTBA III (o)

Exposure to both conceptual material and clinical observations on the complexity of assessing young children and their families.

★TPRP 192a and 193b, OBSERVATION. Jonathon Gillette.

4 HTBA III $\frac{1}{2}$ C Credit per term Meets RP (o)

Supervised and directed observation in a middle or high school associated with the program or in an appropriate preschool or kindergarten setting.

★TPRP 194a/★PSYC 194a, EDUCATIONAL PSYCHOLOGY.
Burton Saxon.

W 2.30-4.20 III So (o)

Important theories of learning and child and adolescent development and their applications to teaching and learning contexts. Topics include cognitive development; personal, gender, social, and moral development; individual and group differences; and motivation and assessment. Designed for students in the Teacher Preparation and Education Studies program; open to others who wish to examine the interaction of theory and practice.

★TPRP 195b/★PSYC 461b, ISSUES IN SPECIAL EDUCATION.
Tina Newman.

T 1.30-3.20 III; Not CR/D/F So Meets RP (o)

An examination of contemporary issues in the field of special education from systemic and developmental perspectives. Policy, assessment and classification, and instruction and intervention are reviewed. *Prerequisites:* TPRP 190a and a developmental psychology course.

★TPRP 199b, TEACHING AND LEARNING IN SECONDARY SCHOOLS.
Brian Bailey.

T 1.30-3.20 III So Meets RP (o)

A philosophical and practical forum in which prospective educators enact and evaluate their philosophy of education from the “classroom out.” Expansion of a number of topics arising in TPRP 190a; exploration of specific challenges that face educators and students today. Prospective teachers work together in a Collaborative Teaching Lab to develop and teach formal lessons at a local high school. *Recommended preparation:* TPRP 190a.

TPRP 290–296, THE METHODS OF TEACHING. Jonathon Gillette,
Marilyn Szwed, and staff.

Readings, discussions, and case studies focusing on all aspects of instruction—objectives, motivation, evaluation, short- and long-term planning, management, and curriculum. Specialists from public school systems assist in particular subject instruction. *For the Class of 2008 and previous classes, does not count toward the natural science requirement.*

- *TPRP 290a^G, THE TEACHING OF ENGLISH. Marilyn Szwed.
M 2.30-4.20 I; Not CR/D/F Meets RP (o)
- *TPRP 291a^G, THE TEACHING OF HISTORY. Staff.
M 2.30-4.20 II; Not CR/D/F Meets RP (o)
- *TPRP 292a^G, THE TEACHING OF LANGUAGES. Jonathon Gillette.
M 2.30-4.20 I; Not CR/D/F Meets RP (o)
- *TPRP 293a^G, THE TEACHING OF MATHEMATICS. Karen Campe.
M 2.30-4.20 IV; Not CR/D/F Meets RP (o)
- *TPRP 294a^G, THE TEACHING OF SCIENCE. Brian Bailey.
M 2.30-4.20 IV; Not CR/D/F Meets RP (o)
- *TPRP 296a^G, THE TEACHING OF MUSIC. Marilyn Szwed.
M 2.30-4.20 II; Not CR/D/F Meets RP (o)
- *TPRP 299a^G or b^G, STUDENT TEACHING. Marilyn Szwed.
HTBA I, II, III, or IV; Not CR/D/F 3 C Credits Meets RP (o)
Teaching for a ten-week period, full time, in a local middle or high school or in an early childhood program, under the direction of a master teacher and the Yale supervisor.
- *TPRP 471a or b, INDEPENDENT STUDY. Staff.
2 HTBA I, II, or III; Not CR/D/F Meets RP (o)
Readings in educational topics, history, policy, or methodology; weekly tutorial and a substantial term essay.

THEATER STUDIES

Director of undergraduate studies: Toni Dorfman, 220 York St., 432-1310,
theater@pantheon.yale.edu or toni.dorfman@yale.edu

FACULTY ASSOCIATED WITH THE PROGRAM OF THEATER STUDIES

PROFESSORS

§Lawrence Manley (*English*), Donald Margulies (*Adjunct*) (*Theater Studies, English*),
§Charles Musser (*Film Studies, American Studies, Theater Studies*), §Joseph Roach
(*English, African American Studies, Theater Studies*), §Marc Robinson (*School of Drama,
Theater Studies, English*), §Robert Stepto (*African American Studies, English, American
Studies*)

ASSOCIATE PROFESSORS

Awam Amkpa (*Theater Studies*) (*Visiting*), §Murray Biggs (*Adjunct*) (*Theater Studies,
English*), §Toni Dorfman (*Adjunct*) (*Theater Studies*), §David Krasner (*Adjunct*)
(*Theater Studies, African American Studies, English*), §Deb Margolin (*Adjunct*) (*Theater
Studies*), §Donia Mounsef (*French, Theater Studies*)

ASSISTANT PROFESSORS

§Jill Lane (*Theater Studies, American Studies*), §Diana Paulin (*American Studies, English,
Theater Studies*)

LECTURERS

Emily Coates, Connie Grappo, Milton Justice, Paul McKinley, Michael Tracy,
Alexandra Vázquez

§Member of the Executive Committee for the program.

As a branch of the humanities and as a complex cultural practice, theater claims a rich history and literature and an equally rich repertoire of embodied knowledge and theory. Theater Studies emphasizes the reciprocal relationship

between practice and scholarly study. The major combines practical training with theory and history, while stressing creative critical thinking. Students are encouraged to engage intellectual and physical approaches to explore diverse cultural forms, historical traditions, and contemporary life.

The study of theater 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, literature, and foreign languages. 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 reflective of their developing interests.

Special features of the program are the production seminars (THST 211b, 220b, 230a or b, 235, 300a, 301b, 312b, 315b, 320a, 321a, 322b, 324a, 327b, 361b) and guided independent study projects (THST 471a, 472b, and 491a or b). Each production seminar concentrates on study, through practice, of one aspect of work in the theater; examples are approaches to acting, directing, writing, or scenic design. Each seminar involves numerous projects that grow out of the term's work. For example, the project may be production of a play or several plays, adaptation or translation of existing works, or creation of original plays, performance pieces, or set design. Independent study projects give the student freedom to pursue individual and group-generated projects under the guidance of a Theater Studies faculty member. All production seminars require permission of the instructor (by application or audition). Independent study project courses are open only to majors.

Although students need not formally declare an intention to major in Theater Studies until the second term of the sophomore year, the requirements of the major may be difficult to complete in two years. Students intending to apply for admission to the major must have completed THST 110a and 111b before applying, which they must do by the end of the sophomore year. Information about the application process and advice about the program can be sought at any time from the director of undergraduate studies. Interested students are urged to consult the director of undergraduate studies early in their academic careers.

The major. The major consists of ten term courses beyond the introductory prerequisites (THST 110a, 111b), one of which must be THST 210a. Students are encouraged to enroll in a balanced combination of courses involving studio work and courses with literature, history, and theory content. Of the ten required term courses, four must be chosen from four periods of dramatic literature or theater history or from four cultures. A suggested scheme might be one course in each of four of the following categories: Shakespeare, African American theater, Greek drama, melodrama, British drama, modern American drama, contemporary American drama, German drama, or other courses in dramatic literature and theater history. At least one of the four courses should include reading of dramatic literature in a classical or modern language other than English. Students are also urged to read plays in the original languages whenever possible.

Students are encouraged to choose additional courses to develop the perspectives achieved in the production and literature courses. These courses may be selected (1) as a study of material that has influenced or provided sources for a playwright or theater; (2) as a study of the historical, political, or religious context of a particular playwright, theater, or literature; (3) as a study of forms of expression contemporary with a particular theater or author, for example, courses in music, art history, architecture, or film; or (4) as a study

of theoretical aspects of the theater through courses in such areas as linguistics, aesthetics, psychology, or the history of criticism.

Senior requirement. Majors satisfy the senior requirement in one of two ways. They may undertake a one-term senior project (THST 491a or b), or, with the approval of the director of undergraduate studies, they may take one of the courses listed in the dramatic literature and theater history section as a senior seminar. Senior projects may take the form of directing or writing a play, performing a role, or writing a critical essay. Performance-oriented projects are in addition to a senior essay, which is an integral requirement of THST 491a or b. Students wishing to undertake a senior project must submit a proposal before the deadline announced by the director of undergraduate studies. Each proposal is submitted to a faculty committee for approval.

Students interested in mounting a production as part of their senior project are encouraged to develop collaborative proposals among actors, writers, directors, or dramaturgs. Students proposing a collaborative production project have priority for rehearsal time and production slots in the Whitney Theater Space, 53 Wall Street.

REQUIREMENTS OF THE MAJOR

Prerequisites: THST 110a, 111b

Number of courses: Ten term courses beyond prerequisites (including the senior requirement)

Specific course required: THST 210a

Distribution of courses: Four courses in dramatic lit or theater history, each from a different period or culture as specified (one including reading in classical or modern lit other than Engl)

Senior requirement: Senior sem or senior project (THST 491a or b)

CORE CURRICULUM IN THEATER STUDIES

NOTE: All performance-oriented classes that hold auditions during the first week of the term are marked with a dagger (†). Yearlong courses hold auditions once only at the beginning of the fall term. Other starred (★) courses, limited in enrollment, are seminars intended primarily for juniors and seniors in the Theater Studies major. When openings are available, sophomores and nonmajors may be admitted with the permission of the instructor. All students interested in taking starred courses must preregister during the reading period of the preceding term. Cross-listed courses in dramatic literature and theater history or those double-titled with another department may require earlier preregistration.

Preregistration and audition information is available at the office of the director of undergraduate studies, 220 York Street.

THST 110a *and* 111b, SURVEY OF THEATER AND DRAMA. Joseph Roach.

TTh 2.30–3.20, 1 HTBA II; Not CR/D/F Hu (27)

An introduction to theater history, plays, aesthetic theories, and performance techniques. From antiquity to Elizabethan Renaissance in the fall and continuing through to the present in the spring.

★THST 210a, INTRODUCTION TO PERFORMANCE CONCEPTS.

II; Not CR/D/F Meets RP (o)

210a–1: TTh 9.30–11.20 Toni Dorfman

210a–2: TTh 1.30–3.20 Connie Grappo

210a–3: MW 3.30–5.20 Deb Margolin

A studio introduction to the basic techniques of acting, including the actor's vocabulary and performance tools. Improvisation, performance exercises, and scene work based on Stanislavsky, Vakhtangov, Michael Chekhov, Strasberg, Adler, Meisner, and Hagen.

†*Admission by audition. Open to Theater Studies majors only. Required for Theater Studies majors in the year immediately following* THST 110a, 111b.

PRODUCTION SEMINARS

Production seminars concentrate on study through practice of a single aspect of work in the theater, for example, acting, directing, designing, or writing for the stage. Unless otherwise indicated, production seminars are open to junior and senior majors, and to nonmajors with permission of the instructor. Application procedures are given in the course descriptions. Note the information above on both performance-oriented (†) and limited-enrollment (★) courses. Additional information is available at the office of the director of undergraduate studies.

★THST 211b, INTERMEDIATE ACTING.

II; Not CR/D/F Hu Meets RP (o)

211b-1: MW 1.30-3.20 David Krasner

211b-2: MW 3.30-5.20 Milton Justice

Continued study of acting as an art, building on performance concepts introduced in THST 210a. Various approaches to the actor's task, requiring deeper understanding of conceptual issues and increasing freedom and individuality in building a character. Exercises, monologues, and scene work. *Prerequisite:* THST 210a. *By invitation only; an audition may be required.*

★THST 220b, PRODUCTION SEMINAR: PHYSICAL TECHNIQUES OF PERFORMANCE. Michael Tracy.

TTh 1.30-3.20 II; Not CR/D/F Meets RP (o)

Physical conditioning, mental training, and principles of composition necessary for the creation of stylized performance work. Avant-garde techniques and principles used in four weekly hours of movement exercises; additional projects, in pairs or trios, are completed outside of class. Dance choreography fused with Stanislavsky-based acting. Methods for physicalizing a role and for producing dance theater pieces, integrating music, text, props, and costumes with stylized movement.

†*Admission by audition. Prerequisites:* THST 110a, 111b.

★THST 230a or b, PRODUCTION SEMINAR: ADVANCED ACTING AND SCENE STUDY.

230a: TTh 3.30-5.20 II; Not CR/D/F Meets RP (o) Connie Grappo

230b: MW 1.30-3.20 II; Not CR/D/F Meets RP (o) Milton Justice

Combination of exercises and scene study to deepen the understanding and playing of action. Special attention to the integration of vocal and physical skills with basic acting technique.

†*Admission by audition. Open to junior and senior Theater Studies majors only. May be taken more than once. Prerequisite:* THST 211b.

★THST 235, DANCE THEATER. Emily Coates.

TTh 11.30-12.45 II; Not CR/D/F Meets RP (o) *Cr/Year only*

An intensive study of physical techniques and dance theater work from the 1960s to the present, leading to the creation of solo and group dance pieces. Focus in the fall term on the study of different movement vocabularies and repertoires, including Balanchine-style ballet and modern and postmodern dance. The spring

term emphasizes composition and collaboration as a means of producing performance art. Consideration of music, text, voice, props, site-specific work, and interdisciplinary discourse in relation to movement. Guest artists throughout the year. *Open to students of all levels and majors.*

★THST 300a, PRODUCTION SEMINAR: THE DIRECTOR AND THE TEXT I.

David Krasner.

MW 1.30-3.20 II; Not CR/D/F Hu Meets RP (○)

Basic exercises in approaching dramatic or other literary texts from the director's perspective. Particular attention to the many roles and functions of the director in production. Rehearsal and production of workshop scenes.

Written applications are due at the Theater Studies office before the first class meeting. *Open to junior and senior Theater Studies majors only. May be taken more than once. Prerequisite: THST 210a.*

★THST 301b, PRODUCTION SEMINAR: THE DIRECTOR AND THE TEXT II.

Staff.

2 HTBA II; Not CR/D/F Hu Meets RP (○)

An advanced workshop study of various approaches to the director's role. Rehearsal and presentation of workshop scenes.

Written applications are due at the Theater Studies office before the end of the fall term. *Open to junior and senior Theater Studies majors only. May be taken more than once. Prerequisite: THST 300a or permission of instructor.*

★THST 312b/★WGSS 312b, THE ACTOR AND THE TEXT: *ELECTRA SPEAKS*.

Deb Margolin.

W 1.30-5.20 II Hu Meets RP (○)

An investigation of the particular disciplines and techniques of acting and generating text originated by the Women's Experimental Theater Project, culminating in a full performance of WET's seminal play, *Electra Speaks*.

★THST 315b, PRODUCTION SEMINAR: SHAKESPEARE ACTED.

Murray Biggs.

TH 4.30-6.15 I or II; Not CR/D/F Hu Meets RP (○)

An attempt to realize some of Shakespeare's texts through performance. Emphasis on problems of language: how to give language meaning, clarity, and form, while making it suggestive and natural, in alliance with other acting considerations. Close work with sonnets and monologues, with duologues, and finally with scenes.

†*Admission by January audition only; preference to seniors and juniors; open to non-majors.*

★THST 320a/★ENGL 453a, PLAYWRITING. Donald Margulies.

For description see under English Language & Literature.

★THST 321a, PRODUCTION SEMINAR: PLAYWRITING. Deb Margolin.

MW 1.30-3.20 I; Not CR/D/F Meets RP (○)

A seminar and workshop in playwriting. Stress on developing an individual voice. Scenes read and critiqued in class. *Admission by application, with priority to Theater Studies majors. A writing sample and statement of purpose should be submitted to the instructor before the first class meeting.*

★THST 322b, PRODUCTION SEMINAR: ADVANCED PLAYWRITING.

Deb Margolin.

M 1.30-5.20 I; Not CR/D/F Meets RP (○)

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. *Prerequisite:* THST 320a or 321a, or a college seminar in playwriting, or equivalent experience. *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.*

★THST 324a, PRODUCTION SEMINAR: PLAYWRIGHT-DIRECTOR LABORATORY. Toni Dorfman.

TTh 1.30-3.20 II; Not CR/D/F Meets RP (○)

An exploration of the collaboration between the director and the playwright in the creation of new work. Includes issues of script development, production style, and acting process. Particular attention paid to the shaping of dramatic action, structure, and characters. Short scenes are written, staged, critiqued, and revised. *Open to junior and senior Theater Studies majors only. Prerequisites:* THST 210a; for directors: THST 300a; for playwrights: THST 320a, 321a, or a college seminar in playwriting.

★THST 327b/★ENGL 468b, ADVANCED PLAYWRITING WORKSHOP. Donald Margulies.

For description see under English Language & Literature.

[THST 337a, SPACE, TEXT, DESIGN]

★THST 361b, THE ACTOR AND THE TEXT: THORNTON WILDER.

Toni Dorfman.

MW 4-5.50 II; Not CR/D/F Hu (○)

Critical and theatrical exploration of Thornton Wilder's *Our Town*, culminating in a public performance.

DRAMATIC LITERATURE AND THEATER HISTORY

[THST 228b/AMST 224b, THEATER AND CULTURAL AGENCY]

★THST 240b, MELODRAMA. Paul McKinley.

F 1.30-3.20; screenings in class II; Not CR/D/F Hu (○)

A survey of nineteenth-century melodrama, its origins, and its influence on twentieth-century popular entertainment. Readings include works by Euripides, Shakespeare, Pixérécourt, Holcroft, Boucicault, Strindberg, and Ibsen. Screenings include films by D. W. Griffith, Michael Curtiz, and Douglas Sirk.

★THST 344b, THEATERS OF THE BLACK ATLANTIC. Awam Amkpa.

Th 1.30-3.20 II; Not CR/D/F Hu Meets RP (○)

A comparative study of drama and theater produced by African, African American, Black British, and Caribbean practitioners. Close examination of dramatic texts, theatrical groups, and movements. Exploration of how conventions of drama and theater, as cultural practices, offer sites for performing identity and subjectivity.

[THST 345b/ENGL 324b/LITR 310b, DRAMATIC THEORY AND CRITICISM]

★THST 348a/★ENGL 383a/★LITR 275a, THE COMMON WEALTH OF DRAMA.

Murray Biggs.

TTh 4-5.15 I or II; Not CR/D/F Hu (○)

Study of about twenty plays in English from or about former British colonies, both before and after independence, including Ireland, Canada, Australia, South Africa, Nigeria, Ghana, the West Indies, and the Indian subcontinent.

★THST 354b/★FILM 414b, IRISH CINEMA. Murray Biggs.
For description see under Film Studies.

THST 360a/ENGL 361a, MODERN AMERICAN DRAMA. Murray Biggs.
TTh 10.30–11.20, 1 HTBA I or II Hu (o)

The major American playwrights from about 1916 into the 1960s, in their social, political, and aesthetic contexts. Focus on selected plays by O'Neill, Odets, Rice, Hellman, Hughes, Hansberry, Miller, Williams, Childress, Albee, and Foote.

[THST 365b, CONTEMPORARY AMERICAN DRAMA]

★THST 367a/★AMST 367a/★ER&M 346a, LATINO THEATER AND PERFORMANCE. Alexandra Vázquez.
For description see under Ethnicity, Race, & Migration.

[THST 371b/WGSS 381b, EARLY FEMINIST THEATER]

★THST 375a, TOPICS IN DRAMA AND PERFORMANCE. David Krasner.
MW 11.30–12.45 II; Not CR/D/F Hu (o)

Intensive study of playwrights or themes in drama and performance. Topic for 2006–2007: Ibsen, Strindberg, Chekhov, and related theories of modern drama.

★THST 396b/★ENGL 307b, FIVE BRITISH PLAYWRIGHTS. David Krasner.
MW 11.30–12.45 I or II; Not CR/D/F WR, Hu (o)

An intensive examination of the dramatic literature of five authors: Harold Pinter, Edward Bond, Tom Stoppard, Caryl Churchill, and Sarah Kane. Consideration of the place of these authors in the history of dramatic literature.

[THST 398a, THE AMERICAN AVANT-GARDE]

★THST 414a, MUSICAL BOOK AND OPERA LIBRETTO WRITING. Staff.
F 1.30–3.20 II; Not CR/D/F Meets RP (o)

A practical introduction to the art and craft of musical theater book writing and opera libretto writing. A study and analysis of books for musicals and libretti for opera from Da Ponte to Hammerstein to today. Exercises in writing one-act musical books. The possibility of collaboration with student composers.

[THST 440a/ENGL 440a, MODERN IRISH DRAMA]

OTHER COURSES PERTINENT TO THE THEATER STUDIES MAJOR

★AFAM 407bG/★ENGL 296b, AUGUST WILSON AND HIS CONTEXTS.
Elizabeth Alexander.
For description see under African American Studies.

ENGL 200b, SHAKESPEARE: COMEDIES AND ROMANCES.
Lawrence Manley.

ENGL 201a, SHAKESPEARE: HISTORIES AND TRAGEDIES.
Lawrence Manley.

★ENGL 234b, DRAMA AND FICTION FROM SHAKESPEARE TO FIELDING.
Elliott Visconsi.

★ENGL 283a/★AMST 265a, TRANSATLANTIC DRAMA. Elizabeth Dillon.
For description see under English Language & Literature.

★ENGL 424a/★HUMS 378a, SHAKESPEARE'S POLITICAL PLAYS.
Elliott Visconsi.
For description see under English Language & Literature.

- FILM 150a, INTRODUCTION TO FILM STUDIES. Terri Francis.
- ★FILM 350a or b, SCREENWRITING. Marc Lapadula.
- ★FREN 324b, *MOLIÈRE, MARIVAUX, AND THEORIES OF COMEDY*.
Julia Prest.
- ★HUMS 258a, *SHAKESPEARE AND THE CANON: HISTORIES, COMEDIES,
AND POEMS*. Harold Bloom.
- ★HUMS 259b, *SHAKESPEARE AND THE CANON: TRAGEDIES AND
ROMANCES*. Harold Bloom.
- ★HUMS 405b/★HIST 435b/★HSHM 456b, *SCIENCE, DRAMA, AND THE
NOVEL*. Daniel Kevles.
For description see under Humanities.
- ★ITAL 341a/★LITR 186a/★RNST 341a, *ITALIAN RENAISSANCE DRAMA IN
TRANSLATION*. Staff.
For description see under Italian.
- LITR 122b, *WORLD POETRY AND PERFORMANCE*. Barry McCrea,
Moira Fradinger, Richard Maxwell, Katie Trumpener.
- ★MUSI 213a, *THE COMPOSITION OF MUSICAL THEATER I*.
Joseph Thalken.
- ★MUSI 224a or b, *THE PERFORMANCE OF MUSICAL THEATER*.
Joel Fram [F], Staff [Sp].
- ★MUSI 313b, *THE COMPOSITION OF MUSICAL THEATER II*.
Joshua Rosenblum.
- ★RLST 185b, *THE MAHABHARATA*. Hugh Flick, Jr.
- ★SPAN 329a, *EARLY MODERN SPANISH DRAMA*.
Iván Fernández Peláez.

SPECIAL PROJECTS

- ★THST 471a and 472b, *DIRECTED INDEPENDENT STUDY*.
Toni Dorfman.

HTBA I or II; Not CR/D/F (o)

An independent study should generally conform to the standards and procedures of the senior project, THST 491a or b, 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 15 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 10 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 20 pages.

A playwriting project normally requires 20 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 210a and one seminar.*

***THST 473a and 474b, DIRECTED INDEPENDENT STUDY:**

EUGENE O'NEILL. Murray Biggs and staff.

HTBA I or II; Not CR/D/F (○)

Individual or small-group study focused on the works of Eugene O'Neill. The course of study is planned by the student under faculty supervision; work may include one or more performances and/or written projects.

***THST 491a or b, SENIOR PROJECT IN THEATER STUDIES.** Toni Dorfman.

HTBA I or II; Not CR/D/F (○)

Students must submit proposals for senior projects to the Theater Studies office by the deadline announced by the director of undergraduate studies.

COURSES IN THE SCHOOL OF DRAMA

Undergraduate enrollment in School of Drama courses requires the consent of the instructor and of the associate dean of the School of Drama. For a description of these courses, see the director of undergraduate studies. Meeting times and places are posted in the Green Room, UT, on the first day of the term. *Undergraduates may not enroll in acting or directing courses offered by the School of Drama.* Majors in Theater Studies, however, are encouraged to consider taking selected courses in design, dramaturgy, and theater management.

Students enrolling in School of Drama courses should note that only four term courses given in the professional schools may be offered toward the bachelor's degree. Permission to count any School of Drama course toward the major in Theater Studies must be obtained from the director of undergraduate studies at the beginning of the term in which the course is taken. Students also should note that the academic calendars of the School of Drama and of Yale College differ. The School of Drama calendar should be consulted for scheduling.

Unless otherwise specified in individual course descriptions, courses in the School of Drama are not open to the Credit/D/Fail option.

TURKISH

(See under Near Eastern Languages and Civilizations.)

URBAN STUDIES

Director of Urban Academic Initiatives: Cynthia Farrar, cynthia.farrar@yale.edu, 432-4070

COMMITTEE ON URBAN STUDIES

PROFESSORS

Katerina Clark (*Comparative Literature, Slavic Languages & Literatures*), Kathryn Dudley (*Anthropology, American Studies*), Dolores Hayden (*School of Architecture, American Studies*), Matthew Jacobson (*History, American Studies*), Alan Plattus (*School of Architecture*), Douglas Rae (*School of Management, Political Science*), Helen Siu (*Anthropology*), Robert Solomon (*Law School*), Jay Winter (*History*)

ASSOCIATE PROFESSORS

Patrick Bayer (*Economics*), Keller Easterling (*School of Architecture*), Mary Lui (*History, American Studies*), Christopher Rhomberg (*Sociology*), Michael Rowe (*School of Medicine*), Steven Stoll (*History*)

ASSISTANT PROFESSORS

Khalilah Brown-Dean (*African American Studies, Political Science*), Sandy Isenstadt (*History of Art*), Jennifer Klein (*History*)

LECTURERS

Karla Britton (*Architecture*), Cynthia Farrar (*Ethics, Politics, & Economics, Political Science*), Gordon Geballe (*Forestry & Environmental Studies*), Jonathon Gillette (*Teacher Preparation, Sociology*), Jay Gitlin (*History*), Cynthia Horan (*Political Science*), Stephen Lassonde (*History*)

Courses related to urban studies may be found in a number of different departments and programs, particularly African American Studies; American Studies; Anthropology; Architecture; Environmental Studies; Ethics, Politics, and Economics; History; Political Science; and Sociology. Some courses include a community-based learning component: students are able to fulfill the term paper requirement by carrying out research requested by a community organization. A list of relevant courses is available on the Web at www.yale.edu/urbanstudies.

The course Introduction to the Study of the City is offered each year; details may be found under the heading "Study of the City" in this bulletin. The Architecture major includes an urban studies track. American Studies and Ethics, Politics, and Economics majors are required to select an area of concentration, and urban studies meets this requirement. Political Science majors who select the optional interdisciplinary concentration may focus on urban studies. Students interested in pursuing a concentration in urban studies within a particular major are encouraged to contact their director of undergraduate studies.

A faculty Committee on Urban Studies has been created to facilitate undergraduate study of cities and city life. Members of the committee confer with each other to minimize repetition in course assignments and to help students identify appropriate sequences and combinations of courses. Committee members also meet with students who are writing senior essays on interdisciplinary urban topics.

VIETNAMESE

(See under *Southeast Asia Studies*.)

WOMEN'S, GENDER, AND SEXUALITY STUDIES

Director of undergraduate studies: Margaret Homans, 100 Wall St., 432-0847, margaret.homans@yale.edu [F]; Maria Trumpler, 100 Wall St., 432-0847, maria.trumpler@yale.edu [Sp]

FACULTY ASSOCIATED WITH THE PROGRAM OF WOMEN'S, GENDER, AND SEXUALITY STUDIES

PROFESSORS

Julia Adams (*Sociology*), Linda Bartoshuk (*Psychology*), Kelly Brownell (*Psychology*), Jill Campbell (*English*), Hazel Carby (*African American Studies, American Studies*), Kang-i Sun Chang (*East Asian Languages & Literatures*), Deborah Davis (*Sociology, East Asian Studies*), Kathryn Dudley (*American Studies, Anthropology*), Glenda Gilmore (*History*), Sara Suleri Goodyear (*English*), Dolores Hayden (*Architecture, American Studies*), Margaret Homans (*English, Women's, Gender, & Sexuality Studies*),

PROFESSORS (*cont.*)

Paula Hyman (*History, Religious Studies*), Matthew Jacobson (*History, American Studies*), Serene Jones (*Divinity School*), Marianne LaFrance (*Psychology, Women's, Gender, & Sexuality Studies*), Joanne Meyerowitz (*History*), Frances Rosenbluth (*Political Science*), Cynthia Russett (*History*), Harold Scheffler (*Anthropology*), Vicki Schultz (*Law School*), Helen Siu (*Anthropology*), William Summers (*Molecular Biophysics & Biochemistry*), Laura Wexler (*Chair*) (*Women's, Gender, & Sexuality Studies, American Studies*)

ASSOCIATE PROFESSORS

Hannah Brueckner (*Sociology*), Kamari Clarke (*African American Studies, Anthropology*), Elizabeth Dillon (*English*), Laura Frost (*English*), Nora Groce (*Epidemiology & Public Health*), Janet Henrich (*School of Medicine*), Mary Lui (*History, American Studies*), Michael R. Mahoney (*History*), Naomi Rogers (*Women's, Gender, & Sexuality Studies, History of Science, History of Medicine*), Lidia Santos (*Spanish & Portuguese*)

ASSISTANT PROFESSORS

Jennifer Bair (*Sociology*), Bernard Bate (*Anthropology*), Jessica Brantley (*English*), Francesca Cadel (*Italian*), Alicia Schmidt Camacho (*American Studies*), Averil Clarke (*Sociology*), Moira Fradinger (*Comparative Literature*), Terri Francis (*Film Studies, African American Studies*), Sanda Lwin (*English, American Studies*), Deb Margolin (*Adjunct*) (*Theater Studies*), Donia Mounsef (*French, Theater Studies*), Hala Nassar (*Near Eastern Languages & Civilizations*), Alondra Nelson (*Sociology, African American Studies*), Naomi Pabst (*African American Studies*), Diana Paulin (*English, American Studies*), Kristin Phillips-Court (*Italian*), Nicole Rice (*English*), Rachel Sherman (*Sociology*), Elke Siegel (*German*)

LECTURERS

David Agruss (*Visiting*) (*Women's, Gender, & Sexuality Studies*), Geetanjali Singh Chanda (*Women's, Gender, & Sexuality Studies*), Kathleen Cleaver (*African American Studies*), Rebecca Tannenbaum (*History*), Maria Trumpler (*Women's, Gender, & Sexuality Studies*), Jennifer Wood (*African American Studies*)

The program in Women's, Gender, and Sexuality Studies focuses on gender and sexuality as fundamental categories of social and cultural analysis. Drawing on history, literature, cultural studies, social science, and natural science, it offers interdisciplinary perspectives from which to study the diversity of human experience. Gender—the social meaning of the distinction between the sexes—and sexuality—sexual identities, discourses, and institutions—are critically explored, with particular attention to the ways that they intersect with class, race, ethnicity, nationality, and transnational movements. Students majoring in Women's, Gender, and Sexuality Studies choose one of two tracks: women's and gender studies (W&GS) or lesbian, gay, bisexual, transgender, and queer studies (LGBTQ). The major includes a core curriculum of required courses as well as an area of individual concentration that students develop in consultation with program faculty and the director of undergraduate studies.

Students in the women's and gender studies track focus on the history, expression, and diversity of women's experiences and on the historical and theoretical construction of the category of woman. They work toward completing a senior essay broadly concerned with women as social actors, feminist theory and methodology, and gender as a significant category of social organization and meaning. Students in the LGBTQ track analyze social, historical, and theoretical constructions of sexuality and identity, including (but not limited to) gay, lesbian, bisexual, transgendered, and queer. They work toward completing a senior essay broadly concerned with the construction of sexual difference as a significant category of social organization and meaning. Students in both tracks select from a wide range of social science, humanities, and natural science courses in developing their program of study.

Requirements of the major. The requirements of the major outlined below apply to majors in the Class of 2008 and subsequent classes. Students in the Class of 2007 should refer to previous editions of this bulletin for the appropriate major requirements. However, students in the Class of 2007 are strongly urged to follow the new curriculum to the extent possible, particularly with respect to the junior sequence and the methods requirement.

Women's, Gender, and Sexuality Studies may be taken either as a primary major or as one of two majors. The major requires twelve term courses. Students take the foundational course, one intermediate course, one disciplinary methods course, the junior sequence, and the senior sequence. At least one of the twelve courses in the major must focus on women, gender, and/or sexuality in Africa, Asia, Latin America, or the Middle East. (WGSS 295b does not fulfill this requirement.) All majors define and develop an area of concentration consisting of five electives in a particular area of interest. With permission of the director of undergraduate studies, majors may make an appropriate substitution for one course counting toward the required twelve term courses; students who are completing two majors may make a second substitution.

The foundational course, Gender and Sexuality in Society (WGSS 110a), is required for all majors, and students are encouraged to take that course in their freshman or sophomore year. In addition, all majors must take either Globalizing Gender (WGSS 295b) or Making Modern Sexual and Gender Difference (WGSS 296a), preferably after the foundational course and prior to the junior sequence. WGSS 295b is required for majors specializing in the W&GS track, while WGSS 296a is required for those choosing the LGBTQ track. All majors are encouraged to take both WGSS 295b and 296a, although both courses are not required.

Methods requirement. Students are required to take a methods course, which can be chosen from a variety of designated electives in Women's, Gender, and Sexuality Studies. In special circumstances, the director of undergraduate studies may allow a student to fulfill the methods course requirement by counting a course that is not listed among the designated WGSS electives. Majors should choose a methods course that will provide them with the analytical tools necessary to carry out the senior essay. Students are advised to complete the methods requirement in their sophomore or junior year. A list of courses that fulfill the methods requirement is available from the director of undergraduate studies.

Junior sequence. The two-term junior sequence consists of History of Feminist Thought (WGSS 340a) and the Junior Seminar: Theory and Method (WGSS 398b).

Senior sequence and senior essay. The senior sequence consists of two courses. In the fall term of the senior year, all majors take the Senior Colloquium (WGSS 490a) and begin researching and writing a senior essay. The senior essay topic, which should reflect the student's area of concentration, is written under the guidance and supervision of a faculty member with expertise in that area; students are expected to meet with their essay adviser on a regular basis. Students typically complete the senior essay in the spring term of the senior year while enrolled in the Senior Essay (WGSS 491a or b).

Area of concentration. All students majoring in Women's, Gender, and Sexuality Studies, in consultation with the director of undergraduate studies, design an individual area of concentration consisting of five courses in a single disciplinary topic or substantive area of interest. Examples include but are not exhausted by the following: women's health and public policy;

science, technology, and feminist theory; gay and lesbian arts and intellectual history; transgender history; transnational feminism; gender and development in South Asia; gender, race, and visual culture; masculinity studies; and postcolonial women writers.

REQUIREMENTS OF THE MAJOR

Prerequisites: None

Number of courses: Twelve term courses (including the senior requirement)

Specific courses required: WGSS 110a, either 295b or 296a, 340a, 398b

Substitution permitted: One relevant course for an intermediate core course, with permission of DUS

Distribution of courses: Five elective courses in area of concentration; one course on women, gender, and/or sexuality in a non-Western context; one methods course

Senior requirement: Senior colloquium and senior essay (WGSS 490a, 491a or b)

FOUNDATION COURSE

WGSS 110a, GENDER AND SEXUALITY IN SOCIETY. Jennifer Bair.

MW 1-2.15 III So (36)

A broad overview of the issues, theories, and approaches involved in the study of sexuality and gender and in the discipline of women's studies.

INTERMEDIATE COURSES

WGSS 295b, GLOBALIZING GENDER. Geetanjali Singh Chanda.

TTh 4-5.15 III Hu, So (0)

Exploration of the use of gender as an analytical tool to understand a wide range of contemporary issues. Focus on themes such as nature versus culture, daily life, economic globalization, war, and fundamentalism, with emphasis on making connections between women's experiences across national borders. Readings include multidisciplinary texts by feminist authors such as Woolf, Enloe, Kincaid, Freedman, Mernissi, and Heilbrun.

*WGSS 296a/*LITR 346a, MAKING MODERN SEXUAL AND GENDER DIFFERENCE. David Agruss.

Th 9.30-11.20 I Hu (0)

Study of works that have as their theme gay and lesbian experience and identity since the late nineteenth century. Works include fiction and autobiographical texts, historical and sociological materials, texts on queer theory, and films. Focus on modes of representing sexuality and on the intersections between sexuality and race, ethnicity, class, gender, and nationality. *Recommended preparation:* WGSS 110a.

JUNIOR SEMINARS

*WGSS 340a/*AMST 482a, HISTORY OF FEMINIST THOUGHT.

Laura Wexler.

T 3.30-5.20 I; Not CR/D/F Hu (0)

Key works from the history of feminist thought in Britain, France, and the United States from the Enlightenment to the present, with related writings on gender. Authors include Rousseau, Wollstonecraft, Mill, Freud, Woolf, de Beauvoir, Walker, Irigaray, Paglia, and Butler.

*WGSS 398b, JUNIOR SEMINAR: THEORY AND METHOD.

Maria Trumpler.

T 1.30-3.20 I, II, or III; Not CR/D/F Hu, So (0)

An interdisciplinary approach to studying gender and sexuality. Exploration of a range of theoretical frameworks and methodologies relevant to contemporary feminism. Prepares students for the senior essay.

SENIOR COURSES

★WGSS 490a, THE SENIOR COLLOQUIUM. Director of undergraduate studies.

M 3.30-5.20 I, II, or III; Not CR/D/F (o)

A research seminar taken in the first term of the senior year. It provides an opportunity for majors with diverse research interests and experience to meet and discuss common problems and tactics in doing independent research.

★WGSS 491a or b, THE SENIOR ESSAY. Consult the director of undergraduate studies.

HTBA I, II, or III; Not CR/D/F (o)

Independent research on, and writing of, the senior essay.

ELECTIVES

WGSS 200a/HIST 127a, U.S. LESBIAN AND GAY HISTORY.

George Chauncey.

For description see under History.

WGSS 201b/AMST 271b/HIST 171b, WOMEN IN AMERICA: THE TWENTIETH CENTURY. Joanne Meyerowitz.

For description see under History.

★WGSS 207b/★GMST 381b/★LITR 320b/★MGRK 207b, FAIRY TALES.

George Syrimis.

For description see under Hellenic Studies.

★WGSS 227b/★CLCV 227b, ELITE WOMEN OF ANTIQUITY. Adam Marshak.

For description see under Classical Languages & Literatures.

★WGSS 240a/★ITAL 240a/★LITR 232a, WOMEN INTELLECTUALS IN ITALY.

Francesca Cadel.

For description see under Italian.

WGSS 255b, BIOLOGY OF GENDER AND SEXUALITY. William Summers.

TTh 10.30-11.20, I HTBA IV; Not CR/D/F Sc, So Meets RP (23)

A critical examination of current biological thinking about gender differences and their origins; male-female sexual dimorphisms and their variations; the continuum from essentialism to constructionism; the mental and cognitive aspects of sexuality; theories of eroticism and sex-object choice; physiology of sexual responses; and genetic factors in the biology of behavior. *For students in the Class of 2008 and previous classes, counts toward the natural science requirement.*

★WGSS 298a/★ANTH 298a/★ER&M 298a, THE ANTHROPOLOGY OF ORATORY AND RHETORIC. Bernard Bate.

For description see under Anthropology.

★WGSS 307a/★LITR 278a, WHITE MASCULINITY AND SEXUALITY IN U.S. POPULAR CULTURE. David Agruss.

Th 1.30-3.20 I Hu (o)

An examination of white male masculinity and sexuality in a contemporary U.S. context, tracing the circuitous connections among hyperbolic masculinity,

heterosexuality, queerness, and the commodification of idealized whiteness in literature, film, and popular culture.

***WGSS 308b/*ANTH 308b^G, QUEER ETHNOGRAPHIES.**

Karen Nakamura.

For description see under Anthropology.

WGSS 311a/SOCY 134a, SEX AND GENDER IN SOCIETY. Jennifer Bair.

For description see under Sociology.

***WGSS 312b/*THST 312b, THE ACTOR AND THE TEXT: *ELECTRA SPEAKS*.**

Deb Margolin.

For description see under Theater Studies.

***WGSS 314a/*EP&E 355a/*SOCY 216a, SOCIAL MOVEMENTS.**

Ron Eyerman.

For description see under Sociology.

WGSS 315a/PSYC 342a, PSYCHOLOGY OF GENDER. Marianne LaFrance.

TH 9-10.15, 1 HTBA III So (22)

Exploration of the relationship between gender and psychological processes at individual, interpersonal, institutional, and cross-cultural levels.

***WGSS 341b/*AFAM 419b^G/*FILM 425b^G, BLACK WOMEN'S FILM AND VIDEO.** Terri Francis.

M 7-10 P.M.; T 7-8.50 P.M. II; Not CR/D/F (o)

A study of films and videos made by women of African descent. Focus on film-making as critical practice and as art form, particularly its methods of engaging cinematic perceptions of black womanhood. Films are considered in a matrix of African American film history, feminist film theory, and legacies of black feminist writing. Topics include film language, authorship, performance, and the question of audience.

***WGSS 351b/*HIST 469b, WOMEN'S HISTORY: METHODOLOGICAL AND COMPARATIVE INQUIRY.** Rebecca Tannenbaum.

Th 1.30-3.20 II; Not CR/D/F WR, Hu (o)

Critical investigation of recent historical monographs to assess their approaches to recording women's as well as men's experiences. Consideration of such methods as oral history, quantitative analysis, biography, and fiction. *For History majors, counts toward only U.S. distributional credit. For Women's, Gender, and Sexuality Studies majors, fulfills the methods requirement.*

***WGSS 352a/*ENGL 359a, FEMINIST PERSPECTIVES ON LITERATURE.**

Margaret Homans.

F 1.30-3.20 I; Not CR/D/F Hu, So (o)

Feminist and queer methods in literary criticism. Topics include the sexual politics of literary traditions; gender and sexuality in relation to plot, narrative, authorship, language, and theories of reading and popular culture; voice, silence, and the politics of representation; and the contributions of literature to feminist and queer theory and political movements. *Fulfills the methods requirement.*

WGSS 366b/ANTH 256b, MINORITIES AND SEXUALITIES IN MODERN

JAPAN. Karen Nakamura.

For description see under Anthropology.

***WGSS 369b/*ENGL 369b/*ER&M 367b, ADOPTION NARRATIVES.**

Margaret Homans.

For description see under English Language & Literature.

WGSS 371a/AMST 322a, GENDER, FAMILY, AND CULTURAL IDENTITY IN ASIA AND THE UNITED STATES: A DIALOGUE.

Geetanjali Singh Chanda.

For description see under American Studies.

★WGSS 375a/★FILM 375a, INTRODUCTION TO QUEER CINEMA.

Ron Gregg.

For description see under Film Studies.

★WGSS 378b/★ANTH 348b^G, GENDER AND MEDIA IN INDIA.

Bernard Bate.

For description see under Anthropology.

WGSS 385a/ANTH 275a/INTS 385a/PLSC 438a, MEN, WOMEN, AND FAMILY IN THE MUSLIM MIDDLE EAST. Amy Young.

For description see under Anthropology.

★WGSS 410b/★AFAM 410b, INTERDISCIPLINARY APPROACHES TO AFRICAN AMERICAN STUDIES. Deborah Thomas.

For description see under African American Studies.

★WGSS 411a/★AFAM 411a/★AMST 426a/★ER&M 413a, THE FICTION OF IMAGINARY OR IMMINENT FUTURES. Hazel Carby.

For description see under African American Studies.

★WGSS 420b/★MUSI 420b, GENDERING MUSICAL PERFORMANCE.

Sarah Weiss.

For description see under Music.

★WGSS 427a/★HIST 427a, WITCHCRAFT IN COLONIAL AMERICA.

Rebecca Tannenbaum.

For description see under History.

★WGSS 428a/★HIST 428a, LABOR AND DEMOCRACY IN THE TWENTIETH-CENTURY UNITED STATES. Jennifer Klein.

For description see under History.

★WGSS 430b/★LITR 347b, SCIENCE, HUMANS, AND ANIMALS IN THE LITERATURE OF THE NINETEENTH AND TWENTIETH CENTURIES.

David Agruss.

Th 1.30-3.20 I Hu (o)

Survey of nineteenth- and twentieth-century texts in which animals become humans and humans become animals, ranging from *The Island of Dr. Moreau*, to *Tarzan of the Apes*, to the film *Spider-Man*. These half-animal, half-human figures used to illuminate tensions between nineteenth-century evolutionary biology and the production of scientific “truth” on the one hand, and debates about race, colonialism, gender, and sexuality on the other. Examination of late twentieth-century popular scientific and medical accounts of animal-to-human organ transplantation and the supposed African and simian origin of HIV/AIDS to demonstrate how these recent scientific debates continue to be grounded in nineteenth-century anxieties about race, savagery, and sexual contamination.

★WGSS 434a/★AMST 349a/★ER&M 288a, BORDER FEMINISM.

Alicia Schmidt Camacho.

For description see under American Studies.

★WGSS 438b/★AFAM 414b, WOMEN IN THE BLACK FREEDOM MOVEMENT.

Kathleen Cleaver.

For description see under African American Studies.

★WGSS 445a/★AMST 446a/★HIST 445a, HISTORY OF SEXUALITY IN THE UNITED STATES. Joanne Meyerowitz.
For description see under History.

★WGSS 449b, FICTIONS OF INDIAN WOMEN. Geetanjali Singh Chanda.
T 1.30-3.20 I; Not CR/D/F WR, Hu (o)
An exploration of Indian womanhood through novels and short stories by Indian women. Focus on postindependence women's writings in English in India, and on reevaluations of concepts of nation, home, and identity.

★WGSS 455b/★AFAM 367b/★AMST 431b/★ER&M 344b, REPRESENTATION AND THE BLACK FEMALE. Hazel Carby.
For description see under African American Studies.

★WGSS 458b/★AFAM 422b/★AMST 451b/★HIST 451b, BLACK MEN IN AMERICAN CULTURE. Jennifer Baszile.
For description see under African American Studies.

★WGSS 470a/★HIST 470a, GENDER, NATION, AND SEXUALITY IN MODERN LATIN AMERICA. Lillian Guerra.
For description see under History.

★WGSS 471a *or* b, INDEPENDENT DIRECTED STUDY. Consult the director of undergraduate studies.
HTBA I, II, or III; Not CR/D/F (o)
For students who wish to explore an aspect of women's, gender, and sexuality studies not covered by existing courses. The course may be used for research or directed readings and should include one lengthy or several short essays. Students meet with their adviser regularly. To apply for admission, students present a prospectus to the director of undergraduate studies including a bibliography of the work proposed and a letter of support from the adviser.

COURSES IN OTHER DEPARTMENTS THAT COUNT TOWARD THE MAJOR

★EP&E 332b/★PHIL 450b/★PLSC 320b, LIBERALISM, GENDER, AND MULTICULTURALISM. Seyla Benhabib.
For description see under Ethics, Politics, & Economics.

MCDB 150b^G, GLOBAL PROBLEMS OF POPULATION GROWTH.
Robert Wyman.
For description see under Biology.

★NELC 407b^G, MODERN ARAB THOUGHT. Elizabeth Kassab.

RLST 101a, WORLD RELIGIONS IN NEW HAVEN. Ludger Viehues.

YORÙBÁ

(See under African Studies.)

ZULU

(See under African Studies.)

Index

- Abbreviations,
 building, iv
 subject, 4, 89
- Abroad, study, 13, 23, 66–69, 79, 83
- Academic good standing, 51, 61–62
- Academic Regulations
 acceleration policies, 84–88
 bachelor's degree requirements,
 38–45, 69–71
 course credits, 49–50
 Credit/D/Fail option, 46–48,
 53, 75
 credit from other universities,
 81–84
 final examinations, 48, 55–57,
 60–61
 grades, 45–49, 57
 late or postponed work, 58–61
 leave of absence, 63–64
 promotion and good standing, 51,
 61–62
 reading period, 55–57
 registration and enrollment, 51–54
 transcripts, 48–49, 52, 53, 54, 55
 withdrawal from courses, 48, 50,
 52, 54–55
 withdrawal from Yale, 48, 54–55,
 64, 87
- Academic Warning, 61–62
- Acceleration, 32, 33–37, 84–88
 application deadline for, 84–85
 and course deficiencies, 62, 88
 Credit/D/Fail option and, 35, 47
 deceleration, 74, 84–85, 86
 and distributional requirements,
 19, 34, 42, 88
 eligibility for, 84–85, 86, 87, 88
 fall-term completion of
 requirements, 69
 interruption of studies and, 86
 Junior Year or Term Abroad and,
 44–45, 84, 88
 outside credit and, 84, 85, 86
 and patterns of attendance, 84,
 85–86
 Summer Session attendance and,
 75, 84, 87, 88
 transfer students and, 77, 88
- Accounting, 91
- Achievement tests. *See* SAT II
 Subject tests
- Advanced placement, 32, 33–37
- Advanced Placement tests, 32, 33–37
- Advisers, faculty, 14, 20, 32
- African American Studies, 91–98
- African Studies, 98–104
- Akkadian, 475, 476, 479–80
- Alumni Auditing Program, 76
- American Sign Language, 39, 42
- American Studies, 105–14
- Ancient and Modern Greek,
 200–201
- Angle-bracketed courses, 5
- Animals, use in courses, 54
- Anthropology, 115–25
- Applied Mathematics, 126–28
- Applied Physics, 128–34
- Arabic, 99, 475, 476, 482–83
 acceleration credit in, 35
- Archaeological Studies, 134–38
- Architecture, 138–44
- Art, 144–51
 acceleration credit in, 35
- Art History. *See* History of Art
- Astronomy, 151–57
- Auditing, 76
- Bachelor's degree, requirements for,
 13, 38–45, 69–70
 distributional requirements,
 14–19, 38–44
 Eli Whitney Students, 30, 78–79
 fall-term completion of, 69–70
 master's degree simultaneous
 with, 30, 73–74
 transfer students, 77–78
 two majors, 70–71
- Biology, 157–75
 acceleration credit in, 32, 35
 behavioral neuroscience track in
 Psychology, 532–33, 534
- Biomedical Engineering, 176–80
- Biophysics and Biochemistry,
 Molecular, 456–63
- Bracketed courses, 4, 5
- British Studies, 180
- Building abbreviations, iv
- Calendar, 7–9
- Campus map, ii–iii
- Career Services, Undergraduate, 14
- Center for Language Study, 28
- Chemical Engineering, 181–84
- Chemistry, 185–96
 acceleration credit in, 32, 35
- Child Study Center, 196–97
- Chinese, 226–28, 229–32
 acceleration credit in, 36

- Chinese Studies. *See* East Asian Studies
- City, Study of the, 592
- Classical Civilization, 200, 205–8
- Classical Languages and Literatures, 197–208
- Classics, 198–99, 205
acceleration credit in, 36, 37
- Cognitive Science, 209–13
- College seminars. *See* Residential college seminars
- Colleges, residential, 22
- Combined Bachelor's and Master's Degree Programs in the Professional Schools, 30
- Computer Science, 214–22
acceleration credit in, 32, 36 and Electrical Engineering, 262–63
and Mathematics, 223
and Psychology, 223–24
- Computer use, and postponed work, 59
- Coptic, 475, 476, 482
- Counseling, academic, 14, 20, 32–33
- Courses
attendance requirements, 61
change in level of, 33, 46, 53, 55
course change notice, 53, 54
credit value of, 4, 5, 49–50
cross-listed, 5
deficiencies, makeup of, 62
double-credit courses, 49, 50
double credit for single-credit course, 71–72
enrollment in, 52–54
exclusion for academic reasons, 61
exclusion from overcrowded, 71
freshman year selection of, 32–33
grades, 45–49, 57
Graduate School, 30, 72–73
normal load per term, 50
number designations, 4–5
permission required for, 5, 54
prerequisites, 4–5, 54
repeating, 53–54
Special Term, 72
student schedules, 46–47, 51–54
Summer Session, 24–25, 74–75
withdrawal from, 48, 50, 54–55
yearlong, 4, 49–50
- CR/D/F grade. *See* Credit/D/Fail option
- Credit/D/Fail option, 4, 46–48, 53, 75
and acceleration credit, 35, 47
in calculation of General Honors, 31, 47–48
and distributional requirements, 15, 19
- Credit from other universities.
See Outside credit
- Croatian, Serbian and, 552, 557, 563
- Cross-listed courses, 5
- Cr/Year only* designation, 4, 49–50
- Curriculum, undergraduate, 13–14
distributional requirements, 14–19, 38–44
See also Major programs
- Cut restriction, 61
- Czech, 552, 557, 562–63
- Deadlines, summary of, 7–9
- Dean of Yale College, Message from, 6
- Dean's excuse, 58–59. *See also* Temporary Incomplete
- Deceleration, 74, 84–85, 86
- Deficiencies, makeup of, 62
and acceleration, 62, 88
- Degree enrollment, Eli Whitney Students, 30, 78–79
- Degree requirements. *See* Bachelor's degree, requirements for
- Departmental examinations, senior, 21, 44, 57
- Departmental Major, Special, 71
- DeVane Lectures, 27, 224
- Directed Independent Language Study, 28, 75–76
- Directed Studies, 25, 224–25
- Disabilities, Resource Office on, 29–30
- Dismissal for academic reasons, 62
- Distinction in the Major, 31
- Distributional designations, 4, 5, 38–42
- Distributional groups, 4, 18–19
- Distributional requirements, 14–19, 38–44
and acceleration, 19, 34, 42, 88
and Credit/D/Fail option, 15, 19
and credit from other universities, 42–43, 82–83
group numbers, 4, 18
two majors and, 43, 70–71
- Divisional Majors, Special, 22, 70, 586–89
- Double-credit courses, 49, 50

- Double credit for a single-credit course, 71–72
- Double-titled courses, 5
- Drama. *See* Theater Studies
- Due dates
for course work, 55
summary of deadlines, 7–9
for term grades, 57
- East Asian Languages and Literatures, 226–35
- East Asian Studies, 235–39
- East European Studies. *See* Russian and East European Studies
- Ecology and Evolutionary Biology, 157–69
- Economics, 240–52
acceleration credit in, 32, 36
and Mathematics, 252–53
- Education. *See* Teacher Preparation and Education Studies
- Egyptian, 475, 476, 480
- Electrical Engineering, 253–61
and Computer Science, 262–63
- Eli Whitney Students program, 30, 38, 78–79
- Engineering, 263–64
and Applied Science, 264–67
Biomedical, 176–80
Chemical, 181–84
combined bachelor's and master's degree in, 30
Electrical, 253–61
and Computer Science, 262–63
Environmental, 284–88
Mechanical, 450–56
- English Language and Literature, 267–83
acceleration credit in, 32, 36
expository writing program, 28–29
- Enrollment, 51–54
in advanced courses, 33–35
eight-term limit, 38, 44–45
Eli Whitney Students, 30, 78–79
exclusion from overcrowded courses, 71
in Graduate School courses, 72–73
nondegree, 80–81
- Environment, 283
Environmental Engineering, 284–88
Environmental Studies, 288–96
Forestry & Environmental Studies, 319–21
- Environmental Engineering, 284–88
- Environmental Studies, 288–96
- Epidemiology and Public Health, 540–41
- Ethics, Politics, and Economics, 296–304
- Ethnicity, Race, and Migration, 304–11
- Evolution. *See* Biology
- Exclusion from courses
for academic reasons, 61
from overcrowding, 71
- Expository writing program, 28–29
- Faculty advisers, 14, 20, 32
- Fall-term completion of degree requirements, 69–70
- Film Studies, 311–19
- Final examinations, 55–57
group numbers, 4, 5, 10
makeup of, 10, 48, 60–61
postponement of, 48, 59, 60–61
and reading period, 55–57
schedules for, 10, 56, 60–61
- Financial aid
and deceleration, 86, 87
Eli Whitney Students ineligible for, 79
leave of absence and, 63–64, 86
nondegree students ineligible for, 80, 88
- Foreign language
acceleration credit in, 32, 34–37
distributional requirement, 13, 15, 16–17, 37–42, 83
- Forestry & Environmental Studies, 319–21
- Francis Writer-in-Residence, 27
- French, 321–330
acceleration credit in, 36
- Freshman Seminar program, 26, 330–32
- Freshman year
course selection in, 32–33
Directed Studies program, 25, 224–25
Distributional requirements, 14–19, 38–44
Freshman Seminar program, 26, 330–32
Perspectives on Science, 25–26, 555
registration, 51–52
- Gay and Lesbian Studies. *See* Women's, Gender, and Sexuality Studies

- Gender Studies. *See* Women's, Gender, and Sexuality Studies
- General Certificate of Education (GCE) examinations, and acceleration credit, 33, 34
- Geology and Geophysics, 332–41
- Germanic Languages and Literatures, 341–48
acceleration credit in, 36
- German Studies, 348–52
- Good standing, academic, 51, 61–62
- Grade point average (GPA), and honors, 31
- Grades
Credit/D/Fail option, 4, 46–48
due dates for, 57
letter grades, 45–49
term reports, 49
transcripts of, 48–49, 52, 53–54
for work at other universities, 81–83
- Graduate School of Arts and Sciences
auditing for students of, 76
and Credit/D/Fail option, 4, 47–48
foreign language requirements, 74
nondegree students and, 80
simultaneous bachelor's and master's degrees, 30, 73–74
undergraduate enrollment in, 72–74
- Graduate study, foreign language requirements for, 21
- Greek
acceleration credit in, 36
ancient, 202–3, 475
Ancient and Modern, 200–201
modern, 353–54
- Health Professions Advisory Board, 14
- Health services. *See* University Health Services
- Hebrew, 475, 476, 480–82
acceleration credit in, 36
- Hellenic Studies, 352–54
- Hindi, 573–74
- History, 200, 205–8, 354–78
acceleration credit in, 32, 36
- History of Art, 378–85
acceleration credit in, 32, 36
- History of Science, History of Medicine, 386–90
- Honors, 30–31, 47–48
- Humanities, 20, 390–98
Directed Studies, 25, 224–25
- Humanities and arts distributional requirement, 14–16, 38
- Incomplete work, 58–59
Temporary Incomplete mark, 48, 55, 59
- Independent study, 50
- Indo-European, 424–25
- Indonesian, 576
- Intensive majors, 21
- Interdisciplinary majors, 43
- International Baccalaureate examinations, and acceleration credit, 33–34
- International education, 13, 23–25, 66–69, 79, 83
- International Studies, 398–404
- isiZulu, 99, 104
- Islamic Studies, 117, 119, 365–66, 375, 376, 381, 395, 395–97, 403, 475–78, 482–84, 546–48
- Italian, 405–11
acceleration credit in, 36
- Japanese, 226–27, 228–29, 232–34
acceleration credit in, 37
- Japanese Studies. *See* East Asian Studies
- Journalism Initiative, Yale, 27
- Judaic Studies, 411–17
- Junior Year or Term Abroad, 23, 66–69, 79, 83
and acceleration credits, 44–45, 84, 88
and final examinations, 60
eligibility, 66, 79
- Key to course listings, 4–5
- Kiswahili, 99, 102–3
- Korean, 226–27, 234–35
acceleration credit in, 37
- Laboratory courses, credit in, 50
- Language distributional requirement, foreign, 13, 15, 16–17, 37–42, 83
- Language Study, Center for, 28
- Late work. *See* Postponed work
- Latin, 197–99, 202, 203–5
acceleration credit in, 37
- Latin American Studies, 418–22

- Leave of absence, 51, 60, 63–64,
 68–69, 80
 and acceleration, 63, 86–87
 and medical insurance, 64
 third term of, 63, 86–87
 Lesbian and Gay Studies. *See*
 Women's, Gender, and
 Sexuality Studies
 Level of course, changes in, 33,
 47, 53, 55
 Linguistics, 423–29
 Literature major, 429–41
 London, Yale-in-. *See* Mellon
 Centre for Studies in
 British Art

 Major programs, 19–22, 89
 Distinction in, 31
 outside credit and, 83
 requirements of, 19–20, 21, 44, 83
 selection of, 20–21
 senior requirement, 21, 44, 57, 70
 Special Departmental, 71
 Special Divisional, 22, 70, 586–89
 two majors, 43, 70–71
 Makeup final examinations, 10, 48,
 60–61
 Management Sciences. *See*
 Operations Research
 Map, campus, ii–iii
 Mathematics, 441–49
 acceleration credit in, 32, 37
 and Philosophy, 449–50
 and Physics, 450
 Computer Science and, 223
 Economics and, 252–53
 tutors in, 29
 Mechanical Engineering, 450–56
 Medical insurance, leave of absence
 and, 64
 Medical withdrawal, 55, 64, 87
 Medicine, History of, 386–90
 Mellon Centre for Studies in
 British Art (London)
 British Studies courses, 180
 Summer Program, 24, 45, 75,
 81, 84, 87
 Yale College Program, 23, 44–45,
 75, 81, 84, 87, 180
 Message from the Dean of Yale
 College, 6
 Molecular Biophysics and
 Biochemistry, 456–63
 Molecular, Cellular, and
 Developmental Biology, 157–65,
 169–75

 Multiple-titled courses, 4, 5
 Music, 73, 464–74
 acceleration credit in, 32, 37

 Natural science requirement, 19
 Near Eastern Languages and
 Civilizations, 474–85
 acceleration credit in, 35, 36
 Nondegree Students program, 42,
 80–81, 88
 Non-Yale credit. *See* Outside credit
 Norse, Old, 426
 “Not CR/D/F” notation, 4, 46
 Numbering, course, 4–5

 Old Norse, 426
 Operations Research, 485–86
 Outside credit, 81–84
 and acceleration credits, 84,
 85, 87
 and course deficiencies, 62
 and distributional requirements,
 42–43, 82–83
 Junior Year or Term Abroad and,
 68, 83
 transfer students, 77, 84
 Overcrowded courses, exclusion
 from, 71
 Overlapping course times, 53

 Peking University–Yale University
 Joint Undergraduate program,
 24, 486–87
 Penalties and restrictions, academic,
 61–62
 Permission, courses requiring,
 5, 54
 Persian, 475, 476, 483
 Perspectives on Science, 25–26, 555
 Phi Beta Kappa, 31, 47
 Philosophy, 488–97
 Mathematics and, 449–50
 Physics and, 505–6
 track in Psychology, 533–34
 Physics, 497–505
 acceleration credit in, 32, 37
 and Philosophy, 505–6
 Mathematics and, 450
 Political Science, 506–26
 acceleration credit in, 37
 Portuguese, 526–29, 577
 Postponed work, 58–61
 computer use and, 59
 final examinations, 48, 58, 60–61
 Prerequisites, course, 4–5, 54
 Prizes, academic, 31

- Professional schools
 auditing for students of, 76
 Combined Bachelor's and
 Master's Degree Programs
 in the, 30, 45
 and Credit/D/Fail option, 4,
 47–48
 nondegree students and, 80
 undergraduate enrollment in,
 72–73
- Promotion, requirements for, 51, 62
- Psychology, 530–40
 acceleration credit in, 37
 Computer Science and, 223–24
 track in Philosophy, 489–90
- Public Health, 540–41
- Quantitative reasoning
 distributional requirement,
 13, 15, 17
 tutoring in, 29
- Quantitative Reasoning Center,
 Science and, 29
- Reading period, 4, 55–57
- Readmission, 64, 65–66
- Rebates, 64
- Registration, 51–52
- Regulations. *See* Academic
 Regulations
- Religious Studies, 541–49
- Renaissance Studies, 549–51
- Repeating a course, 53–54
- Residential colleges, 22
- Residential college seminars, 26–27,
 213–14
 limit on, 72
- Resource Office on Disabilities,
 29–30
- Rosenkranz Writer-in-Residence, 27
- Russian, 556–62
 acceleration credit in, 37
- Russian and East European
 Studies, 551–54
- Sanskrit, 425
- SAT II Subject tests, 32, 33
- Science, 15, 16, 18, 19, 20, 555
 Applied, 263–67
 distributional requirement, 14–15,
 16
 History of, 386–90
 Perspectives on, 25–26, 555
 tutoring in, 29
- Science and Quantitative Reasoning
 Center, 29
- Secondary school, course credit
 from, 34–35, 42, 82, 83
- Seminars, residential college,
 26–27, 72, 213–14
- Senior requirement, 21, 44, 57, 70
 departmental examinations, 21,
 44, 57
 in Special Departmental Major,
 71
 two majors and, 70
- Serbian and Croatian, 552, 557, 563
- Sexuality Studies. *See* Women's,
 Gender, and Sexuality Studies
- Simultaneous Award of the
 Bachelor's and Master's
 Degrees, 30, 45, 73–74
- Slavic Languages and Literatures,
 555–63
- Social sciences
 distributional requirement, 14–15,
 16
- Sociology, 563–72
- South Asian Studies, 572–75
- Southeast Asia Studies, 575–77
- Spanish, 577–86
 acceleration credit in, 37
 Special Departmental Major,
 71
- Special Divisional Majors, 22, 70,
 586–89
- Special programs
 Center for Language Study, 28
 DeVane Lectures, 27, 224
 Directed Studies, 26, 224–25
 expository writing, 28–29
 Francis Writer-in-Residence, 27
 Freshman Seminar program, 26,
 330–32
 Math and Science Tutoring, 29
 Perspectives on Science, 25–26, 555
 Residential college seminars,
 26–27, 72, 213–14
 Rosenkranz Writer-in-Residence,
 27
 Science and Quantitative
 Reasoning, 29
 Simultaneous Award of the
 Bachelor's and Master's
 Degrees, 30, 45, 73–74
 Teacher Preparation and
 Education Studies, 28,
 593–96
 Tutoring, 28–29
 Special Term Courses, 72
- Starred courses, 5, 54
- Statistics, 589–92

- Study abroad, 25, 66–69, 79, 83
 Study of the City, 592
 Summer Program in London, 24, 45, 75, 81, 84, 87
 Summer Session, 23, 24–25, 74–75 and acceleration credits, 75, 84, 87
 course offerings, 25
 credits earned in, 25, 42, 45, 74–75, 81, 82, 87, 88
 and readmission, 65
 Summer Language Institute, 25
 Summer Sciences, 25
 Swahili, 99, 102–3
 Syriac, 475, 476, 482
- Take-home final examinations, 57
 Tamil, 574–75
 Teacher Preparation and Education Studies, 28, 593–95
 Temporary Incomplete, 48, 55, 59
 Theater Studies, 596–604
 Transcripts, 48–49, 52, 53, 54–55 and auditing, 76
 and Credit/D/Fail option, 47
 and outside courses, 81–82, 83–84
 and Summer Session courses, 74–75
 of transfer students, 77, 83–84
 Transfer students, 77–78, 83, 88
 Translation, literature in, 5
 Turkish, 427, 475, 476, 479, 484
 Tutors
 foreign language, 28
 mathematics and science, 29
 writing, 28–29
 Two majors, 43, 70–71
- Undergraduate Career Services, 14
 Undergraduate-graduate courses, 5
Undergraduate Regulations, publication, 31, 64, 79, 80
 University Health Services, 60, 63, 64, 65
 Urban studies, 138–44, 604–5
- Vietnamese, 576–77
- Warning, Academic, 61–62
 Whitney Students program, Eli, 30, 38, 78–79
 Withdrawal
 from courses, 48, 50, 52, 54–55
 from Yale College, 48, 54–55, 64, 86
- Women's, Gender, and Sexuality Studies, 605–12
 Writing distributional requirement, 13, 15, 17
 Writing Center, Yale College, 28–29
 Writing program, expository, 28–29
 Writing tutors, 28–29
- Yale College
 administrative officers, 11–12
 description of, 13
Yale College Viewbook, publication, 31
 Yale College Writing Center, 28–29
 Yale Health Plan, 31, 64
 Yale-in-London. *See* Mellon Centre for Studies in British Art
 Yale Journalism Initiative, 27
 Yearlong courses, 4, 49–50
 Yorùbá, 99, 100, 103
- Zulu, 99, 104

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