

# School of Medicine

## 2007–2008



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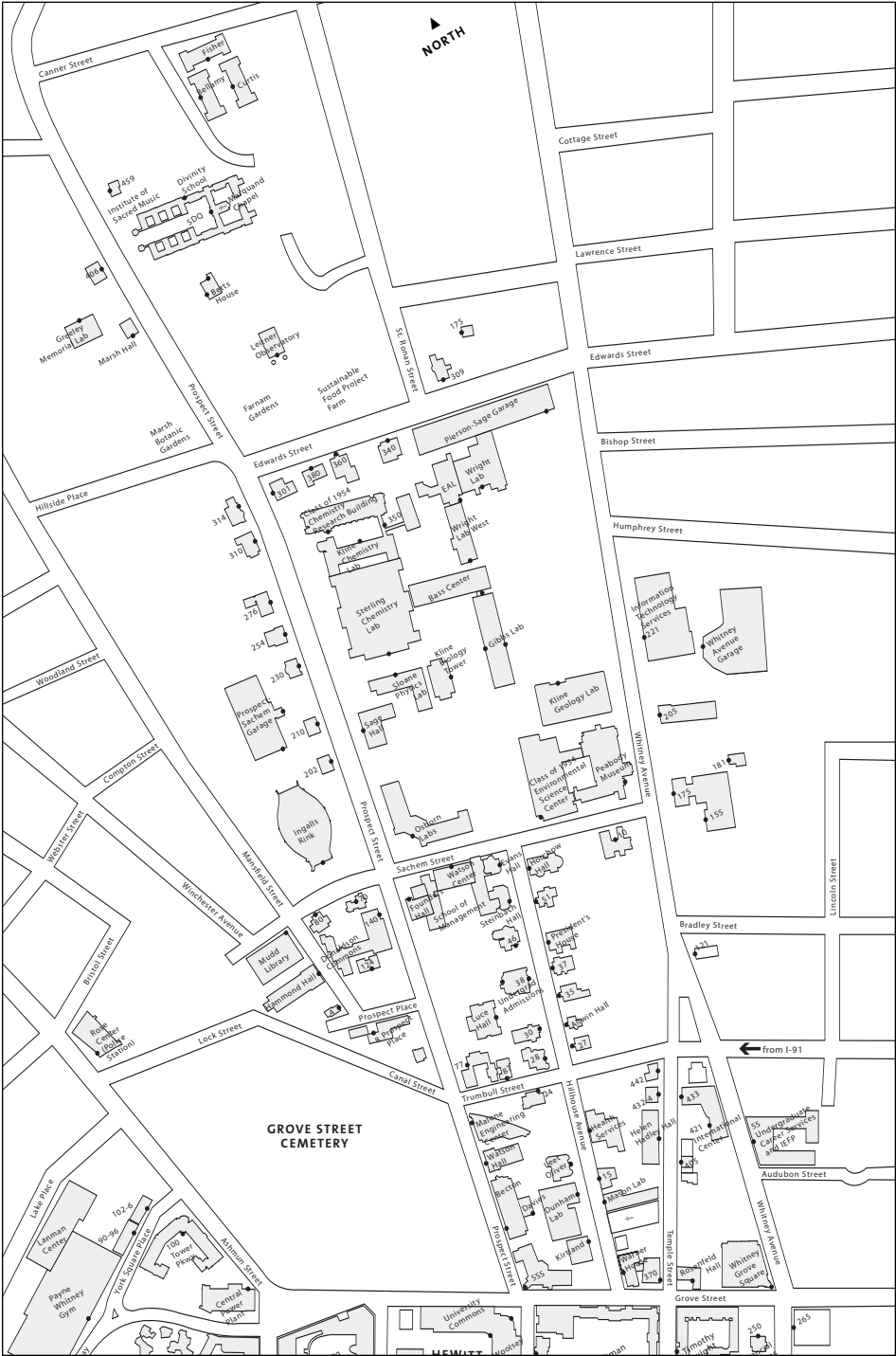
# School of Medicine

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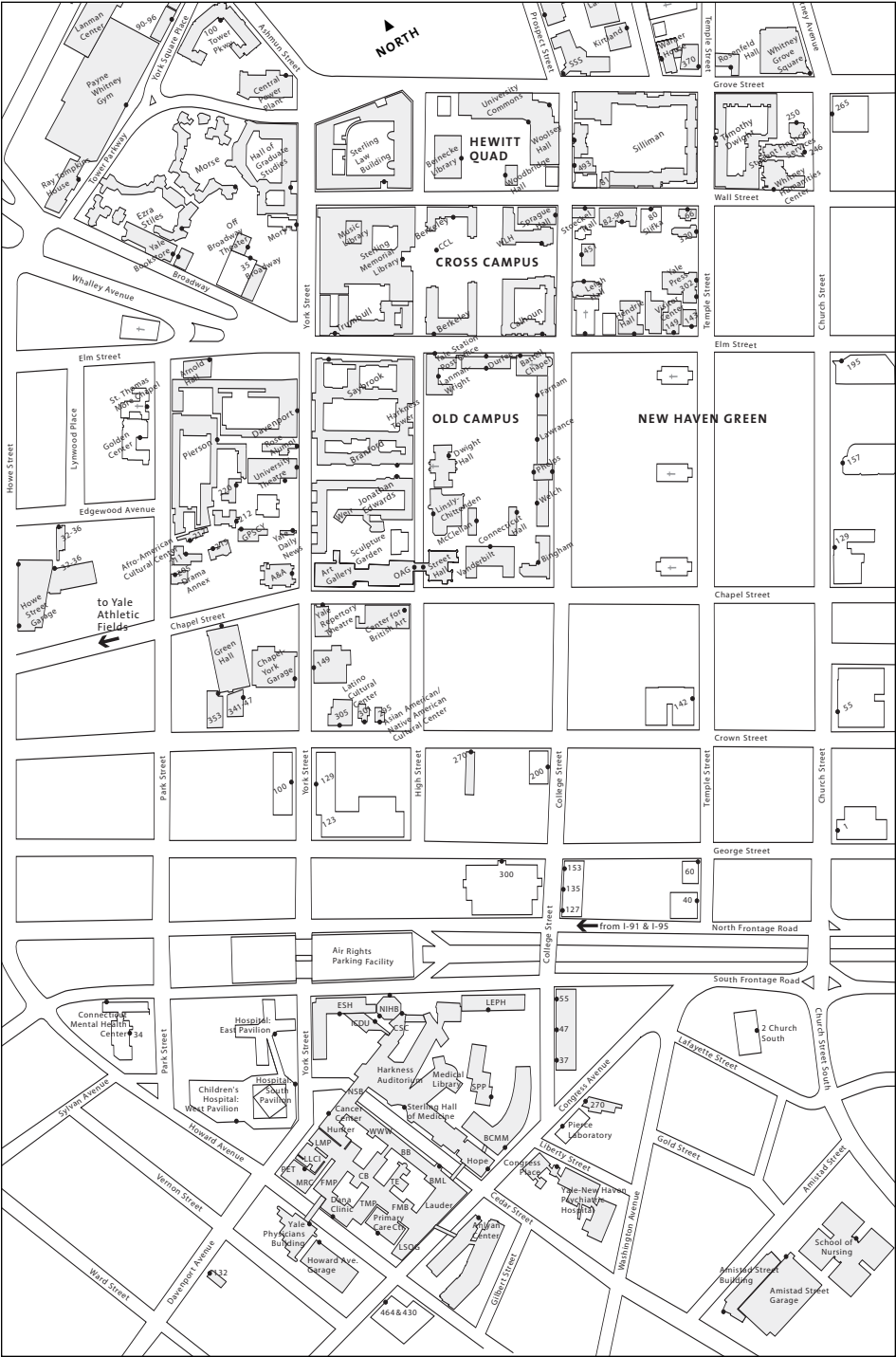
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YALE UNIVERSITY CAMPUS NORTH



Continued on next page

YALE UNIVERSITY CAMPUS SOUTH & YALE MEDICAL CENTER



## YALE MEDICAL CENTER BUILDINGS AND ADDRESSES



1. Laboratory of Epidemiology and Public Health, 60 College St.
2. Boyer Center for Molecular Medicine
3. Jane Ellen Hope Building
4. Sterling Power Plant
5. Harvey Cushing/John Hay Whitney Medical Library
6. Sterling Hall of Medicine, 333 Cedar St. Wings: B, C, I & L
7. Mary S. Harkness Memorial Auditorium
8. Child Study Center
9. Nathan Smith Building (Bridge)
10. Yale Cancer Center
11. Hunter Building, 15 York St.
12. William Wirt Winchester Building
13. Yale Eye Center (Boardman Building), 330 Cedar St.
14. Brady Memorial Laboratory, 310 Cedar St.
15. Lauder Hall
16. Laboratory for Surgery, Obstetrics and Gynecology
17. Primary Care Center
18. Farnam Memorial Building
19. Tompkins East
20. Tompkins Memorial Pavilion
21. Charles A. Dana Building, 789 Howard Ave.
22. Clinic Building
23. Fitkin Memorial Pavilion
24. Fitkin Amphitheater
25. Laboratory for Medicine and Pediatrics
26. Lippard Laboratory of Clinical Investigation
27. Magnetic Resonance Center
28. John B. Pierce Laboratory, 290 Congress Ave.
29. Yale Psychiatric Institute-Congress Place, 301 Cedar St. The Yale Medical Bookstore, 320 Congress Ave.
30. Yale-New Haven Psychiatric Hospital 2, 184 Liberty St.
31. Yale-New Haven Psychiatric Hospital 3, 184 Liberty St.
32. Anlyan Center for Medical Research and Education, 300 Cedar St.
33. 430 and 464 Congress Ave. and 726 Howard Ave.
34. **Howard Ave. Garage**
35. Yale Physicians Building, 800 Howard Ave.
36. 110 Davenport Ave. (YNHH Day Care Center)
37. 132-138 Davenport Ave. (Lead Program)
38. Edward S. Harkness Memorial Hall, 367 Cedar St.
39. Neison and Irving Harris Building, Child Study Center, 230 S. Frontage Rd.
40. East Pavilion, 20 York St. (Yale-New Haven Hospital Main Entrance)
41. South Pavilion, 20 York St.
42. **Emergency Services Parking**
43. **Children's Hospital Parking Garage**
44. Children's Hospital (West Pavilion)
45. Connecticut Mental Health Center
46. Ronald McDonald House, 501 George St.
47. 425 George St.
48. **Air Rights Parking Garage**
49. 127, 135, and 153 College St.
50. New Haven Hotel, 229 George St.
51. **Temple Garage**
52. Temple Medical Center, 40-60 Temple St.
53. College Place, 47 College St.
54. Medical Center South, 100 Church St. South (Yale School of Nursing)
55. Amistad Building, 10 Amistad St.
56. **Amistad Garage**
57. 270 Congress Ave.
58. 300 George St.
59. 2 Church St. South

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# Calendar

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## ONE HUNDRED AND NINETY-SIXTH SESSION

### FALL 2007

June 18	Mon.	Clerkship year for third-year students begins, 8 A.M.
Aug. 6–17	Mon.–Fri.	Registration for third- through fifth-year students, 9 A.M.–4.30 P.M.
Aug. 28	Tues.	Matriculation for first-year students, 8–11 A.M.
Sept. 4	Tues.	First term begins for first- and second-year students.
Sept. 4–14	Tues.–Fri.	Registration for second-year students, 9 A.M.–4.30 P.M.
Nov. 19–25	Mon.–Sun.	Fall recess for first- and second-year students.
Dec. 1	Sat.	Winter recess begins for third- and fourth-year students.
Dec. 21	Fri.	Winter recess begins for first- and second-year students.

### SPRING 2008

Jan. 2	Wed.	Clerkships begin for third- and fourth-year students.
Jan. 2–15	Wed.–Tues.	Registration for third- through fifth-year students, 9 A.M.–4.30 P.M.
Jan. 7	Mon.	Winter recess ends, 8 A.M. Second term begins for first- and second-year students, 8.30 A.M.
Jan. 7–18	Mon.–Fri.	Registration for first- and second-year students, 9 A.M.–4.30 P.M.
Jan. 21	Mon.	Martin Luther King, Jr. Day. No classes.
March 7	Fri.	Spring recess begins, 5 P.M. (No recess for students on clinical rotations.)
March 17	Mon.	Spring recess ends, 8 A.M.
March 21	Fri.	Good Friday. No classes.
April 18	Fri.	Second term ends for second-year students, 5 P.M.
May 6	Tues.	Student Research Day. No afternoon classes for first-year students.
May 16	Fri.	Second term ends for fourth-year students, 5 P.M.
May 26	Mon.	University Commencement.
May 26	Mon.	Memorial Day
June 6	Fri.	Second term ends for first-year students, 5 P.M.
June 13	Fri.	Clerkship year for third-year students ends, 5 P.M.

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# The President and Fellows of Yale University

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## *President*

Richard Charles Levin, B.A., B.LITT., PH.D.

## *Fellows*

Her Excellency the Governor of Connecticut, *ex officio*.

His Honor the Lieutenant Governor of Connecticut, *ex officio*.

George Leonard Baker, Jr., B.A., M.B.A., *Palo Alto, California*.

Edward Perry Bass, B.S., *Fort Worth, Texas*.

Roland Whitney Betts, B.A., J.D., *New York, New York*.

Jeffrey Lawrence Bewkes, B.A., M.B.A., *New York, New York*.

Gerhard Casper, LL.M., PH.D., LL.D., *Atherton, California*.

Donna Lee Dubinsky, B.A., M.B.A., *Portola Valley, California*.

Charles Daniel Ellis, B.A., M.B.A., PH.D., *New Haven, Connecticut*.

Mimi Gardner Gates, B.A., M.A., PH.D., *Seattle, Washington (June 2013)*.

Jeffrey Powell Koplan, B.A., M.D., M.P.H., *Atlanta, Georgia (June 2009)*.

Maya Ying Lin, B.A., M.ARCH., D.F.A., *New York, New York (June 2008)*.

Margaret Hilary Marshall, B.A., M.ED., J.D., *Cambridge, Massachusetts (June 2010)*.

William Irwin Miller, B.A., M.B.A., *Columbus, Indiana (June 2011)*.

Indra Nooyi, B.S., M.B.A., M.P.P.M., *Greenwich, Connecticut*.

Barrington Daniels Parker, B.A., LL.B., *Stamford, Connecticut*.

Margaret Garrard Warner, B.A., *Washington, D.C. (June 2012)*.

Fareed Zakaria, B.A., PH.D., *New York, New York*.

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# The Officers of Yale University

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*President*

Richard Charles Levin, B.A., B.LITT., PH.D.

*Provost*

Andrew David Hamilton, B.SC., PH.D., F.R.S.

*Vice President and Secretary*

Linda Koch Lorimer, B.A., J.D.

*Vice President and General Counsel*

Dorothy Kathryn Robinson, B.A., J.D.

*Vice President for New Haven and State Affairs and Campus Development*

Bruce Donald Alexander, B.A., J.D.

*Vice President for Development*

Ingeborg Theresia Reichenbach, STAATSEXAMEN

*Vice President for Finance and Administration*

Shauna Ryan King, B.S., M.B.A.

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# Administration and Faculty

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## GENERAL ADMINISTRATION

As one of the coordinate schools of the University, the general administration of the School of Medicine is conducted in accordance with the bylaws of the Yale Corporation. The affairs of the School are under the direction of the dean and the faculty, subject to the approval of the Corporation.

## BOARD OF PERMANENT OFFICERS

*Ex Officio:* President Richard C. Levin, Provost Andrew D. Hamilton, Dean Robert J. Alpern, Ms. Marna P. Borgstrom

James J. Abrahams, George K. Aghajanian, Serap Aksoy, Robert J. Alpern, Karen S. Anderson, Warren A. Andiman, Norma W. Andrews, Aydin M. Arici, Amy Arnsten, Peter S. Aronson, Philip W. Askenase, Allen E. Bale, Robert S. Baltimore, Paul G. Barash, Roland Baron, Michele Barry, Susan J. Baserga, William P. Batsford, Michael R. Baumgaertner, G. Peter Beardsley, Harold R. Behrman, Morris D. Bell, Jeffrey R. Bender, Frank J. Bia, Margaret J. Bia, Henry J. Binder, Sidney J. Blatt, Linda K. Bockenstedt, Jean L. Bolognia, Alfred Bothwell, Emile L. Boulpaep, James L. Boyer, Michael B. Bracken, Elizabeth H. Bradley, Douglas E. Brash, Ferne R. Braveman, Irwin M. Braverman, James A. Brink, Arthur E. Broadus, Richard A. Bronen, Richard Bucala, Benjamin S. Bunney, Morton I. Burrell, Henry S. Cabin, Lloyd G. Cantley, Michael J. Caplan, Michael Cappello, Sonia Caprio, Thomas O. Carpenter, Kathleen M. Carroll, Richard E. Carson, Michael Centrella, W. K. Chandler, Junjie Chen, Yung-Chi Cheng, Young Choi, Edward Chu, Elizabeth B. Claus, Paul D. Cleary, Michael W. Cleman, Miguel Coca-Prados, Lawrence B. Cohen, J. G. Collins, James P. Comer, John P. Concato, Robert T. Constable, Lynn Cooley, Leo M. Cooney, Dennis L. Cooper, Joshua A. Copel, Jose Costa, Joseph E. Craft, Peter Cresswell, Mark R. Cullen, Anne M. Curtis, Priscilla S. Dannies, Pietro De Camilli, Nihal C. Delanerolle, Gary V. Desir, Frank C. Detterbeck, Vincent T. DeVita, Daniel C. DiMaio, Yu-Shin Ding, Gail D'Onofrio, Stanley J. Dudrick, Thomas P. Duffy, Ronald S. Duman, James S. Duncan, Charles C. Duncan, Michael H. Ebert, Stephen C. Edberg, Richard L. Edelson, Richard A. Ehrenkranz, Jan Ehrenwerth, Barbara E. Ehrlich, John A. Eleftheriades, Jack A. Elias, Sukru H. Emre, Donald M. Engelman, Daniel G. Federman, Susan S. Ferro-Novick, Erol Fikrig, James J. Fischer, Durland Fish, Rosemarie L. Fisher, Richard A. Flavell, Bliss Forbush, Judith Ford, Bernard G. Forget, Howard P. Forman, John N. Forrest, Brian W. Forsyth, Francine M. Foss, Harris E. Foster, Gary E. Friedlaender, Gerald Friedland, Alan H. Friedman, J. J. Frost, Jorge E. Galan, Guadalupe Garcia-Tsao, Alan Garen, John P. Geibel, Joel Gelernter, Mark B. Gerstein, Sankar Ghosh, Thomas M. Gill, Peter M. Glazer, Earl J. Glusac, Fred Gorelick, Barry G. Green, Charles A. Greer, Ezra H. Griffith,

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## ADMINISTRATION

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 George Zdru, B.ARCH., *Director, Capital Program.*

## FACULTY

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 Jean Adnopo, M.P.H., *Clinical Professor in the Child Study Center.*  
 Stephen E. Adolfsen, M.D., *Instructor in Orthopaedics and Rehabilitation.*  
 Natalie Adsuar, M.D., *Clinical Instructor in Obstetrics, Gynecology, and Reproductive Sciences.*  
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Samuel K. Agulian, PH.D., *Associate Research Scientist in Neurology.*  
Munir Ahmad, PH.D., *Assistant Clinical Professor of Therapeutic Radiology.*  
Ramin Ahmadi, M.D., *Assistant Clinical Professor of Medicine and Lecturer in Nursing.*  
Deane Aikins, PH.D., *Assistant Professor of Psychiatry.*  
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Maysa Akbar, PH.D., M.S., *Associate Research Scientist in the Child Study Center.*  
Edward W. Akeyson, M.D., PH.D., *Clinical Instructor in Neurosurgery.*  
Shamsuddin Akhtar, M.D., *Assistant Professor of Anesthesiology.*  
Serap Aksoy, PH.D., *Professor of Epidemiology (Microbial Diseases).*  
Latha Alaparthi, M.B.B.S., *Lecturer in Medicine.*  
Ronald A. Albright, PH.D., *Associate Research Scientist in Molecular Biophysics and Biochemistry.*  
Jonathan Alexander, M.D., *Clinical Professor of Medicine.*  
Louis Alexander, PH.D., *Lecturer in Epidemiology (Microbial Diseases).*  
Macrene R. Alexiades-Armenakas, M.D., PH.D., *Assistant Clinical Professor of Dermatology.*  
Francis D. Alfano, M.D., *Assistant Clinical Professor of Medicine.*  
Sandra Alfano, PHARM.D., *Associate Research Scientist in Medicine and Assistant Clinical Professor of Nursing.*  
Ronan G. Ali, M.D., *Clinical Instructor in Medicine.*  
Oluremi Aliyu, M.D., M.P.H., *Clinical Instructor in Medicine (Occupational Medicine).*  
Harris M. Allen, PH.D., *Lecturer in Public Health (Health Policy).*  
Henry A. Allen, M.D., *Assistant Clinical Professor in the Child Study Center.*  
Jonathan C. Allen, M.D., *Clinical Instructor in the Child Study Center.*  
Patrick B. Allen, PH.D., *Assistant Professor of Psychiatry.*  
Joel Allison, PH.D., *Associate Clinical Professor of Psychiatry.*  
Truett Allison, PH.D., *Professor Emeritus of Neurology.*  
Heather G. Allore, PH.D., *Research Scientist in Medicine (Geriatrics).*  
Ahmad M. Almai, M.D., *Assistant Clinical Professor of Psychiatry.*  
Robert J. Alpern, M.D., *Ensign Professor of Medicine (Nephrology) and Dean of the School of Medicine.*  
Meenakshi Alreja, PH.D., *Associate Professor of Psychiatry and Neurobiology.*  
Shawnette A. Alston, M.D., *Clinical Instructor in Medicine.*  
Jeffrey N. Alter, M.D., *Assistant Clinical Professor of Dermatology.*  
Frederick Altice, M.D., *Associate Professor of Medicine (AIDS).*  
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 Stephen D. Brenner, M.D., *Associate Clinical Professor of Medicine (Geriatrics) and Nursing.*  
 Gina R. Brescia, M.D., *Assistant Professor of Medicine (General Medicine).*  
 Elizabeth A. Brett, PH.D., *Associate Clinical Professor of Psychiatry.*  
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- Otto G. Weis, M.D., *Clinical Instructor in Medicine.*
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- Gordon Weiss, M.D., *Clinical Instructor in the Child Study Center.*
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- Robert M. Weiss, M.D., *Donald Guthrie Professor of Surgery (Urology).*

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- Peter G. Whang, M.D., *Assistant Professor of Orthopaedics and Rehabilitation.*
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- Kathleen P. White, M.D., *Assistant Clinical Professor of Medicine.*
- Marney A. White, PH.D., *Assistant Professor of Psychiatry.*
- Robert I. White, M.D., *Professor of Diagnostic Radiology.*
- Robert S. White, M.D., *Assistant Clinical Professor of Psychiatry.*
- Laura M. Whitman, M.D., *Assistant Professor of Medicine (General Medicine).*
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- Junhui Zhang, M.D., *Associate Research Scientist in Medicine (Nephrology).*
- Ping Zhang, PH.D., M.S., *Associate Research Scientist in Medicine (Endocrinology).*
- Wei Zhang, PH.D., M.S., *Associate Research Scientist in Pharmacology.*
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- Yalan Zhang, PH.D., *Associate Research Scientist in Pharmacology.*
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- Yuan-Wei Zhang, PH.D., *Associate Research Scientist in Pharmacology.*
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- Lingjun Zuo, PH.D., *Associate Research Scientist in Psychiatry.*
- Felice R. Zwas, M.D., *Assistant Clinical Professor of Medicine.*

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# History and Facilities

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## HISTORY

The School of Medicine was established by passage of a bill in the Connecticut General Assembly in 1810 granting a charter for “The Medical Institution of Yale College,” to be conducted under the joint supervision of the college and the Connecticut State Medical Society. The institution was formally opened in 1813, and the first degrees were conferred the following year. In 1884, with the approval of the Medical Society, the original charter was amended to place the School definitely in the control of the College as the Medical School of Yale College. The name Yale College was changed to Yale University in 1887, and the name of the Medical School was automatically changed. The present name was adopted in 1918.

Shortly after the establishment of the School, members of its faculty and physicians in the state joined with other citizens in raising funds for a hospital in New Haven to provide, among other services, clinical facilities for the instruction of medical students. The outcome of these efforts was the incorporation of the General Hospital Society of Connecticut in 1826, and the opening of the New Haven Hospital in 1832. The New Haven Dispensary was founded in 1872 and later became a division of the New Haven Hospital. Instruction in clinical medicine has been conducted in the hospital continuously since its establishment.

A merger was effected in 1945 between the New Haven Hospital and Grace Hospital to form the Grace-New Haven Community Hospital. The affiliation agreement between the hospital and University was revised in 1965 and the name of the institution changed to Yale-New Haven Hospital (YNHH). In 1999, a separate affiliation agreement was adopted by the University and the Yale New Haven Health System.

Members of the professional staffs of the VA Connecticut Healthcare System, West Haven, and the Connecticut Mental Health Center, 34 Park Street, hold appointments in Yale University.

## FACILITIES

Located southwest of the New Haven Green and Yale’s Old Campus, Yale-New Haven Medical Center includes the School of Medicine and School of Public Health, School of Nursing, Yale-New Haven Hospital (YNHH), Yale Cancer Center, Connecticut Mental Health Center, and the John B. Pierce Laboratory.

The School of Medicine’s Sterling Hall of Medicine, 333 Cedar Street, is the central building. This handsome limestone structure with domed roof includes administrative offices, the 450-seat Mary S. Harkness Auditorium, the Child Study Center, the departments of Cellular and Molecular Physiology, Pharmacology, Molecular Biophysics and Biochemistry, Genetics, Cell Biology, and Neurobiology, and the sections of Comparative Medicine and History of Medicine.

The Harvey Cushing/John Hay Whitney Medical Library, also located in Sterling Hall of Medicine, houses over 444,400 volumes, subscribes to more than 2,300 print journals, and offers electronic access to resources to facilitate the use of the international biomedical literature.

Connected to the south end of Sterling Hall is the Jane Ellen Hope Building, a teaching facility of conference rooms and lecture halls. At Sterling's north end is the Nathan Smith Building, which spans Cedar Street, joining the School of Medicine and YNHH patient-care facilities, including the Hunter Building. The Yale-New Haven Children's Hospital is connected to two other hospital pavilions by a three-story atrium. The Nathan Smith Building contains offices and laboratories of Yale Cancer Center and the department of Genetics. Entrance to the Hope and Nathan Smith buildings is at 333 Cedar Street.

Yale-New Haven Hospital, 20 York Street, is a 944-bed facility with 92 bassinets. The Yale-New Haven Psychiatric Hospital is located nearby at 184 Liberty Street. School of Medicine faculty are attending physicians at YNHH, the School's primary teaching hospital. All medical and surgical specialties are represented at the hospital, which discharged 50,369 inpatients during the year ending September 30, 2006. During that period, ambulatory services treated 503,656 outpatients and emergency services had 113,921 visits. The hospital also houses the clinical component of Yale Cancer Center, a joint program of YNHH and the School of Medicine. Yale-New Haven has started construction of a new cancer hospital on Park Street, expected to open in late 2009 or early 2010.

The Children's Hospital provides inpatient and outpatient pediatric services, and also includes a rooftop helipad, high-risk maternity and newborn units, and labor, delivery, and postpartum services.

YNHH is the flagship hospital of the Yale New Haven Health System, an integrated delivery system that includes Bridgeport Hospital, Greenwich Hospital, and their affiliated organizations. Yale New Haven Health, Connecticut's largest health system, also extends into Rhode Island through its relationship with the Westerly Hospital.

The Laboratory of Epidemiology and Public Health is the School's other major teaching facility and is home to the medical school's Department of Epidemiology and Public Health, which also functions as the nationally accredited Yale School of Public Health. The nine-story building at 60 College Street contains classrooms, laboratories, an auditorium, and administrative offices (except the Office of the Dean of Public Health, which moved in 2007 to 135 College Street). It also is the site of a World Health Organization Collaborating Center, focusing on health promotion policy and research. The building at 47 College Street houses the School of Public Health library and various administrative offices.

Laboratories and offices for the School's clinical departments are located in contiguous buildings across Cedar Street from Sterling Hall. The Anthony N. Brady Memorial Laboratory and Lauder Hall provide offices and laboratories for the departments of Surgery, Pathology, Anesthesiology, and Diagnostic Radiology. The Boardman Building

houses the offices for the departments of Surgery and Ophthalmology and Visual Science. Farnam Memorial Building (FMB) and the Laboratory of Surgery, Obstetrics and Gynecology (LSOG) provide facilities for the departments of Pathology, Surgery, Orthopaedics and Rehabilitation, and Obstetrics, Gynecology, and Reproductive Sciences, and for the Section of Comparative Medicine.

The YNHH Clinic Building connects Farnam with the Laboratory for Medicine and Pediatrics (LMP). Adjacent to the Clinic Building are Tompkins Memorial Pavilion (TMP) and Fitkin Memorial Pavilion (FMP), facilities shared by the hospital and the School. They contain the departments of Anesthesiology, Neurosurgery, and Orthopaedics and Rehabilitation; sections of Nephrology and Cardiology; and laboratories and offices for the Department of Pediatrics. On the other side of the Clinic Building are Fitkin Amphitheater, the LMP, and the Lippard Laboratory for Clinical Investigation (LLCI), where research is conducted in the departments of Dermatology, Internal Medicine, Neurology, Pediatrics, and Therapeutic Radiology.

Laboratories of the Department of Ophthalmology and Visual Science and offices of the Department of Psychiatry are located at 300 George Street. Many of the Psychiatry department's teaching, research, and patient-care activities are conducted at the Connecticut Mental Health Center and the Yale-New Haven Psychiatric Hospital.

The Yale Physicians Building (YPB), a four-story structure on the southwest corner of Howard and Davenport avenues, contains outpatient specialty and consultative services, X-ray, laboratories, and a pharmacy. It also houses academic offices for orthopaedics and rehabilitation, urology, otorhinolaryngology, and plastic surgery. Ophthalmology clinical services and offices moved in 2007 to 40 Temple Street.

The Magnetic Resonance (MR) Center, on the corner of Davenport and Howard avenues, operated by the Department of Diagnostic Radiology, maintains three MR imaging systems for clinical examination. A new Positron Emission Tomography (PET) Center, also operated by the Department of Diagnostic Radiology, maintains a cyclotron radioisotope system for imaging research.

The Boyer Center for Molecular Medicine, at the intersection of Congress Avenue and College Street, houses multidisciplinary programs in molecular genetics, cell biology, and the interdepartmental Program in Cellular Neuroscience, Neurodegeneration, and Repair. It is also the home of the Section of Microbial Pathogenesis.

College Place, a series of buildings at 37–55 College Street, houses the offices of the Dean of Public Health, the Child Study Center, and a number of School of Medicine administrative offices.

The medical school's newest research building, at 10 Amistad Street, is home to three interdisciplinary groups: the Interdepartmental Program in Vascular Biology and Therapeutics, the Human and Translational Immunology Program, and the Yale Stem Cell Center.

The Anlyan Center for Medical Research and Education is not only the medical school's largest major state-of-the-art research and educational facility, it is the largest on the entire Yale campus. Completed in November 2002, this outstanding facility is located on the corner of Cedar Street and Congress Avenue and encompasses a full city

block. The new building includes six floors of laboratories for disease-based research, core facilities for genomics and magnetic resonance imaging, and state-of-the-art teaching space for anatomy and histology. This facility provides laboratories and offices for the departments of Internal Medicine, Genetics, Immunobiology, and Diagnostic Radiology.

Edward S. Harkness Memorial Hall, 367 Cedar Street, is a student dormitory with the Nicholas P. R. Spinelli student lounge, the Class of 1958 Fitness Center, dining facilities, and the Phyllis Bodel Childcare Center. The School of Medicine offices of admissions, student affairs, financial aid, and international health and student programs are located on the second floor. The offices of education, student research, M.D./Ph.D. Program, and multicultural affairs are located on the third floor.

A number of other spaces in the vicinity of the School are leased rather than owned by Yale University.

The VA Connecticut Healthcare System, West Haven, a major teaching affiliate of the School of Medicine, is the site of the Paralyzed Veterans of America/EPVA Center for Neuroscience and Regeneration Research of Yale University.

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## Harvey Cushing / John Hay Whitney Medical Library

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The Cushing/Whitney Medical Library serves the Yale-New Haven Medical Center and the health care needs of Yale University. The library is a comprehensive resource for research, patient care, and education materials. The library's Web site is the gateway to the virtual library of electronic books and journals, databases, clinical reference tools, and evidence-based practice resources in support of programs in medicine, nursing, public health, and the basic sciences. At present, our Web site lists over 6,000 electronic journals and over 3,500 electronic books, an extensive collection of medical education software, clinical synthesis products, and PDA resources.

The Medical Library is a dynamic and busy place. We are committed to providing students with a supportive place for study and learning, and providing faculty and staff with seamless access to information resources in the library and on the desktop.

The Medical Library has computing clusters in the Information Room and the Computer Resource Laboratory (CRL). The workstations provide access to electronic resources, e-mail, word processing, the Internet, and printing; in addition, the CRL contains a digital imaging center.

All Yale University students have access to electronic resources including electronic books, journals, and databases from any off-campus computer. Wireless access is available throughout the Medical Library. The library also lends laptops and wireless cards to students.

Medical librarians provide reference assistance and in-depth consultation, conduct tours, teach classes, acquire and organize the collection, lend materials, and provide a photocopy and document delivery service. Librarians work to create seamless access to full-text electronic resources. Using YaleLinks, students can go from database to the full article with just a click of a button. We also develop self-help tools such as online tutorials for quick help at the student's computer. To provide the highest level of service to library users, staff also provide an outreach service to each medical school department. The Library Liaison Program promotes communication between the library and the departments to ensure that the library is meeting the educational and research needs of busy clinicians and researchers.

The Medical Library offers a rich program designed to build competency in information management skills—skills that are increasingly important as a foundation for effective research and practice in health sciences. Our goal for this program is to foster lifelong information management skills by providing medical students a solid foundation throughout their four years of medical school.

During their orientation week, first-year students are introduced to the library, the Personal Librarian Program, and their “personal librarian.” Librarians become personal librarians for approximately twenty students and maintain contact with the same students throughout their four years in medical school. A personal librarian is able to recommend resources best suited for individual research needs, provide instruction in new technologies and resources, and guide students to specific resources as their research and learning needs change.

As the second-year students begin research for their thesis project, the library offers seminars on information management, including the use of bibliographic database management programs. At the end of the second year and just before the clinical years begin, students attend a “Find it Fast” session. This session is designed to prepare students to find the answer to a clinical question efficiently and effectively.

Third- and fourth-year students participate in a variety of seminars, mostly focusing on evidence-based practice and advanced database searching techniques. Fourth-year students attend a series of “out-the-door” seminars as part of the Integrative Clinical Medicine course. These seminars are designed to refresh information management skills and to introduce new applications and technology.

Emerging trends and rapidly changing technology in academic medical curricula provide opportunities for faculty and librarians to work together using the Web and other electronic resources as teaching tools to enhance students' educational experience at Yale.

The Historical Library contains one of the nation's best collections of rare medical books, journals, prints, and photographs, as well as current works in the history of medicine. There are 325 medical incunabula, over 75 manuscript volumes from the twelfth through sixteenth century, and one of the best study collections of weights and measures in the world. Its holdings also include Yale medical theses to 1900, catalogues, yearbooks, photographs, and other publications and ephemera related to the Yale School of Medicine.

The Epidemiology and Public Health Library is associated with the Medical Library and contains over 25,000 volumes and 350 current journal subscriptions as well as information in electronic format on biostatistics, epidemiology, health policy and administration, environmental health, and global health.

Nursing library services are provided to Yale School of Nursing (YSN) faculty, students, and staff through the Medical Library. The Medical Library provides YSN with a rich collection of both print and electronic materials. The print collection for the School of Nursing Library is housed in the Medical Library. The Nursing Library Web site gives the YSN community quick electronic access to important biomedical online resources, as well as other library electronic resources.

Sterling Memorial Library, Yale's main library and the largest library on campus, houses more than four million volumes and serves as the center of the library system. Twenty-two libraries are included in the Yale University Library system, including Kline Science Library, the Law Library, and the Seeley G. Mudd Library, which houses the government documents collection. EliExpress (Yale Library's document delivery service) couriers transport library books daily among these and the other library units on campus.

## ASSOCIATES OF THE YALE MEDICAL LIBRARY

Martin E. Gordon, M.D., *Chair*

Toby A. Appel, *Secretary*

Telephone: 785-4354

The associates were formed in 1948 to assist in augmenting the library's services and collections. Membership information is available on the associates Web page, [www.med.yale.edu/library/associates](http://www.med.yale.edu/library/associates).



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## Degree Programs

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Students at the School of Medicine may be candidates for the degrees of Doctor of Medicine (M.D.) or Master of Public Health (M.P.H.). The School of Medicine, jointly with the Graduate School, administers two combined programs: one leading to the degrees of Doctor of Medicine (M.D.) and Doctor of Philosophy (Ph.D.), and another combined program leading to the degrees of Doctor of Medicine (M.D.) and Master of Health Science (M.H.S.). The School of Medicine administers a combined program leading to the Doctor of Medicine (M.D.) and Master of Public Health (M.P.H.) degrees. Special arrangements may be made with the appropriate associate deans to receive the combined Doctor of Medicine (M.D.) and Doctor of Jurisprudence (J.D.) degrees, the combined Doctor of Medicine (M.D.) and Master of Divinity (M.Div.) degrees, and the combined Doctor of Medicine (M.D.) and Master of Business Administration (M.B.A.) degrees. The School of Medicine also offers a program leading to a Physician Associate certificate combined with a Master in Medical Science degree.

### DOCTOR OF MEDICINE

The degree of Doctor of Medicine is conferred upon students who have satisfactorily completed the requirements stated below.

1. Pass all of the required basic science courses.
2. Pass all of the required clinical clerkships.
3. Pass the examinations of the United States Medical Licensing Examination (USMLE), Steps I and II.
4. Submit an approved dissertation by mid-March of the year of graduation.
5. Meet all of the requirements of the Progress Committee and Board of Permanent Officers concerning academic standing, moral and ethical character, emotional stability, and professional conduct.

Because of the heavy demands in terms of time and energy required for the study of medicine, the Yale School of Medicine discourages students from assuming extracurricular activities that may prove burdensome. Such extracurricular work and/or professional activity will not justify inadequate academic performance. Any student wishing to work or pursue a professional activity other than medicine that would consume a significant amount of time must have the permission of the associate dean for student affairs.

### *Admissions*

The Yale University School of Medicine seeks to provide an education in the scholarly and humane aspects of medicine and to foster the development of leaders who will advance medical practice and knowledge. The Committee on Admissions, in general, seeks to admit students who seem best suited for the educational programs and aims of

the School. In particular, the committee looks for intelligent, mature, and highly motivated students who show the greatest promise for becoming leaders and contributors in medicine. The Committee on Admissions also considers very carefully personal qualities necessary for the successful study and practice of medicine. These include maturity, integrity, common sense, personal stability, dedication to the ideal of service, and the ability to inspire and maintain confidence.

School of Medicine graduates must have the knowledge and skills to function in a broad variety of clinical situations and to render a wide spectrum of patient care. In addition to scholastic accomplishments and potential, applicants must have the physical capacities and personal characteristics to meet the full requirements of the School's curriculum and to graduate as skilled and effective practitioners of medicine. The policy of the School of Medicine regarding nonacademic considerations in the admissions process is available upon request from the Office of Admissions.

The School also attempts to ensure adequate representation of women and all minority groups and a diversity of interests and backgrounds. All applications to the Yale University School of Medicine are given careful consideration without regard to sex, race, age, religion, national origin, sexual orientation, or financial status. In evaluating candidates, the committee takes into consideration many factors including academic record, MCAT scores, record of activities and accomplishments, recommendations from pre-medical committees and individual science teachers, and personal interviews.

It is recommended that students enter medical school after four years of study in a college of arts and sciences. Students holding advanced degrees in science or other fields are also considered. International students (other than Canadians) must have completed at least one year of study in an American college prior to application. Students who have been refused admission on three prior occasions are ineligible to apply for admission to the first-year class.

The minimum requirements for admission to the first-year class are:

1. Attendance for three academic years, or the equivalent, at an accredited college of arts and sciences or institute of technology.
2. Satisfactory completion of the following courses including laboratory work:
  - General Biology or Zoology
  - General Chemistry
  - Organic Chemistry
  - General Physics

(Acceptable courses in these subjects usually extend over one year and are given six to eight term hours credit.) These courses should be completed in a U.S. or Canadian college or university. Advanced courses may be substituted for introductory-level courses in each of these subjects.

The Committee on Admissions has no preference as to a major field for undergraduate study and leaves this decision to students, with the advice that they advance beyond the elementary level in the field of their choice rather than pursue an undirected program. A liberal education is the supporting structure for graduate study and must encompass understanding of the humanities, arts, and society as well as the scientific

foundations of technology and civilization. The student of medicine enters a profession closely allied to the natural sciences and must be prepared to cope with chemistry and biology at the graduate level. Students entering college with a strong background in the sciences, as demonstrated by advanced placement, are encouraged to substitute advanced science courses for the basic requirements listed above.

### *Application Process*

The Yale University School of Medicine participates in the “common” application process of the American Medical College Application Service (AMCAS). Applicants must first submit their AMCAS application, on which they indicate that they wish to apply to the Yale School of Medicine. After submitting the AMCAS application, applicants must complete the Yale Supplemental Application, which must be submitted online (see below for details).

Inquiries regarding AMCAS should be addressed to the American Medical College Application Service, 2501 M Street NW, Lobby 26, Washington DC 20037-1300. AMCAS can also be reached by telephone at 202.828.0600 or by e-mail at [amcas@aamc.org](mailto:amcas@aamc.org). Extensive information can also be obtained at the AMCAS Web site: [www.aamc.org](http://www.aamc.org).

Inquiries to the Yale School of Medicine regarding the degree of Doctor of Medicine should be addressed to the Office of Admissions, Yale University School of Medicine, Edward S. Harkness Hall, 367 Cedar Street, New Haven CT 06510. The e-mail address of the admissions office is [medical.admissions@yale.edu](mailto:medical.admissions@yale.edu). Information and a link to the Yale Supplemental Application can also be obtained online at <http://info.med.yale.edu/education/admissions>. Inquiries are welcome at any time.

AMCAS applications must be submitted no later than October 15 of the year prior to the fall in which enrollment is sought. Yale Supplemental Applications must be submitted online no later than November 15. Applicants seeking admission under the Early Decision Plan must submit the AMCAS application by August 1 and the Yale Supplemental Application by August 31. The number of students admitted each year for studies leading to the M.D. degree is approximately 100.

A complete application consists of the following components:

1. AMCAS application and all required components of the application (see 2 and 5 below).
2. Complete official transcripts from all colleges attended. Transcripts should be sent from the colleges directly to AMCAS.
3. Yale Supplemental Application submitted online no later than November 15. The Supplemental Application may be found at <http://info.med.yale.edu/education/admissions>.
4. An evaluation from the applicant's Premedical Advisory Committee, or individual letters from three of the applicant's teachers, two of whom should be in science fields. These evaluations must be sent directly to Yale.
5. Scores from the Medical College Admission Test (MCAT) must be submitted in conjunction with the AMCAS application. For information on the MCAT, applicants should communicate directly with the MCAT Program Office, PO Box 4056,

Iowa City IA 52243. Information on the MCAT can also be obtained online at [www.aamc.org](http://www.aamc.org). Scores of tests taken earlier than three years prior to submitting an application will not be accepted.

6. A fee of \$85 or an AMCAS fee waiver must accompany the Yale supplemental application. The fee is not refundable.

During the course of the admissions process, selected applicants will be invited for personal interviews with members of the Committee on Admissions at Yale. Regional interviews can be arranged when necessary.

### *Early Decision Plan*

The Yale School of Medicine offers an Early Decision Plan (EDP). Under this plan, a student may make a single early application to the school of his or her first choice and is guaranteed a prompt decision by the school. AMCAS applications for the EDP program must be submitted by August 1. Yale Supplemental Applications must be submitted by August 31. EDP applicants will be notified of the decision of the Committee on Admissions no later than October 1.

### *Admission to Advanced Standing (Transfer Admissions)*

Because of a limited number of available positions, the Yale University School of Medicine does not routinely consider requests for transfer with advanced standing. The only exception to this policy is that the School will consider applications into the second-year or third-year class from students who are enrolled in LCME-accredited medical schools in the United States or Canada and who have a compelling personal need to be at Yale.

The following three circumstances constitute “compelling personal need” under this policy:

1. The applicant’s spouse holds, or has been accepted for, a position in the Yale-New Haven Medical Center community as a student, a member of the house staff at Yale-New Haven Hospital, a postdoctoral fellow, or a faculty member.
2. There is a serious illness in the immediate family of the applicant, requiring the ill person to be in New Haven for treatment and the applicant to be in New Haven as the primary supportive member of the family during the time of the illness.
3. In collaboration with a faculty member of the Yale School of Medicine, the applicant has completed exceptional biomedical research, which both the applicant and the faculty member wish to continue. Completing medical studies at Yale would enable the applicant to pursue this collaborative research and achieve important and unique educational and scientific objectives that would not be possible at the original medical school.

The distance of the applicant from New Haven will also be taken into consideration. Regardless of other factors, students attending medical school in New York City, Connecticut, or Rhode Island will not normally be eligible to apply for advanced standing.

Transfer into the second-year class is possible only from medical schools with a basic science curriculum compatible with that at Yale. Transfer into the third-year class is contingent upon passing Step I of the United States Medical Licensing Examination (USMLE). An applicant who fails USMLE Step I will not be considered for admission under any circumstances. Transfer into either the second- or third-year class is also contingent upon successful completion of courses being taken at the current medical school and upon the availability of space at Yale.

Eligible applicants will be evaluated competitively by the School's Committee on Admissions, with decisions based on academic credentials, supporting material, interviews, and the urgency of the personal need to transfer. Overall qualifications are expected to be comparable to those of Yale students admitted through the regular admissions process.

All accepted applicants must matriculate in the year accepted. Applicants whose eligibility is established by marriage must be married at the time of matriculation, and the applicant's spouse must be in residence in New Haven and holding a position in the Yale-New Haven Medical Center community. Transfer students must complete all required clinical clerkships (including the fourth-year Primary Care Clerkship and the Integrative Clinical Medicine Clerkship) and the thesis requirement at the Yale University School of Medicine. If a transfer student wishes to spend an extra (fifth) year at Yale, one-half of the tuition for that year will be waived.

Completed transfer applications consist of Yale School of Medicine application forms, letters of recommendation, MCAT scores, college transcripts, a transcript from the current medical school, and a letter from the dean of students (or comparable official) at the current medical school. Inquiries regarding transfer applications should be addressed to the Office of Admissions, Yale University School of Medicine, 367 Cedar Street, New Haven CT 06510 or [medical.admissions@yale.edu](mailto:medical.admissions@yale.edu). **Transfer applications, including all supporting credentials, must be submitted by April 1 of the year the student wishes to enter Yale.**

### *Educational Objective*

The mission of Yale University School of Medicine is to educate and inspire scholars and future leaders who will advance the practice of medicine and the biomedical sciences. The educational program is designed to develop physicians who are highly competent and compassionate practitioners of the medical arts, schooled in the current state of knowledge of both medical biology and patient care. It is hoped that Yale-trained physicians will establish a lifelong process of learning the medical, behavioral, and social sciences by independent study. The aim is also to produce physicians who will be among the leaders in their chosen field, whether it be in the basic medical sciences, academic clinical medicine, or medical practice in the community. Belief in the maturity and responsibility of students is emphasized by creating a flexible program through anonymous examinations and the elimination of grades in pre-clinical courses, and by encouraging independent study and research.

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*Educational Philosophy: The Yale System*

The Yale System of Medical Education remains unique among medical schools. It has been an important part of life at the Yale School of Medicine since 1931. Although it has undergone minor modifications in the intervening years, its essential spirit has remained intact, and it is a major reason why many students choose to come to Yale for their medical education.

The fundamental element of the system is the concept that Yale medical students are mature individuals, strongly motivated to learn, requiring guidance and stimulation rather than compulsion or competition for relative standing in a group. The corollary of this concept is that students must assume more than usual responsibility for their education. Students should be considered adults in a graduate school and be permitted to enjoy as much freedom as is consistent with the fulfillment of requirements for the degree of Doctor of Medicine. Memorization of facts should be far less important than a well-rounded education in fundamental principles, training in methods of investigation, and the acquisition of the scientific habit of mind.

During the pre-clinical years, the students acquire knowledge and develop clinical skills. Attendance in basic science courses is not taken, lectures are held to a minimum, and much instruction occurs in small-group seminars or conferences. Students evaluate themselves through anonymous examinations. Their performance is assessed by the faculty through participation in seminars, by an anonymous qualifying examination at the end of each course, and by passing of the United States Medical Licensing Examinations. Student attendance is expected in all skill-building sessions, and competency in performing a complete history and physical examination is assessed at the end of the second year, utilizing standardized patients.

In the first two years there are no grades, and there is no class ranking throughout medical school. While grades are not given and rank order not established, evaluation of students is an important part of the educational process. The faculty considers small-group teaching with interchange between faculty and students to be the most effective means of teaching and evaluation. Students should expect direct questioning at seminars and labs as an important adjunct to the evaluation process. The final decision of acceptable performance for a given course or clerkship will remain with the course/clerkship director of each course or clerkship. Freed from the usual anxieties provoked by examinations, students tend to learn for their future rather than for tests. Competition for grades is eliminated and students are eager to help one another. Class spirit is remarkably high year after year. Upon completing a course, all students are strongly encouraged to submit an evaluation so that course directors can make changes based on student feedback, which is taken very seriously.

Finally, the Yale System requires each student to engage in a form of research activity, designed to foster development of a lifelong commitment to learning (see Required Thesis, page 132).

## *Curriculum Management*

### EDUCATIONAL POLICY COMMITTEE (EPC)

The EPC advises the deputy dean for education on policy issues of school-wide importance, including matters related to admissions, graduation requirements, progress of students, joint-degree programs, student research and thesis, and multicultural affairs. The deliberations and recommendations of the EPC are guided by the school's Educational Mission and School-Wide Objectives as well as the principles embodied in the Yale System of Education. For example, the EPC might examine and advise the deputy dean for education about the impact of curriculum proposals and other medical school issues that:

- affect, modify, or change school policy regarding education
- fundamentally change or potentially disrupt the current curriculum's structure, schedule, content, or allocation of time
- potentially impact, challenge, or change the School's fundamental principles and core values as embodied in the Yale System of Education, the School-Wide Educational Objectives, or the Educational Mission Statement

### CURRICULUM COMMITTEE (CC)

The CC provides careful and thorough oversight of the curriculum review process. The CC considers recommendations for curriculum change made by its review committees as well as suggestions from students, faculty, and departments. The CC might also form ad hoc working groups to study and promote integration within related areas of learning and across various disciplines and time periods in the curriculum. The CC improves the curriculum by considering new ideas, developing specific proposals, and implementing changes that promote:

- integration and coordination across and throughout the curriculum
- a curriculum designed to achieve the school-wide educational objectives
- assessment of the curriculum based on analysis of reliable outcome measures
- improvement in the quality of education based on new teaching approaches and modern methods of pedagogy
- adherence to existing and new accreditation standards

### CURRICULUM REVIEW COMMITTEES

Courses Review Committee

Modules Review Committee

Clerkships and Electives Review Committee

The Curriculum Review Committees work collaboratively with department-based course, module, clerkship, and electives directors to review and improve individual courses, modules, and clerkships/electives. This includes gathering information, reviewing and analyzing data, and making recommendations that promote:

- course, module, and clerkship/elective content based on specific learning objectives
- congruence of course, module, and clerkship/elective objectives with overall School-Wide Objectives
- use of the most effective teaching methods to achieve the learning objectives
- effective use of formative, summative, and self-assessment methods
- use of student evaluations and performance outcome data to improve the curriculum
- use of reliable outcome measures to evaluate student achievement of the learning objectives

The Review Committees, through their chairs, will report on their activities to the CC on a regular basis. Recommendations of the Curriculum Review Committees for changes in the content or teaching methodology within a course, module, clerkship, or elective based on these reviews can be directly implemented by the course, module, clerkship, or elective director. However, changes that have broader impact across the curriculum must be brought to the CC for consideration and implementation.

#### THESIS COMMITTEE

The Thesis Committee provides oversight of and recommends policy for all aspects of the medical student thesis program. This includes:

- setting rules and regulations for the thesis requirement
- establishing thesis deadlines
- determining the guidelines and processes for the awarding of thesis honors and graduation prizes, and choosing the recipients
- determining the selection of oral presentations given on Student Research Day

The Thesis Committee regularly reviews the curriculum to assure that there is adequate time available for thesis research, evaluates the participation and effectiveness of faculty mentors, assesses the quality of the student's research experience, and makes stipend-supported research fellowships available.

A more detailed description of these committees including the membership is available on the Office of Education Web site.

#### *Pre-Clinical Curriculum*

The first two years of the curriculum at Yale School of Medicine focus on providing students with a foundation in the science and art of medical practice. In the first year, the science of normal human biology is explored in four major areas. The structure of the human body is taught in *Principles of Human Anatomy and Development*, via dissections, and in *Diagnostic Imaging*. The normal function of the human body is taught in the *Molecules to Systems Integrated Curriculum*, which includes three departmental courses: *Molecular Foundations of Medicine*, *Cell Biology and Histology*, and *Medical Physiology*. The structure and function of the brain and nervous system are taught in the *Neurobiology* and *Biological Basis of Behavior* courses. Teaching of the art of medicine begins with the first day of school, which is devoted to the discussion of the importance of understanding the patient's and physician's culture in practicing medicine. The *Pre-Clinical Clerk-*



*ship* (PC) introduces students to the principles and skills of medical interviewing and physical examination. PC course sessions and tutorials meet weekly and provide opportunity for students to observe and develop clinical skills. In addition to didactic sessions, this course provides weekly opportunities throughout the first two years for students to see patients and practice skills under the observation of a *Clinical Tutor*. During clinical tutorials, groups of four students work closely with a clinician to practice performing clinical histories and physical exams. Further understanding of the patient is achieved in *Aspects of Child and Adolescent Development in the Practice of Medicine*, which presents a developmental approach to human behavior. The *Professional Responsibility* course is an opportunity to discuss the attitudes and behaviors of caring and ethical physicians who practice in this complex era of managed care. Integrating the art and science in medical practice requires problem-solving skills, which are developed in the *Medicine-Based Evidence* course. A major focus of this effort is discussing how to assess the value of information in the medical literature by understanding and applying the basic principles of biostatistics. Throughout the year, students can hear various talks on the *History of Medicine*, which add depth and texture to the curriculum as well as provide some insight into the time continuum within which the practice of medicine exists.

The first year ends with a focus on the mechanisms of disease: Pathology, Genetics, and Immunobiology. The second year emphasizes abnormal human biology. During the fall term the major courses are *Microbiology* and *Pharmacology*; *Epidemiology and Public Health* is scheduled for the spring term. Beginning in September and continuing throughout the year, students participate in *The Modules*, a large interdisciplinary course. Content traditionally taught in the separate disciplines of pathology, pathophysiology, pharmacology, clinical examination, laboratory medicine, and diagnostic radiology is organized according to organs or systems. The individual modules are: Blood, Cardiovascular, Clinical Neurosciences, Clinical Sciences of Psychiatry, Endocrine System, Digestive, Respiratory, Musculo-skeletal, Oncology, Renal and Urinary Tract, Reproduction, Ophthalmology, and Skin. Teaching the art of medicine continues throughout the year in the *Pre-Clinical Clerkship*, which emphasizes developing greater skills in history taking and physical examination. Students continue to meet in small groups with their *Clinical Tutors*. In the second year, students are given the opportunity to assess their acquired clinical skills in the Standardized Patient Program at the University of Connecticut School of Medicine.

### *Pre-Third Year Requirements*

In order to proceed to the third year, a student must satisfy the following requisites:

1. Pass the mandatory qualifying examinations for all first- and second-year courses.
2. Pass the *Pre-Clinical Clerkship* course.
3. Achieve clinical competence (as ascertained by the clinical tutors).
4. Have a minimum of five commentaries from different required basic science courses in his/her evaluation folder.
5. Comply with all immunization requirements.

In addition, students are strongly encouraged to evaluate all of the basic science required courses.

### *The Third Year*

#### CLINICAL CLERKSHIPS

The third year is devoted almost entirely to clinical clerkships. They include:

Internal Medicine	8 weeks
Ambulatory Medicine	4 weeks
Surgery	10 weeks
Anesthesiology	2 weeks
Pediatrics	8 weeks
Clinical Neuroscience	4 weeks
Obstetrics and Gynecology	6 weeks
Psychiatry	6 weeks

Clerkship scheduling will be arranged through the Office of Student Affairs. There is no required order for taking clerkships, and there is no advantage to any particular order. It is to the student's advantage to complete as many required clerkships as possible during the third year. In order to change a clerkship schedule after it is assigned, students must (1) fill out a clerkship/elective change form giving reasons for the change and (2) meet with the registrar. Changes are not guaranteed, and no change except in the case of a legitimate emergency will be considered less than four weeks before the start of the scheduled clerkship. Students may receive a lower priority for rescheduling these postponed clerkships in their fourth year than new third-year students. All changes must be approved by the associate dean for student affairs.

#### USMLE STEP 1

All students are required to sit for Step I of the United States Medical Licensing Examination for the first time by the end of December of the third year in medical school (even if the third year is an extended study year), but students are strongly encouraged to take it before starting clinical clerkships. The United States Medical Licensing Examination (USMLE) Steps I, II Clinical Knowledge, and III are computer-administered at Prometric Testing Centers. This system has given students considerable flexibility over choice of test time and place. Students should consult the USMLE Web site for more information ([www.usmle.org](http://www.usmle.org)).

The Office of Student Affairs holds an informational session in February. Applications may be downloaded from the NBME (National Board of Medical Examiners) Web site at [www.nbme.org](http://www.nbme.org). Students should return their completed applications for Step I to the Office of Student Affairs, which will certify and mail them directly to the NBME for processing. The application form must be accompanied by one passport photo and payment, by check made out to the NBME or by credit card, in the amount of \$455. The student must also indicate one of the three-month periods during which he or she wishes to

sit for the exam. Within two weeks, the student will receive a scheduling permit in the mail with a student identification number. The student can then call any Prometric test site in the world to schedule a specific test day.

#### FAILURE OF USMLE STEP 1

If a student fails Step I, he or she may reschedule it at any time before May of the third year. Three failures of Step I will require consultation with the Progress Committee, and only in extraordinary circumstances will the student receive permission to take it a fourth time. In the absence of that permission, the student will be dismissed from the School of Medicine. In some cases where a student may be having other academic problems, failing Step I once or twice will be enough to require consultation with the Progress Committee. In some unusual cases, students will not be allowed multiple retakes, for example, if the student is unable to progress satisfactorily in the clerkships or behaves in repeatedly or egregiously unprofessional ways. (See Progress Committee, pages 172–73.) If Step I is failed more than once, the student may be asked to discontinue clinical rotations until he or she takes and passes the exam.

#### *The Fourth Year*

The fourth-year curriculum includes a required clerkship and course as follows:

Primary Care	4 weeks
Integrative Clinical Medicine	3 weeks

The Office of Student Affairs holds a meeting in the spring of the third year to discuss the fourth year. The meeting is focused on the National Residency Matching Program, residency applications, and the Medical Student Performance Evaluation (MSPE), also known as the dean's letter, but issues of scheduling subinternships, electives, and the thesis requirement are also addressed.

Graduating students are required to submit a thesis plan to the Office of Student Research prior to fall registration of the final year. Students must provide a tentative thesis title as well as identify their thesis adviser.

A required *Primary Care Clerkship* is generally completed during the fourth year. This four-week clerkship provides students with an opportunity to experience primary care in an outpatient or office setting. Many students also take a number of clinical electives, including a subinternship in some clinical discipline. The residency application process and completion of the thesis are also major activities of the fourth year.

In the spring, students attend one final required course, entitled *Integrative Clinical Medicine: The Biological, Social, and Behavioral Bases of Clinical Medicine*. This three-week course provides an opportunity for graduating students to come together one last time before leaving for internships and residencies, and serves to integrate basic and clinical science knowledge with the social and behavioral sciences. The course devotes one week to each of two clinical case studies, the complexity of which gradually unfolds as the week progresses. The third week includes daily workshops on the occurrence of mistakes in medicine, working with difficult patients, genomics, and professionalism. The course

employs small-group and large-group formats, and independent research with group decision making and consensus. It runs concurrently with a course led by the Emergency Medicine section, which focuses on preparatory skills for internship. This course also includes advanced training in sexuality issues, social and ethical problems in medicine, and the latest medical informatics.

#### USMLE STEP II

Passing USMLE Step I and both parts of Step II is required for graduation from Yale School of Medicine.

The written Step II exam is now called Step II Clinical Knowledge (Step II CK). Step II CK must be taken by December 31 of the final year, and it is strongly recommended that students take it early in the fourth year immediately after completing the clinical clerkships, when the information is fresh.

A clinical skills exam became part of the USMLE in mid-2004, starting with students who graduated in 2005. This new exam, Step II Clinical Skills (Step II CS), is a separate, required component of Step II and must be taken by December 31 of the final year as well; but again, it is to the student's advantage to take it as soon as possible after completing the clinical clerkships. Utilizing standardized patients, this exam is administered at regionally located centers operating year-round. Test sites include Philadelphia, Atlanta, Los Angeles, Chicago, and Houston.

The cost of Step II CK is \$455. Step II CS costs \$975, but students who may have to travel a distance and stay in a hotel the night before the exam may incur increased expenses. Students who feel that lack of money is preventing them from taking the exam should speak with the associate dean for student affairs as early as possible. Students will go to the University of Connecticut early in their fourth year to complete a standardized patient exercise similar to USMLE Step II CS. They will receive feedback on their performance, and remediation will be offered if necessary. This exercise may be completed prior to Step II CS as a way of ensuring readiness to take the exam.

#### FAILURE OF USMLE STEP II

The reason that USMLE Step II must be taken before December 31 of the fourth year is to give anyone who fails the opportunity to retake the exam and get a passing score in time to graduate. In order to be certain that students have taken it or have plans to take it before that date, proof in the form of a score or a ticket will be required before the dean's letter is sent out on November 1. Disregarding this requirement is considered an unprofessional response and may be considered by the Progress Committee in deciding whether a student has satisfactorily completed the requirements to graduate.

The names of any students who subsequently postpone their date to after December 31 will be sent to the dean. Students may have three attempts to pass Step II before being dismissed from the School of Medicine.

## Course Schedules

### FIRST YEAR

Biological Basis of Behavior

Cell Biology and Histology (component of Molecules to Systems Integrated Curriculum)

Child and Adolescent Development in the Practice of Medicine

History of Medicine is incorporated into relevant courses during the first two years

Human Anatomy and Development including Diagnostic Imaging

Human Genetics

Immunobiology

Medical Physiology (component of Molecules to Systems Integrated Curriculum)

Medicine-Based Evidence

Molecular Foundations of Medicine (component of Molecules to Systems Integrated Curriculum)

Neurobiology

Pathology

Pre-Clinical Clerkship

Professional Responsibility

Basic Life Support

### SECOND YEAR

Epidemiology and Public Health

Medical Microbiology

Pathology: Tutorials

Pre-Clinical Clerkship

Pharmacology: Mechanisms of Drug Action

Advanced Cardiac Life Support

Universal Precautions

The Modules\*

Blood/Hematology

Cardiovascular System

Clinical Neurosciences

Clinical Science of Psychiatry

Digestive Diseases

Endocrine Systems

Musculo-Skeletal System

Oncology

Ophthalmology

Renal/Urinary Tract (including Male Reproductive System)

Reproduction

Respiratory Diseases

Skin

\* Including Clinical Examination, Diagnostic Radiology, Laboratory Medicine, Pathology, Pathophysiology, and Pharmacology.

THIRD YEAR

Internal Medicine

Inpatient	8 weeks
Ambulatory	4 weeks
Surgery	10 weeks
Anesthesiology	2 weeks
Pediatrics	
Inpatient	4 weeks
Ambulatory	4 weeks
Clinical Neuroscience	4 weeks
Obstetrics, Gynecology, and Reproductive Sciences	6 weeks
Psychiatry	6 weeks

FOURTH YEAR

Primary Care	4 weeks
Integrative Clinical Medicine	3 weeks
Electives	
Research	
Thesis	

*Required Thesis*

Yale is the only medical school with a long tradition requiring a dissertation based on original research. The M.D. thesis, a requirement since 1839, is an essential part of the curriculum, designed to develop critical judgment, habits of self-education, and application of the scientific method to medicine. The thesis requirement gives students the opportunity to work closely with faculty who are distinguished scientists, clinicians, and scholars. The investigation may have its origins in basic science or in clinical, laboratory, or environmental medicine. A hypothesis must be defined, experimental methods developed, and data gathered to prove or disprove the hypothesis. Stipends are provided for summer and all other short-term research periods (four deadlines throughout the year). In addition there are many national (Howard Hughes Medical Institute, National Institutes of Health, Doris Duke Charitable Foundation, Sarnoff Foundation, American Heart Association) and Yale-sponsored one-year research fellowships available. Conduct of the research is continued during free periods in the third and fourth years and often over summer vacations. A significant percentage of students (currently 50 percent of Yale medical students) elect to take an additional year of medical school to pursue their research projects in greater depth, but this is not a requirement. These students are eligible for a joint M.D.–Master of Health Science (M.H.S.). A doctoral dissertation in the biological sciences that has previously been accepted as a part of the requirements for the Ph.D. degree may be submitted in lieu of a School of Medicine dissertation at the discretion of the director of the Office of Student Research and the Thesis Committee. Information about the thesis and research opportunities may be obtained from the Office of Student Research, 203.785.6633.

## JOINT ACADEMIC PROGRAMS

Students from the Yale School of Medicine accepted into another Yale degree program will be considered to be participating in a “Joint-Degree Program” and will receive the benefit of sharing tuition between the medical school and the other program’s school so that each program gives up a half-year of tuition. For example, a student accepted to the M.D./J.D. Program will pay three and one-half years’ tuition to the School of Medicine and two and one-half years’ tuition to the Law School, completing seven years of school in six. This arrangement holds for Yale schools only. A student wishing to create such an arrangement at a school outside of Yale must receive permission from the associate dean for student affairs at the School of Medicine and, of course, must have the consent of the other school.

School of Medicine students enrolled in a joint-degree program or in a program to obtain a degree at another school must complete three years in the School of Medicine and pass Steps I and II of the USMLE before beginning in the other program.

### *M.D./Ph.D. Program*

A limited number of highly qualified students will be admitted into the M.D./Ph.D. Program each year. Students accepted into this program have an excellent academic record and a strong motivation toward a career in academic medicine and the biomedical sciences, and will have had previous research experiences of a high caliber.

The goal of the M.D./Ph.D. Program at Yale University School of Medicine is to train physician-scientists and provide them with a broad exposure to human biology and medicine and to an in-depth and rigorous training in one of the scholarly disciplines relevant to medicine. It is expected that these individuals will develop into academic physicians capable of assuming faculty positions in either basic science or clinical departments of schools of medicine, and in these positions will provide leadership in academic medicine and in research related to medicine and human welfare.

The joint-degree program is intended for students who wish to obtain a research degree in an established Ph.D. program. Departments participating in the M.D./Ph.D. Program are Biomedical Engineering; Cell Biology; Cellular and Molecular Physiology; Chemistry; Epidemiology and Public Health; Experimental Pathology; Genetics; Immunobiology; Microbiology; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; Neurobiology; Neuroscience; and Pharmacology. Students interested in taking the joint degree in another department may do so, provided they can work out, in advance, a program that is approved by the department concerned, the director of the M.D./Ph.D. Program, the dean of the School of Medicine, and the dean of the Graduate School.

Applicants to the M.D./Ph.D. Program must be U.S. citizens or permanent residents. All applicants selected for admission currently receive support from the program for stipend, tuition, and health fees for a maximum of six years. Funding is provided largely by the Medical Scientist Training Program (MSTP), a grant provided from the National Institute of General Medical Sciences. Continuing in the program is contingent on satisfactory progress in both the School of Medicine and the Graduate School. The average

length of time students spend completing the requirements for the M.D./Ph.D. Program is seven and one-half to eight years.

#### REQUIREMENTS OF THE M.D./PH.D. PROGRAM

Students may apply to the M.D./Ph.D. Program at the time of admission to the School of Medicine or no later than mid-November of their second year of study in the M.D. program. Applications for admission are reviewed by a special committee composed of faculty members from both schools.

Candidates for M.D./Ph.D. degrees will normally begin their thesis research after completing the first four and one-half terms of the School of Medicine curriculum. For example, students usually complete a series of clinical rotations at the end of the second year of medical school which will enable them to participate in longitudinal clinical experiences during their Ph.D. years; students following this schedule are expected to affiliate with a graduate program by the beginning of the third year of the program. During the first and second years of medical school, the majority of M.D./Ph.D. students take, for credit, graduate-level courses primarily designed for them. These courses supplement the core medical school curriculum and can be applied toward the course requirements of the student's chosen Ph.D. program. The summer between the first and second years is spent in lab rotation(s), the purpose of which is to orient students in the selection of a thesis mentor and research area. However, students must request affiliation with a particular department in the Graduate School by the middle of their third year of study in the joint-degree program. Any exceptions must be approved by the director of the M.D./Ph.D. Program and the dean of the Graduate School.

A student admitted to the combined-degree program must satisfy the Graduate School Honors requirement by the end of the second year of study and must complete all remaining predissertation requirements within four terms of affiliation with the Ph.D. department. These include course requirements, teaching requirements if applicable, a departmental qualifying examination, and the submission of an approved prospectus. At that point, the student is then admitted to candidacy. Students in the M.D./Ph.D. Program must be admitted to candidacy one full year before they expect to be awarded the Ph.D. degree. An average of three to four years is spent completing the Ph.D. requirements.

The remainder of the program encompasses clinical clerkships and electives. This advanced clinical work is best incorporated in the first six months of the student's third year and the last year of the program, after the doctoral dissertation has been submitted. Only under unusual circumstances will students be allowed to take more than six months of clerkships prior to the beginning of their Ph.D. work. Students are encouraged to take at least the eight-week Internal Medicine Clerkship and one other clerkship prior to beginning their research, which will enable them to participate in outpatient clinical activities during their dissertation work.

The Ph.D. dissertation will be accepted as the thesis requirement for the School of Medicine, providing the Ph.D. degree is received before or at the same time as the M.D. degree. If the M.D. degree is to be awarded before the Ph.D., an approved thesis must be



submitted to the School of Medicine by May 1 in order to meet the School of Medicine thesis requirement for graduation. Students will be eligible for the M.D. and Ph.D. degrees providing the degree requirements for both the School of Medicine and the Graduate School have been fulfilled, usually at the end of seven years. If requirements have not been completed, additional time will be required.

### *Joint M.D.-Master of Health Science (M.D.-M.H.S.)*

Yale University School of Medicine has established a joint degree, the M.D.-Master of Health Science (M.D.-M.H.S.) for students completing a competitively funded full fifth year of research and other requirements (see below). This program was approved by the Yale Corporation in January 2006.

There are two pathways to the M.D.-Master of Health Science degree for medical students: a clinical research pathway and a laboratory/translational research pathway. The M.D.-Master of Health Science degree is centered around a fifth-year pull-out supported by a fully funded one-year medical student research fellowship at Yale (currently funded by the Doris Duke Charitable Foundation, the Howard Hughes Medical Institute-Yale Program, Yale NIH T32 grant, NIH-NIDDK fellowships, and Yale Endowment Fellowships).

The independent research project in the fifth year is the centerpiece of the M.D.-Master of Health Science degree program. In addition the following requirements apply:

1. The project mentor and a three-person thesis committee must be approved by the Office of Student Research and the M.D.-Master of Health Science Advisory Committee.
2. Additional course work is required:
  - a. Clinical research pathway—Courses: Principles of Clinical Research; Introduction to Biostatistics; Organization and Leadership; Ethical and Practical Issues in Clinical Investigation (during master's year)
  - b. Laboratory/translational research pathway—Courses: Intensive Pedagogical Experience in Techniques and Strategies for Laboratory Research or Functional Genomics in Translational Research; Organization and Leadership; Ethical and Practical Issues in Clinical Investigation (during master's year)

These courses can be taken prior to the research year or during the research year except the Ethical and Practical Issues in Clinical Investigation course and monthly seminars, which must be taken during the master's year.

3. Participation in monthly seminars, journal clubs, Leadership in Biomedicine Lecture Series and dinners, and other announced activities throughout the master's research year. Further information is available in the Office of Student Research.

### *M.D./M.P.H. Program*

Students enrolled for the M.D. degree at the Yale School of Medicine may apply to the Department of Epidemiology and Public Health for admission to a combined program leading to the degrees of Doctor of Medicine and Master of Public Health. This program

is designed for students with special interest in aspects of medicine dealing with biostatistics, epidemiology of acute or chronic disease, organization and management of health services, or aspects of preventive medicine and public health.

Normally the combined program requires five years of study. One thesis satisfies both degree requirements provided it is approved and carried out under the supervision of a faculty member of the Department of Epidemiology and Public Health and is in an appropriate subject area.

A medical student may carry out research and write a thesis under the supervision of Epidemiology and Public Health faculty without being a candidate for the combined degree.

Applications for this combined degree program are available at the EPH Office of Admissions and should be filed by February 1 of the calendar year for which admission is sought. Medical students interested in the joint-degree program should learn about the requirements of the joint program during their first year in the School of Medicine. Detailed information may be obtained from the associate dean for student affairs in the Department of Epidemiology and Public Health, from the director of medical studies in EPH, or from the associate dean for student affairs at the School of Medicine.

### *Advanced Professional M.P.H. Program*

Yale School of Public Health is pleased to initiate its new Advanced Professional M.P.H. Program, which will provide rigorous public health training to individuals with a doctoral-level degree in a field related to public health (e.g., M.D., D.V.M., D.D.S., or Ph.D. in the biological, behavioral, or social sciences) and to medical students who have completed their third year in an accredited medical school in the United States. The program is designed for mature individuals with clear goals in public health. A student can enter the program to gain skills in clinical research methodology or to prepare to be the director of a community health center, a leader in a state or local health department, or a medical officer at the Centers for Disease Control and Prevention, among other goals. Physicians in preventive medicine or occupational medicine residency programs can enter the program to complete their M.P.H. degree requirement.

The Advanced Professional M.P.H. Program will begin in early July with an intensive seven-week summer session, followed by two semesters of full-time study. Students will concentrate in one of three tracks: Applied Biostatistics and Epidemiology, Social and Behavioral Sciences, or Health Policy and Administration.

Admission to the Advanced Professional M.P.H. Program is highly competitive, as the number of seats offered is limited. Applicants are encouraged to apply early. Individuals who are interested in the program must indicate this preference, along with their preferred track, at the time of application. This program replaces our One-Year M.P.H. Program.

### *M.D./M.Div. Program*

Students who have been admitted to the Yale School of Medicine and are enrolled for the M.D. degree may apply to the Divinity School for admission to a combined program leading to the award of the degrees of Doctor of Medicine and Master of Divinity. Stu-

dents who apply to the joint M.D./M.Div. program are expected to do so at the same time that they apply to the School of Medicine or by the end of their second year at the School of Medicine in order to qualify for the special tuition arrangement. Students enrolled in the program pay three and one-half years' tuition to the School of Medicine and two and one-half years' tuition to the Divinity School.

The joint program is tailored to the individual interests and needs of those students seeking professional education and training in a theological understanding of the self, society, and work; in bioethics; in international health and missions; in relating a ministry of healing to hospice or similar patient-care facilities; in a biblical understanding of person; or in academic work in teaching, counseling, and chaplaincy.

Six years are required for the combined M.D./M.Div. Program.

### *M.D./J.D. Program*

The Yale School of Medicine has a formal relationship with the Law School to allow students to seek degrees from both schools. This can be done in six years instead of seven, as would be the case if these disciplines were studied separately. Students pay three and one-half years' tuition to the School of Medicine and two and one-half years' tuition to the Law School. Students interested in this program must confer early with the associate deans at both schools to plan curriculum and find out if they qualify for the special tuition arrangement.

Students who apply to the joint M.D./J.D. Program are expected to do so at the same time that they apply to the School of Medicine or by the end of their second year at the School of Medicine in order to qualify for the special tuition arrangement. Students must be found acceptable by both admissions committees. It is suggested that the student state on each application that he or she is applying to both schools in order to pursue the combined degree program.

### *M.D./M.B.A. Program*

The purpose of the joint-degree program in medicine and management is to develop clinician-managers capable of pursuing careers that balance delivery of patient care with sound management in a changing health-care environment. The joint-degree program normally requires five years of study and simultaneous award of the degrees of Doctor of Medicine and Master of Business Administration at the conclusion of the five-year period. A joint-degree student pays three and one-half years' tuition to the School of Medicine and one and one-half years' tuition to the School of Management, in a pattern determined in advance by the two schools. Students interested in this program must discuss their intentions with the associate deans of student affairs at both schools and with Howard P. Forman, M.D., M.B.A., director of this joint-degree program.

## EPIDEMIOLOGY AND PUBLIC HEALTH

The Department of Epidemiology and Public Health (EPH) is also an accredited school of public health where students may earn the Master of Public Health (M.P.H.) degree, and the Doctor of Philosophy (Ph.D.) and Master of Science (M.S.) degrees through the Graduate School of Arts and Sciences.

### *Master of Public Health Program*

The M.P.H. program is a two-year, twenty-course program of study. The program consists of a required core curriculum, required curricula within divisions, and electives. The purpose of the core curriculum is to ensure that students master the skills and knowledge that are fundamental to the practice of public health. The divisions admitting master's students are Biostatistics, Chronic Disease Epidemiology, Social and Behavioral Sciences, Environmental Health Sciences, Epidemiology of Microbial Diseases, Global Health, Health Policy, and Health Management.

The EPH core curriculum consists of a one-year sequence in statistical thinking and four other term courses, an internship, and a thesis or capstone course. The core courses are designed to provide skills in statistical methodology and data analysis as well as to introduce students to the breadth of the public health profession. This program ensures a solid grounding in the basic and applied sciences, and also provides students with learning experiences in the field or the laboratory. The final requirement is the thesis, except in the Health Policy and Health Management divisions, where the thesis is optional and the capstone course is a requirement.

Each of the divisions has its own required curriculum. Students are encouraged to take electives in divisions other than the one in which they are entered.

Four terms in residence are required.

Applications for the M.P.H. program are available online at [www.sophas.org/](http://www.sophas.org/). Completed applications must be submitted no later than January 15 of the calendar year for which admission is sought.

EPH requires the submission of all official undergraduate and graduate transcripts, MCAT scores, three letters of recommendation, a résumé or CV, and a personal statement as part of the application for admission.

### *Doctoral Program*

The degree of Doctor of Philosophy (Ph.D.) is offered through the Graduate School of Arts and Sciences. There are five divisions in EPH in which doctoral students may choose a specialty: Biostatistics, Chronic Disease Epidemiology, Environmental Health Sciences, Epidemiology of Microbial Diseases, and Health Policy and Administration. Four or five academic years are usually needed to complete the Ph.D. degree. All doctoral candidates must pass comprehensive examinations and design and successfully execute a dissertation prospectus, approved by a dissertation advisory committee, before being admitted to candidacy. Each candidate is required to conduct research and write a dissertation that makes an original contribution to the field. The research protocol must be approved by the doctoral committee of the department and by the Human Investigation Committee if the research uses data derived from individual human subjects or individual records. Specific guidelines and statements of academic policies are distributed to all doctoral candidates.

Preliminary inquiries should be addressed to the Director of Graduate Studies, PO Box 208034, New Haven CT 06520-8034. Application should be made to the Graduate School of Arts and Sciences, Yale University. Applications should be filed by the first

working day in January specifying interest in Epidemiology and Public Health. Admission is normally only in the fall. The GRE is required. The TOEFL is also required of foreign applicants whose native language is not English. Students may enter the program with a baccalaureate. Knowledge of a foreign language is not required for admission, although it may be needed in the course of study.

### *M.D./M.P.H. Program*

For information on the combined M.D./M.P.H. Program, see pages 135–36.

### *Epidemiology and Public Health 2007–2008 Academic Calendar*

#### FALL TERM 2007

Aug. 30	Thurs.	Orientation for incoming students begins, 9 A.M.
Sept. 4	Tues.	Orientation ends.
Sept. 5	Wed.	Registration for incoming and returning students begins, 8.30 A.M.
		<i>Fall-term classes begin.</i>
Sept. 5–19		Two-week course “shopping period.”
Sept. 19	Wed.	Course registration deadline. Late fee \$50.
Oct. 26	Fri.	Last day to withdraw from a fall-term course without the course appearing on the transcript.
Nov. 16	Fri.	Thanksgiving recess begins, 6 P.M.
Nov. 26	Mon.	Thanksgiving recess ends. Classes resume, 8.30 A.M.
Dec. 7	Fri.	Last day to withdraw from a fall-term course.
Dec. 10–14	Mon.–Fri.	Reading period.*
Dec. 17–21	Mon.–Fri.	Final examination period.

#### SPRING TERM 2008

Jan. 14	Mon.	<i>Spring-term classes begin.</i>
Jan. 14–28		Two-week course “shopping period.”
Jan. 21	Mon.	Martin Luther King, Jr. Day. No classes.
Jan. 28	Mon.	Course registration deadline. Late fee \$50.
Mar. 7	Fri.	Last day to withdraw from a spring-term course without the course appearing on the transcript.
		Spring recess begins, 6 P.M.
Mar. 24	Mon.	Spring recess ends. Classes resume, 8.30 A.M.
Apr. 25	Fri.	Last day to withdraw from a spring-term course.
Apr. 28–May 2	Mon.–Fri.	Reading period.*
May 5–9	Mon.–Fri.	Final examination period.
May 26	Mon.	University Commencement.

\* Some classes may meet during the reading period.

### *Grading Calendar*

Jan. 7	Mon.	Grades are due for all students.
May 1	Thurs.	Final Thesis grades due to registrar.
May 15	Thurs.	Thesis due to registrar.
May 19	Mon.	Grades are due for all graduating students.
May 29	Thurs.	Grades are due for all continuing students.

### THE YALE PHYSICIAN ASSOCIATE PROGRAM

The concept of a physician assistant (or Physician Associate) was first developed in 1965. Today the Physician Associate is a highly valued member of the health-care team. Physician Associates are distinguished from other advanced health-care practitioners by the extent to which they are given decision-making authority regarding patient care, diagnosis, and treatment. The twenty-seven-month Yale program, established in 1970, is committed to educating students for generalist medical practice. As of September 2006, the Yale Physician Associate Program has graduated 850 Physician Associates who are employed in a variety of settings throughout the nation. Graduates practice in rural as well as urban areas, in emergency rooms, health maintenance organizations, clinics, and solo and private practices. They possess a variety of skills, which enable them to take a medical history; perform a physical examination; diagnose illness and formulate patient treatment plans; counsel patients; perform medical procedures; and assist in surgery.

#### *Mission of the Yale Physician Associate Program*

The mission of the Yale School of Medicine Physician Associate Program is to educate individuals to become outstanding clinicians and to foster leaders who will serve their communities and advance the PA profession.

#### *Curriculum Structure and Goals of the Yale Physician Associate Program*

The program is divided into a didactic phase of twelve months and a clinical phase of fifteen months. The rigor of the studies often precludes student employment. As a result, students are encouraged to find alternate financial resources during their course of study. Tuition for the 2007–2008 academic year is \$27,010; fees and other expenses are similar to those estimated for medical students. A Master of Medical Science degree is awarded upon completion of the program.

The Didactic Phase. The first calendar year is devoted to course work in basic and clinical sciences. Courses are listed below.

Anatomy (lecture and laboratory)	Human Sexuality
Clinical Genetics	Introduction to Research
Clinical Laboratory Medicine	Introduction to Surgical Skills
Clinical Practicum	Medical Ethics
Diagnostic Imaging	Medicine and Surgery
History-Taking and Physical Examination	(includes all specialty modules)
	Medicine and the Law

Microbiology  
Pathology  
Pharmacology

Physiology  
Preventive Medicine

*The Clinical Phase.* Each student completes fourteen four-week rotations, in a variety of medical specialties, in order to acquire broad experiences in primary, emergency, and surgical care. Two additional four-week blocks during the clinical phase are reserved as research/thesis months. Ten rotations are mandatory: Internal Medicine I, Internal Medicine II, General Surgery, Primary Care I, Primary Care II, Psychiatry, Pediatrics, Obstetrics and Gynecology, Geriatrics, and Emergency Medicine. The remaining four clerkships are reserved for subspecialty electives.

Although many rotations are in the New Haven area, the experience of the student is expanded by exposure to rotations in other geographic settings. Consequently, students entering the program should expect to spend at least four weeks in areas such as New York, Kentucky, Maine, or Massachusetts. Students should be prepared to provide their own transportation and housing for all rotations away from New Haven. Students may also choose to broaden their experience by selecting rotations abroad. In the past, students have chosen clerkships in Thailand, Uganda, Costa Rica, Tanzania, and England.

In order to graduate from the program, a student must successfully complete all rotations, summative evaluation using standardized patients, and a thesis proposal. The thesis must present a rationale for the topic of study, a comprehensive literature review, and a detailed description of the methodology to be used. A Yale School of Medicine faculty adviser serves as a thesis mentor to each student.

#### MANDATORY ROTATIONS

Emergency Medicine  
General Surgery  
Geriatrics  
Internal Medicine I  
Internal Medicine II

Obstetrics and Gynecology  
Primary Care I  
Primary Care II  
Pediatrics  
Psychiatry

#### ELECTIVE ROTATIONS

Ambulatory Medicine  
Anesthesiology  
Cardiology  
Cardiothoracic Surgery  
Gastroenterology  
Hematology/Oncology  
Hospice  
Industrial and Occupational  
Medicine  
Infectious Disease  
Intensive Care  
International Medicine  
Interventional Radiology

Neonatology  
Neurology  
Neurosurgery  
Ophthalmology  
Orthopaedics  
Otolaryngology  
Pediatric Cardiology  
Plastic Surgery  
Rehabilitative Medicine  
Rheumatology  
Sports Medicine  
Trauma Surgery

### *Admission to the Yale Physician Associate Program*

The admissions process is highly selective and the competition each year is keen. Selection is based on three fundamental criteria: academic history, patient care experience, and interpersonal effectiveness. For additional information regarding admissions, please view our Web site at [www.paprogram.yale.edu](http://www.paprogram.yale.edu).

**Academic.** Students must have a baccalaureate degree prior to commencing the program. The Admissions Committee closely examines applicant records for evidence that individuals are capable of successfully completing graduate-level science work. An undergraduate science major is not required, but two semesters of biology or zoology with lab, two upper-level biology courses (one of which should be human or animal physiology), one semester of general chemistry with lab, and one semester of organic or biochemistry are prerequisites. A cumulative science grade point average of 3.0 is required. The program considers Graduate Record Exam (GRE) scores and performance in science courses as indicators of academic ability in light of applicants' past records.

**Experience.** Applicants must have some awareness of the intricacies of medical care delivery as it exists today and demonstrate their commitment to a profession that helps the sick and injured. The majority of the program's students have had one year of direct patient contact experience in a variety of health-care roles such as orderly, nurses' aide, military corpsman, nurse, surgical technician, or emergency medical technician. Experience need not be in a hospital setting.

**Interpersonal.** The program values ability to work skillfully, thoughtfully, responsibly, and constructively with people. The Admissions Committee screens applicants to determine their career commitment, interpersonal skills, and willingness to work with the supervision of a physician.

In addition to scholastic potential and interpersonal skills, applicants must have the physical capacities and personal characteristics necessary to meet the full requirements of the program's curriculum and to graduate as skilled and effective physician assistants. Policy on nonacademic considerations is outlined in our Technical Standards, which are available on the Web site.

The application deadline for the class entering in 2008 is September 1, 2007. Program information, in lieu of a printed catalogue, may be accessed on our Web site, [www.paprogram.yale.edu](http://www.paprogram.yale.edu). Applications for admission may be obtained by contacting the Centralized Application Service for Physician Assistants (CASPA) at [www.caspaonline.org](http://www.caspaonline.org). The program currently does not require a supplemental application.



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## Expenses and Financial Aid

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### TUITION AND SPECIAL FEES

Tuition for candidates for the M.D. degree (per academic year)	\$40,720
Yale Health Plan Hospitalization coverage	\$1,623*
Examination fees for candidates for the M.D. degree, United States Medical Licensing Examination:	
Step I	\$470
Step II – Clinical Knowledge	\$470
Step II – Clinical Skills	\$1,005

Student accounts, billing, and related services are administered through the Office of Student Financial Services, which is located at 246 Church Street. The telephone number is 203.432.2700.

Students must pay four full years of tuition. Students who spend five years in medical school at Yale without receiving a joint degree are billed full tuition for the first four years and a registration fee thereafter.†

Students who take a leave of absence pay a registration fee for the year(s) on leave. They pay full tuition for the four years they are in residence. If a student decides to begin his or her leave of absence in the middle of any year, he or she pays full tuition for that year and a registration fee for the following year.†

The following tuition arrangements for joint-degree programs apply only if the student is enrolled at Yale University for both degrees. It is strongly suggested that students interested in any joint program make an appointment to speak with the director of financial aid and the registrar at each school to discuss the tuition payment schedule.

Students who spend five years in the School of Medicine in order to receive an M.D./M.P.H. joint degree pay four years of full tuition to the School of Medicine. In addition, they pay half of the School of Medicine tuition to the Department of Epidemiology and Public Health during the year in which they are enrolled in EPH.

M.D./Ph.D. students pay three and one-half years' tuition to the School of Medicine and two and one-half years' tuition to the Graduate School of Arts and Sciences. If a student is in the program after six years, he or she pays a minimal registration fee to the school he or she is attending.†

Students who apply to one of the joint M.D./J.D., M.D./M.B.A., or M.D./M.Div. programs at Yale are expected to do so at the same time that they apply to the School of Medicine or by the end of their second year at the School of Medicine in order to qualify for the special tuition arrangements. Students in the M.D./J.D. Program pay three and one-half years' tuition to the School of Medicine and two and one-half years' tuition to the Law School. Students enrolled in the M.D./M.Div. Program pay three and one-half years' tuition to the School of Medicine and two and one-half years' tuition to the

\* Includes prescription coverage of \$456 (fall term, \$190; spring term, \$266).

† The student is responsible for his or her own health insurance at a cost of \$3,636 for a single student (fall term, \$1,515; spring term, \$2,121).

Divinity School. Students in the M.D./M.B.A. Program pay three and one-half years' tuition to the School of Medicine and one and one-half years' tuition to the School of Management.

If a student is asked to repeat one or more years of course work because of academic failure in curriculum requirements, he or she pays full tuition for each additional year of study.

Enrollment in courses in other schools at the University may subject the student to additional fees.

First-year students should anticipate a minimum cost of \$59,910, including tuition, for necessary expenses in an academic year. Married students and/or students with dependents have a federally established standard maintenance allowance deducted from their income.

First-year students may wish to purchase some of their equipment, such as an ophthalmoscope, which costs approximately \$750. Each medical student must have special equipment for individual courses.

All students are required to pay a \$400 Activity Fee. If a student is enrolled beyond the fourth year, a \$200 Activity Fee is charged.

Upperclassmen are reminded that they should anticipate the expenses of travel for interviews related to internship applications and also the cost of typing and binding their theses.

## STUDENT ACCOUNTS AND BILLS

Student accounts, billing, and related services are administered through the Office of Student Financial Services, which is located at 246 Church Street. The telephone number is 203.432.2700.

### *Bills*

Yale University's official means of communicating monthly financial account statements is electronically through the University's Internet-based system for electronic billing and payment, *Yale University eBill-ePay*.

Student account statements are prepared and made available twelve times a year at the beginning of each month. Payment is due in full by 4 P.M. Eastern Standard Time on the first business day of the following month. E-mail notifications that the account statement is available on the University eBill-ePay Web site ([www.yale.edu/sis/ebep](http://www.yale.edu/sis/ebep)) are sent to all students who have activated their official Yale e-mail accounts and to all student-designated authorized payers. It is imperative that all students activate and monitor their Yale e-mail accounts on an ongoing basis.

Bills for tuition, room, and board are available to the student during the first week of July, due and payable by August 1 for the fall term; and during the first week of November, due and payable by December 1 for the spring term. The Office of Student Financial Services will impose a late charge if any part of the term bill, less Yale-administered loans and scholarships that have been applied for on a timely basis, is not paid when due. The late charge will be imposed as follows:

*If fall-term payment in full is not received*      *Late charge*

by August 1		\$110
by September 1	an additional	110
by October 1	an additional	110

*If spring-term payment in full is not received*      *Late charge*

by December 1		\$110
by January 2	an additional	110
by February 1	an additional	110

Nonpayment of bills and failure to complete and submit financial aid application packages on a timely basis may result in the student's involuntary withdrawal from the University.

No degrees will be conferred and no transcripts will be furnished until all bills due the University are paid in full. In addition, transcripts will not be furnished to any student or former student who is in default on the payment of a student loan.

The University may withhold registration and certain University privileges from students who have not paid their term bills or made satisfactory payment arrangements by the day of registration. To avoid delay at registration, students must ensure that payments reach Student Financial Services by the due dates.

*Charge for Rejected Payments*

A processing charge of \$25 will be assessed for payments rejected for any reason by the bank on which they were drawn. In addition, the following penalties may apply if a payment is rejected:

1. If the payment was for a term bill, a \$110 late fee will be charged for the period the bill was unpaid.
2. If the payment was for a term bill to permit registration, the student's registration may be revoked.
3. If the payment was given to settle an unpaid balance in order to receive a diploma, the University may refer the account to an attorney for collection.

*Yale University eBill-ePay*

*Yale University eBill-ePay* is the preferred means for payment of bills. It can be found at [www.yale.edu/sis/ebep](http://www.yale.edu/sis/ebep). Electronic payments are easy and convenient—no checks to write, no stamps, no envelopes, no hassle. Payments are immediately posted to the student's account. There is no charge to use this service. Bank information is password protected and secure, and there is a printable confirmation receipt. Payments can be made twenty-four hours a day, seven days a week, up to 4 P.M. Eastern Standard Time on the due date to avoid late fees. (The eBill-ePay system will not be available when the system is undergoing upgrade, maintenance, or repair.) Students can authorize up to three authorized payers to make payments electronically from their own computers to the student's account using Yale's system.

Use of the student's own bank payment service is not authorized by the University because it has no direct link to the student's Yale account. Payments made through such services arrive without proper account identification and always require manual processing that results in delayed crediting of the student's account, late fees, and anxiety. Students should use Yale eBill-ePay to pay online. For those who choose to pay by check, a remittance advice with mailing instructions is available on the Web site.

### *Yale Payment Plan*

The Yale Payment Plan is a payment service that allows students and their families to pay tuition, room, and board in ten equal monthly installments throughout the year based on individual family budget requirements. It is administered by the University's Office of Student Financial Services. The fee to cover administration of the plan is \$100. The deadline for enrollment is June 20. For additional information, please contact Student Financial Services at 203.432.2700 and select "Press 3" from the Main Menu. The enrollment form can be found online in the Yale Payment Plan section of the Student Accounts Web site: [www.yale.edu/sfas/financial/accounts.html#payment](http://www.yale.edu/sfas/financial/accounts.html#payment).

### *Yale Charge Account Plan*

Students who enroll in the Yale Charge Account Plan will be able to charge designated optional items and services to their student accounts, including toll calls made through the University's telephone system. To enroll online, go to [www.yale.edu/sis](http://www.yale.edu/sis). Select the Login option; after logging in, select "Billing and Student Accounts," then "Charge Account Authorization."

The University may withdraw this privilege from students who do not pay their monthly bills on a timely basis. For information, contact the Office of Student Financial Services at [sfs@yale.edu](mailto:sfs@yale.edu), tel. 203.432.2700, fax 203.432.7557.

## **FINANCIAL AID**

Yale University recognizes the increasing cost of acquiring a medical education and wants students to pursue their medical studies at Yale as free of financial concerns as possible. Therefore, since the amount of funds available to the School is limited, and in order to meet the financial needs of students in a fair and equitable manner, the method for determining the financial aid for individual students is as follows.

In the spring of each year the budgets for students are established. These budgets include all projected expenses, including tuition, books and other educational supplies, microscope rental, and living expenses.

They do not include the cost of purchasing, maintaining, or insuring an automobile.

The Federal Selective Service law was amended in 1982 to provide that no student receive Title IV funds (Stafford [Subsidized and Unsubsidized]) unless he or she has executed a Statement of Registration Compliance (SRC) that either confirms that the individual has registered for Selective Service or states the reason why he or she is not required to do so. Because most of the school's financial aid awards include funds from at least one Title IV program, failure to execute a Statement of Registration Compliance

will render students ineligible for that portion of the financial aid award that would normally be provided through these programs. Students for whom this law presents special problems, and who are subject to Selective Service, should consult the financial aid officer.

All student financial assistance is need based.

The amount of the budget considered the student's responsibility is determined using the Free Application for Federal Student Aid (FAFSA) and the Need Access Application, and includes money from the student's own resources (assets, salaries, etc.), from the spouse's income, when applicable, and from a parental contribution. The difference between the amount for which the student is responsible and the basic budget constitutes the financial support for which each student is eligible.

The availability of financial aid is dependent on a student's status.

(a) Full-Time. An individual who has matriculated at this school and is pursuing a full course of studies as outlined in this catalogue is a full-time student. This includes the required basic science courses in the first and second years and the required clinical clerkship in the third year. In addition, during the fourth year the student works on and completes a required thesis, and completes an adviser-approved schedule of electives. This student is charged full tuition, and financial aid is available if the student completes all the necessary forms and a need for aid has been determined.

(b) Leave of Absence. No financial aid is available to students not attending classes or working toward the requirements of the M.D. degree at Yale or elsewhere. This student is charged a registration fee. If a student is studying at another Yale graduate or professional school, that student is charged tuition by the school he or she is attending.

(c) Extended Study. A student who is not taking a full course load but is attending at least one class at Yale, or elsewhere, and/or is doing research toward the thesis requirement. This student is charged a registration fee and is eligible for financial aid only in the form of a Stafford Student Loan. Students on leave of absence or extended study programs may have this option for only one year unless there are exceptional circumstances. Students must be back in school full time at the end of one year.

(d) Satisfactory Academic Progress. In order to be considered eligible for any type of financial assistance, a student must be in good academic standing and making satisfactory progress. At appropriate evaluation intervals, the student must be approved for continued enrollment by the Progress Committee of the School of Medicine. It is this committee's responsibility to require a student to finish incomplete work and/or complete any required remedial study prior to advancement to the next academic year. If the student fails to finish incomplete work and/or remedial study within one year, the student is not considered in good standing and is ineligible for any type of financial aid. Students are expected to complete the requirements of the M.D. degree within four years. With the approval of the Progress Committee of the School of Medicine or the Office of Student Affairs, a student may remain up to six years.

When a student is no longer in residence and has failed to complete required course work needed to receive the M.D. degree, the student's enrollment status is in absentia to submit. Failure to complete requirements includes not completing the dissertation, not

passing the USMLE Step I or Step II, or not satisfactorily completing a required clerkship. The student is not charged a tuition fee and is not eligible for any financial assistance, University services, and/or loan deferments. Once the student has completed all of the requirements for graduation, his or her name is presented to the Board of Permanent Officers and to the Yale Corporation for the awarding of the M.D. degree.

Consistent with student status, satisfactory academic progress, and available funds, the need for financial aid is met by: (1) loans, made up of monies from various loan sources, and (2) scholarship, when eligibility for financial aid is determined using a parental contribution index. This includes scholarship money supplied directly to the student from non-Yale sources. The maximum scholarship awarded to a married student never exceeds the amount calculated for a single student with no resources. The total scholarship support for all students is, of course, limited by the availability of funds. Should scholarship need exceed the supply of funds, additional loans are made available.

It is the policy of the School of Medicine to abide by the FAFSA and Need Access calculation of the student's contribution and parental contribution index.

Additional financial support in the form of loans, scholarships, or employment must be made known to the student financial aid officer and may result in a proportionate reduction of School support. If a student does not report changes, his or her financial aid file is subject to review by a Disciplinary Committee and all financial aid may be canceled and the incident reported.

Copies of all schedules of both student and parental income tax and W-2 forms or a statement of earnings for the previous fiscal year are required for all students on aid. Copies of social security benefits, unemployment compensation, and retirement benefits of both student and parents are required for all students on aid. All information is verified in accordance with federal regulations.

All information in individual student financial aid folders is strictly confidential and is used only for the purpose of determining and administering the student's aid.

It is understood that allocations of financial aid are held as binding commitments only insofar as the original data on which these allocations were based are correct.

For 2007–2008 all students who have a calculated loan need and who are U.S. citizens or permanent residents of the United States may borrow up to \$40,500 through the Stafford (Subsidized and Unsubsidized) Loan program. They may also receive a Yale Medical School loan. The combination of these loans will cover a part of their educational expenses. These loans are normally repaid over a ten-year period beginning six months after borrowers complete their education.

Students can obtain these Stafford loans from Yale University, a local bank, or other participating agencies. Perkins loans are provided to students through Yale University.

Additional information concerning educational loans available to students of the School of Medicine may be obtained from the Student Financial Aid Office, Room 202, Edward S. Harkness Memorial Hall, 367 Cedar Street, or from our Web site at [www.medfinaid.yale.edu](http://www.medfinaid.yale.edu).

## TUITION REBATE AND REFUND POLICY

On the basis of the federal regulations governing the return of federal student aid (Title IV) funds for withdrawn students, the rebate and refund of tuition is subject to the following policy.

1. For purposes of determining the refund of federal student aid funds, any student who withdraws from the School of Medicine for any reason during the first 60 percent of the term will be subject to a pro rata schedule that will be used to determine the amount of Title IV funds a student has earned at the time of withdrawal. A student who withdraws after the 60 percent point has earned 100 percent of the Title IV funds. In 2007–2008, the last days for refunding federal student aid funds will be November 1 (Years 1 and 2) or October 20 (Years 3 and 4) in the fall term; and April 10 (Year 1), May 18 (Year 2), May 12 (Year 3), or March 23 (Year 4) in the spring term.
2. For purposes of determining the refund of institutional aid funds and for students who have not received financial aid:
  - a. 100 percent of tuition will be rebated for withdrawals that occur on or before the end of the first 10 percent of the term: in 2007–2008, September 13 (Years 1 and 2) or August 29 (Years 3 and 4) in the fall term; and January 20 (Year 1), January 27 (Year 2), January 21 (Year 3), or January 15 (Year 4) in the spring term.
  - b. A rebate of one-half (50 percent) of tuition will be granted for withdrawals that occur after the first 10 percent but on or before the last day of the first quarter of the term: in 2007–2008, September 28 (Years 1 and 2) or September 14 (Years 3 and 4) in the fall term; and February 11 (Year 1), February 27 (Year 2), February 25 (Year 3), or February 4 (Year 4) in the spring term.
  - c. A rebate of one-quarter (25 percent) of tuition will be granted for withdrawals that occur after the first quarter of the term but on or before the day of midterm: in 2007–2008, October 23 (Years 1 and 2) or October 10 (Years 3 and 4) in the fall term; and March 27 (Year 1), April 27 (Year 2), April 20 (Year 3), or March 9 (Year 4) in the spring term.
  - d. Students who withdraw for any reason after midterm will not receive a rebate of any portion of tuition.
3. The death of a student shall cancel charges for tuition as of the date of death, and the bursar will adjust the tuition on a pro rata basis.
4. If the student has received student loans or other forms of financial aid, rebates will be refunded in the order prescribed by federal regulations; namely, first to the Unsubsidized Federal Stafford and/or Subsidized Federal Stafford loans, if any; next to Federal Perkins loan; then to ffEL/Graduate PLUS loans; then to Health loans (HPSL, LDS, and Primary Care); next to any other federal, state, private, or institutional scholarships and loans; and, finally, any remaining balance to the student.
5. Loan recipients (Stafford, Perkins, or Yale Student Loan) who withdraw are

required to have an exit interview before leaving Yale and should expect a mailing from Student Financial Services with instructions regarding this process.

This schedule applies only to the School of Medicine. Contact the Department of Epidemiology and Public Health and the Physician Associate Program for their schedules and policies.

## SCHOLARSHIPS

All scholarships listed below are administered by the Financial Aid Office and are awarded to students based on need and interests. Students who apply for financial aid are automatically applying for these scholarships.

**Robert Campbell Adams and Claire Adams Scholarship Fund.** Established in 1981 by bequest from the Estate of Estelle B. Spinney in memory of her sister and brother-in-law, who graduated from Yale University with the Class of 1899. Preference given to students who plan to practice in rural areas.

**The Ludwig Adler Scholarship Fund.** Established in 1981 by bequest from Hedwig (Mrs. Ludwig) Adler in memory of her husband. To be used for scholarships to needy men and women medical students.

**The Arthur N. Alling Scholarship Fund.** Established in 1986 by bequest from Helen F. Alling in memory of her father, Arthur N. Alling. To be used for scholarships for women medical students.

**The Edward Ames Scholarship Fund.** Established in 1940 by bequest from Edward Ames, M.D. 1874.

**The Waldo Avery Scholarship Fund.** Established in 1979 by Waldo Avery, B.A. 1936.

**The John Kenly Bacon Fund.** Established in 1994 by the Estate of Elsie L. Bacon in memory of her husband, John Kenly Bacon, Yale College Class of 1925, to provide scholarship assistance for worthy students attending the Yale University School of Medicine.

**The Muriel Frances Hanley Bagshaw, M.D., Scholarship.** Established in 2000 by Malcolm A. Bagshaw, M.D. 1950, in memory of his wife, to assist one or more women students enrolled in the Yale University School of Medicine.

**The Judson Bardwell, 1891 M.D., Memorial Scholarship.** Established in 1935 from a gift made in 1927 by Harry J. Bardwell, B.A. 1890, in memory of his brother.

**The Horace D. Bellis Scholarship Fund.** Established in 1966 by bequest from Horace D. Bellis, M.D. 1907. Income to be used for scholarships to worthy students in the School of Medicine.

**The Bigwood Memorial Fund.** Established in 2002 by bequest from the estate of Gertrude L. Bigwood, M.A. 1932, for student scholarships and/or loans to young students planning careers in the health care profession.



**The Eugene M. Blake Fund.** Established in 1984 in a bequest by Eugene Maurice Blake, M.D. 1906, M.S. 1929. To provide scholarship funds for the benefit of a medical student.

**M. Grant Blakeslee Memorial Scholarship.** Established in 1966 by bequest from Catherine Woodruff Blakeslee in memory of her husband, M. Grant Blakeslee, Ph.B. 1912. To be used for scholarships for worthy students in the School of Medicine.

**The Sanford G. Bluestein, M.D. 1946, Scholarship.** Established in 1996 on the occasion of his fiftieth reunion from Yale School of Medicine, to support upstanding medical students with need for financial aid.

**The Bohmfalk Scholarship Fund.** The John Frederick Bohmfalk Scholarship Fund and the Alice Bohmfalk Scholarship Fund. For students planning careers in general practice or the equivalent.

**John E. Borowy, M.D. '50, and Ruth Borowy Scholarship.** Established in 2006 by the bequest of John E. Borowy, M.D. '50, to support students in the M.D. program with demonstrated need within the School of Medicine.

**The Brace Ogilvie Financial Assistance Fund.** Established in 1997 by Donna Brace Ogilvie in honor of her husband John B. Ogilvie, B.S. 1931, M.D. 1934. The Fund supports scholarships for Yale School of Medicine students.

**The David L. Brook, Class of 1945S, M.D. 1947, Memorial Scholarship Fund.** Established in 1995 through a gift of his family upon his death. Income to be used to assist worthy medical students who are in need of financial assistance.

**The Victor Joseph Burner Scholarship in Medicine.** Established in 2003 by bequest from Victor Joseph Burner, B.A. 1959, M.D. 1965, to be awarded to any qualified students attending the Yale School of Medicine who meet the requirements for need-based financial aid.

**The Edward Thomas Calhoun Scholarship.** Established in 1928 by Lida T. Calhoun in memory of her son, Edward Thomas Calhoun, M.D. post-obit 1927. For work in pathology.

**The Ettore Ciampolini Medical Scholarship Fund.** Established in 1968 by bequest from the Estate of Helen A. Ciampolini in memory of her late husband, Ettore Ciampolini, M.D., Ph.D. 1923. Income from the fund to be awarded to a deserving male student who is in need of funds to help pay his tuition.

**The Class of 1944 Medical Student Scholarship Fund.** Established in celebration of the 50th reunion of the Class of 1944 Medicine, by all the members of the Class of 1944 Medicine. To provide scholarship assistance for the benefit of medical students.

**The Class of 1948 Scholarship.** Established by members of the Class of 1948 Medicine, in honor of their 50th reunion, to provide financial aid to outstanding medical students who demonstrate need for support.

**The Class of 1950 Endowed Scholarship Fund.** Established in 2001 by members of the Class of 1950 Medicine to provide scholarships to medical students.

**The Class of 1954 Scholarship Fund.** Established in 2004 by members of the Class of 1954 Medicine in honor of their fiftieth reunion to provide support for medical students.

**The Class of 1956 Scholarship.** Established in 2006 by members of the Class of 1956 Medicine in honor of their fiftieth reunion, for students with demonstrated need for financial aid in the M.D. program.

**The Class of 1957 Scholarship.** Established in 2007 by members of Yale School of Medicine's Class of 1957, in honor of their fiftieth reunion, to provide financial aid to outstanding medical students who demonstrate need for support.

**The Class of 1959 Scholarship Fund.** Established by members of the Class of 1959 Medicine to provide financial aid to outstanding medical students who demonstrate need for support.

**The Class of 1961 Medical School Scholarship.** Established in 2002 by members of the Class of 1961 Medicine to support medical students.

**The Class of 1967 Memorial Scholarship.** Established in 2002 by members of the Class of 1967 Medicine, in memory of their classmates.

**The Thomas J. Coleman III, M.D. and Bebette Gualano Coleman Scholarship.** Established in 2000 by Dr. and Mrs. Thomas J. Coleman III in support of scholarships for Yale medical students who plan a practice that will prohibit abortion and euthanasia.

**The Julian Czamanski Scholarship.** Established in 2002 by bequest from Julian Czamanski of Hamden, Connecticut, to be used for scholarships for students with financial need.

**The Lycurgus M. Davey Scholarship Fund.** This endowed fellowship was established in 1986 as a gift from Lycurgus M. Davey, M.D. 1943. To be used for financial aid to gifted and needy medical students.

**Edwin P. and Eleanor H. Dawson Scholarship Fund.** Established in 1971 to be used for the benefit of medical students who are in need of financial assistance.

**The Donabedian Family Term Scholarship.** Established in 2003 by Richard Kaspar Donabedian, M.D., in honor of his parents, Rose and Martin Donabedian, to support an incoming student of outstanding merit who will personify both scholarly achievement and other qualities of strong character and leadership potential.

**Franklin M. Doolittle and Frances C. Doolittle Scholarship Fund.** Established in 1959 by a gift from Franklin M. Doolittle, Ph.D. 1915. To be used to provide financial assistance to one or more needy and deserving students enrolled in the School of Medicine.

**Thomas H. and Mary Jones Drews Scholarship.** Established in 2003 by John A. Drews, M.D. 1967, in honor of his parents, to provide financial assistance each year to medical students.

**The John Sinclair Dye Memorial Scholarship.** Established in 1971 by a gift from Lucy Wade Dye in memory of her husband, Dr. John Sinclair Dye. Income to be used for scholarships to worthy students in the School of Medicine.

**The Freshwater-Class of 1972 Scholarship Fund.** Established in 1997 by a gift from M. Felix Freshwater, M.D. 1972, in honor of Donald D. Wright, B.A. 1930, Ph.D. 1933 (Chemistry), and the Class of 1972, in celebration of its twenty-fifth reunion. To provide financial aid to medical students with a preference to a graduate of Brooklyn College or a graduate of any college part of the City University of New York system.

**The Carl Gade Fund.** Established in 1955 by bequest from Carl Gade, M.D. 1910. To be used to provide assistance for needy and deserving students at the Yale University School of Medicine.

**The J. Roswell Gallagher Scholarship.** Established by J. Roswell Gallagher, Yale College Class of 1925 and Yale School of Medicine Class of 1930, to provide scholarship assistance to medical students in need.

**The John Currier Gallagher Memorial Scholarship.** Established in memory of John Currier Gallagher, Yale College Class of 1954 and Yale School of Medicine Class of 1958, by his parents and friends, to provide scholarship assistance to medical students in need.

**The Anne G. K. Garland Memorial Scholarship.** Established in 1930 by gift from William J. Garland in memory of his wife. Awarded to students in the graduate and professional schools of the university who are chosen because of their ability, character, and promise of future usefulness and the quality of their work.

**The Robert H. Gifford, M.D., Medical Scholarship.** Established in 2006 by students, colleagues, and friends of Dr. Robert H. Gifford, in honor of his retirement and to provide financial aid for outstanding medical students with the greatest need for support.

**The Maurice H. Givens Scholarship Fund.** Established in 1974 by bequest from the Estate of Maurice H. Givens, Ph.D. 1909. Income to be used to provide scholarships for financially needy second-year medical students who have excelled in biochemistry.

**Gladys Godfried Scholarship.** Established in 2006 by bequest of Milton S. Godfried, B.A. 1934, M.D. 1936, in memory of his wife, Gladys Godfried, to provide financial assistance to medical students in good standing entering the third and fourth years.

**The James Raymond Goodrich Memorial Scholarship.** Scholarships are available in the School of Medicine from the income of a university scholarship fund established in 1923 by gift from Charles Stillman, B.A. 1882, in memory of his uncle, James Raymond Goodrich, B.A. 1853.

**The Jack Peter Green, M.D. '57, Ph.D. '52, and Arlyne Frank Green Scholarship.** Established in 2007 from the estate of Jack Peter Green, '52 Ph.D., '57 M.D., and his wife to support promising M.D./Ph.D. students at Yale School of Medicine.

**The George D. Gross, M.D., Scholarship.** Established in 2004 by the Esther S. Gross Trust to support medical students interested in internal or family medicine.

**The Esther S. Gross, M.D., Scholarship.** Established in 2004 by the Esther S. Gross Trust to support medical students interested in pursuing a career in pediatrics.

**The GTE Corporation Scholarship Fund.** Established in 1986 by the GTE Corporation on behalf of GTE operating companies throughout the United States. To be used for scholarships for minority medical students.

**The Dixon Hall Scholarship Fund.** Established in 1965 by bequest of John Dixon Hall, B.A. 1881, in memory of his father, Dixon Hall, M.D. 1850. Income to be used for assistance to students or in investigation of diseases.

**The Winfred Morgan Hartshorn Memorial Scholarship Fund.** Established in 1992 by the Estate of Edith H. Woodruff in honor of her father, Winfred Morgan Hartshorn, M.D., Yale College Class of 1898, to provide scholarship assistance to medical students in need.

**The Abner Hendee Scholarship Fund.** Established in 1949 by bequest from Nellie E. Hendee in memory of her husband, Abner Hendee.

**The Muriel Hirshfield Memorial Scholarship.** Established in 1964 by a gift of Jack Hirshfield in memory of his wife. Income from this fund to be used to assist needy medical students who are residents of the state of Connecticut, with preference given to students who are residents of the greater New Haven area.

**The John A. Hooper Memorial Fund.** Established in 1952 by Sarah A. K. Hooper. Income to be used for a scholarship for a student living in the vicinity of York County, Pennsylvania. Selection of recipient is based on need, character, integrity, personality, and general ability.

**The Howey Fund.** Established in 1945 by bequest from Ennes G. Howey of New Haven. Income awarded to needy and deserving students of good standing and of high moral character.

**The Marion E. Hyde Fund.** Established in 1974 by bequest of Marion E. Hyde in memory of Charles E. Hyde, M.D. 1910. To be used for scholarships for worthy students in the Yale School of Medicine.

**The Harold W. and Helen M. Jockers Fund for Medical School Financial Aid.** Established in 1999 by Mrs. Harold Jockers in support of scholarships for Yale School of Medicine students.

**The Thomas J. Keenan, M.D., Scholarship Fund.** Established in 1997 by the bequest of Thomas J. Keenan, M.D., to provide financial aid to outstanding medical students who demonstrate the need for support.

**The Hans A. and Elizabeth R. Klagsbrunn Scholarship and Loan Fund.** Established by a bequest from Elizabeth Ramsey, M.D. 1932, and her husband, Hans A. Klagsbrunn, LL.B. 1932, for promising medical students who need financial assistance.

**The Marguerite Rush Lerner Award Fund.** Established in memory of his wife by Dr. Aaron B. Lerner, to be directed toward financial aid and awarded to a deserving student in the School of Medicine.

**The Professor Lafayette B. Mendel Scholarship Fund.** Established in 1974 by bequest from the Estate of Maurice H. Givens, Ph.D. 1909, as a memorial to Professor Mendel, whom Mr. Givens continuously admired throughout the years. Income to be used to provide scholarships for financially needy first-year medical students who have demonstrated, at the time of matriculation, a proficiency and interest in biochemistry or physiological chemistry.

**The Howard A. Minners, M.D. 1957, and Family Scholarship.** Established in December 2003 by Howard A. Minners, M.D. 1957, for students attending Yale School of Medicine.

**The Professor Ernest Mylon and Hildegard Mylon Scholarship Fund.** Established in 1984 by bequest from Peter Mylon in honor of his parents, Professor Ernest Mylon, M.D., and Hildegard Mylon. To be used for scholarships for medical students.

**The Leona R. M. Normandie Scholarship Fund.** Established in 1994 by the Estate of Leona R. M. Normandie to provide scholarship assistance to medical students.

**Julian J. Obermann Fund.** Established in 1959 by bequest from Julian J. Obermann, honorary M.A. 1935. To be used and applied, from time to time, to defray the costs of tuition and expenses of needy and deserving students in the School of Medicine and those studying in the fields of Oriental, Epigraphic, and Arabic studies in the Graduate and Divinity schools.

**The John and Jessie Ogilvie Memorial Scholarship.** Established in 1968 by gifts from John B. Ogilvie, B.S. 1931, M.D. 1934, in memory of his parents. Awarded to a medical student in the third- or fourth-year class who shows ability, character, and promise for a career in surgery.

**The Ogilvie Family (John B., B.S. 1931, M.D. 1934; John G., B.A. 1964; Donald G., B.A. 1965; Jennifer B., B.A. 1991; and Adam, B.A. 1993) Financial Aid Fund.** Established in 1989 by a gift from John B. Ogilvie. The income is to be used to assist worthy students who are in need of financial help.

**The David V. Pecora, M.D. '41, and Dorothy E. Pecora, R.N., Scholarship.** Created in 2007 from their gifts, the fund is to support students at the Yale School of Medicine.

**The Frank Elmer Phillips, M.D. 1901, Scholarship Fund.** Established in 1992 by his daughter, Anne P. Whistler, to benefit medical students in need of financial assistance.

**The Carrie T. B. Purinton Scholarship Fund.** Established in 1965 by bequest from Carrie T. B. Purinton. Income to be used for scholarship purposes in the School of Medicine.

**The Puzak-Kurtz Student Scholarship Fund.** Established in 1962 as a gift from Michael Puzak, M.D. 1942, and Mrs. Puzak (Elizabeth Kurtz, M.N. 1941).

**The Henry and Dorothea Riedel Scholarship.** Established in 2003 from the trust of Henry A. Riedel, M.D. 1943, and his wife Dorothea Riedel to benefit promising medical students.

**The Nathan E. and Hilda M. Ross Scholarship.** Established in 2002 from the trust of Nathan E. Ross, B.S. 1925, M.D. 1928, and his wife Hilda M. Ross to benefit needy medical students.

**The Dr. Salvatore Sannella and Dr. Lee Sannella Endowment Fellowship Fund.** Established in 1991 in memory of Salvatore Sannella and in honor of his son, Lee Sannella, M.D. 1940, to benefit needy medical students with preference given to those with an interest in the physiological, psychological, and spiritual qualities of the human being as described by Dr. Lee Sannella in his book *The Kundalini Experience*.

**Scholarships for Disadvantaged Students.** Established by the university to provide financial assistance to needy medical students.

**The Donald H. Sheriden Scholarship Fund.** Established in 1986 by bequest from Kathryn Whitelam Wynn in memory of her husband, Donald H. Sheriden. To be used for scholarships to needy medical students.

**The Robert S. Sherwin, M.D., Term Scholarship.** Established in 2007 by anonymous donors in honor of and appreciation to Dr. Robert S. Sherwin, in order to provide financial aid for a deserving medical student.

**The C. V. Starr Scholarship Fund.** Established in 1991 by the Starr Foundation to provide financial assistance to medical students.

**The Ruth and Milton Steinbach Scholarship Fund.** Established in 1991 through a trust by Milton Steinbach, Class of 1924S. This fund to be used to benefit needy men and women in the Epidemiology and Public Health, Medicine, and Physician Associate programs.

**The Reuben E. Thalberg Scholarship.** Awarded annually by the Reuben E. Thalberg Foundation of Southington, Connecticut, in memory of Dr. Reuben E. Thalberg, to a medical student in need of financial aid while attending the Yale University School of Medicine.

**The Charles Henry Thomas Scholarship.** Established in 1940 by Georgine H. Thomas in memory of Dr. Charles Henry Thomas, Class of 1873.

**The Lois E. and Franklin H. Top, Jr., M.D. 1961, Scholarship.** Established in 2001 by Dr. and Mrs. Top to be awarded each year to one or more medical students.

**The Joseph Hendley Townsend Scholarship.** Established in 1928 by bequest from Emily Allison Townsend in memory of her brother, Joseph Hendley Townsend, B.A. 1885,

M.D. 1887, the income to be used for the payment of tuition and other expenses of a New Haven resident.

**The Myra Tyler Student Financial Aid Fund.** Established in 1998 by the bequest of Myra D. Tyler, Class of 1950, in support of scholarships for Yale School of Medicine students.

**The Flora Adler Ullman Memorial Fund.** Founded in 1927 by gifts from Joseph C. Johnson and other friends of Flora Adler Ullman, for scholarship aid. The fund was increased in 1935 by bequest from her husband, Isaac M. Ullman.

**The Rosa Verdi Scholarship.** Established in 1927 by gift from William F. Verdi, M.D. 1894, in memory of his mother.

**The Alfred Eastman Walker Scholarship.** Established in 1951 by bequest from Frances E. Walker in memory of her brother, Alfred Eastman Walker, B.A. 1864, M.D. 1867. Income awarded to that student in the second year who has made the most satisfactory progress during the first year.

**The Bernice L. Walker Scholarship.** Established in 2005 from the Estate of Bernice L. Walker to provide support for medical students.

**The Arthur Watson Scholarship Fund.** Established in 1984 by bequest from Arthur Watson, M.D. 1942. To be used for scholarships for medical students.

**Andrew Judson White Scholarship.** Established in 1951 by Margaret White (Mrs. Chauncey S.) Truax in memory of her grandfather, Andrew Judson White, M.D. 1846, honorary M.A. 1894. Tuition aid for a student whose character, personality, and record give promise of fine professional service, and who otherwise would be unable to acquire a medical education. May be held by the same student for four years if the student remains eligible.

**The William M. Wiepert and Lucille Reed Wiepert Scholarship Fund.** Established in 1974 by a gift from an anonymous donor in honor of William M. Wiepert, B.A. 1933, M.D. 1937, and Lucille Reed Wiepert, Ph.D. 1930, M.D. 1937. Income to be used to provide scholarship aid for a financially needy student who has demonstrated scholastic achievement.

**The Dr. Amy Hunter Wilson Scholarship.** Established in 1990 by Amy Hunter Wilson, M.D. 1930, Dr.P.H. 1934, and Frederick C. Wilson to provide financial assistance to needy medical and public health students.

**The Louise Farnam Wilson Memorial Scholarship.** Established in 1955, by a gift from Mrs. Samuel Clark Harvey in memory of her sister, Louise Farnam Wilson, Ph.D. 1916. Income to be used to provide scholarship aid for a financially needy student who has demonstrated scholarship. Preference is given to a woman student.

**The Yale Club of Central New Jersey Scholarship Fund.**

**Armed Forces Scholarships** are available upon application.

## LOAN FUNDS

All loans listed below are administered by the Financial Aid Office and are awarded to students based on need and interests. Students who apply for financial aid are automatically applying for these loans.

**The Alumni Revolving Loan Fund.** Established in 1981 by gifts from alumni.

**Katharine C. Angell Revolving Loan Fund.** Established in 1982 to honor Katharine C. Angell to help recognize her contributions to the School of Medicine.

**The Jack R. Aron Loan Fund.** Established by gift in 1980 from Jack R. Aron, B.A. 1928. To be used to provide financial aid to minority students in the School of Medicine.

**The Harry J. Bardwell Loan Fund.** Established 1928 by gift from Harry J. Bardwell, B.S. 1890.

**The Leona Baumgartner Student Revolving Loan Fund.** Established in 1981 by a gift from Leona Baumgartner Langmuir, M.D. This loan is in honor of a distinguished Yale alumna, Leona Baumgartner, Ph.D. 1931, M.D. 1934.

**The William C. and Grace W. Beckert Loan Fund.** Established in 1983 by Grace W. Beckert to be used for loans to students in medicine.

**The David Challinor Student Loan Fund.** Established in 1973 by Mr. and Mrs. David Challinor to be used for student loans at the discretion of the director of student aid.

**The Class of 1922 Medical Student Loan Fund.** Established in 1922 by gifts from the Class of 1922 Medicine.

**The Class of 1923 Medical Student Loan Fund.** Established in 1923 by gifts from the Class of 1923 Medicine.

**The John Duberg Loan Fund.** Established in 1980 by gift from H. P. J. Duberg, B.A. 1930.

**Harry Gray Memorial Loan Fund.** Established in 1982 by a gift from Jesse G. Rubin, M.D. 1957, and Mrs. Rubin.

**C.S.M.S. David A. Grendon Memorial Student Loan Fund.** Established in 1972 to provide supplementary loans up to the amount of \$500. Financial need of recipient will be established in accordance with the criteria that the School of Medicine uses for determining the financial resources and needs of its students.

**Health Professions Student Loan Fund.** Established in 1964 by the Department of Health, Education, and Welfare under the Health Professions Educational Assistance Act of 1963 (as amended).

**The Howard Heinze Student Educational Fund.** Established in 1927. Income to be used to aid deserving students at the Yale School of Medicine.

**The Kaiser Loan Fund.** Established in 1980 to be used for student loans at the discretion



of the director of student aid.

**The Wood Kalb Foundation Loan Fund.** Established in 1970 as a gift from the Wood Kalb Foundation to provide loans to students of the School of Medicine.

**The Bernard L. Kartin Memorial Loan Fund.** Established in 1968 by friends and associates of Bernard L. Kartin, M.D., for loans to students in medicine.

**The W. K. Kellogg Foundation Loan Fund.** Established in 1942 by grants from the foundation, for loans to students in medicine and public health.

**The Kinney Memorial Loan Fund.** Established in 1955 by his friends in memory of Gilbert Kinney, B.A. 1905.

**The Eli Lilly Loan Fund.** Established in 1980. To be used as a revolving loan fund for the benefit of the senior medical students.

**Loans for Disadvantaged Students.** Established by the university to provide financial assistance to needy medical students.

**The George W. Merck Memorial Loan Fund.** Established in 1959 by the Merck Company Foundation in memory of George W. Merck, for loans to medical students.

**The Harry G. Moss Memorial Loan Fund.** Established in 1972 in memory of Dr. Harry G. Moss by his friends and colleagues to provide financial assistance for students in the School of Medicine, thus enabling the needy among them to complete their medical education.

**The William Herbert Ordway Memorial Fund.** Established in 1956 by Mrs. Ordway in memory of her husband, William Herbert Ordway, M.D. 1912.

**The Primary Care Loan.** Established in 1993 by the Department of Health and Human Services under the Health Professions Educational Assistance Act of 1993. To be used as a revolving loan fund to assist needy medical students interested in Primary Care Medicine.

**The Marion Leonard Robbins Loan Fund.** Established in 1962 by bequest from Marion Leonard Robbins, M.S. 1929, M.D. 1931, for loans to students in the School of Medicine.

**The Frederick W. Roberts Loan Fund.** Established in 1961 in memory of Dr. Frederick W. Roberts, Ph.D. 1920, to provide loans to needy and deserving members of the residency staff of affiliated hospitals.

**The School of Medicine Loan Fund.** A limited amount of money is available for aiding deserving students during their medical course.

**The Anson Frederick Smolowe Memorial Student Loan Fund.** Established in 1976 by Mr. and Mrs. Philip Smolowe for medical students in need of financial aid while attending the Yale University School of Medicine, in memory of their son, Anson Frederick Smolowe, B.S. 1964.

**The Wayne O. Southwick Resident Loan Fund.** Established in 1965 by gifts from an anonymous donor to provide loans to medical students in need of financial aid.

**The Phebe Vail Tate Memorial Student Loan Fund.** Established in 1956 by Dale S. Tate, B.A. 1897, in memory of his wife, Phebe Vail Tate.

**The Reuben E. Thalberg Foundation Loan Fund.** Established in 1972 by the Reuben E. Thalberg Foundation for medical students in need of financial aid while attending the Yale University School of Medicine.

**The Lewis Thorne Memorial Fund.** Established in 1956 by anonymous gifts in memory of Lewis Thorne, B.A. 1931, M.D. 1936.

**The Woods Student Loan Fund.** Established in 1955 by a grant from the Woods Charitable Fund, Inc.

**The Yale Men in Medicine Fund.** Contributions have been made since 1931 for loans to meritorious students.

## FELLOWSHIPS

**The James Hudson Brown Memorial Fund.** Established in 1944 by bequest of Marie B. C. Brown in memory of her husband. The income provides for research fellowships. The latter are open to promising investigators for pursuit of research in the medical sciences, including clinical medicine and public health. Open to holders of the M.D. or Ph.D. degree who have demonstrated their fitness to carry on original research of high order.

**The Alexander Brown Coxe Memorial Fellowships in the Biological Sciences.** Established in 1927 by a gift from the family of the late Alexander Brown Coxe, B.A. 1887. The income may be awarded annually to an investigator of promise in the comprehensive field of the biological sciences. Preference is given to university graduates who have already obtained the M.D. or Ph.D. degree and who have demonstrated their fitness to carry on original research of a high order.

**The William Harvey Cushing Memorial Fellowship.** Established in 1928 by Dr. Harvey Cushing, B.A. 1891, as a memorial to his son, William Harvey Cushing, of the Class of 1927, Yale College, for research in surgery.

**The Wilbur G. Downs, M.D., International Health Travel Fellowship.** The Committee on International Health was established by the Department of Epidemiology and Public Health in 1965. In 1984, this fellowship was named in honor of Wilbur G. Downs, M.D., M.P.H., an eminent medical scholar, renowned for his work in international health. The Committee on International Health selects students studying diseases such as malaria; the fund provides travel fare and a small stipend to students, who are asked to report on their research and experiences upon their return.

**The Mitchel Edson, M.D. 1956, International Clinical Rotation Fund.** Established in honor of his fiftieth reunion to support the travel for an international clinical rotation of

a highly motivated medical student in an underdeveloped country or a country where there is a pressing health care need.

**The John F. and Carolyn B. Enders Research Fund.** Established in 1986 by bequest from the estate of John F. Enders, Yale Class of 1919, Ph.D. and Nobel Laureate in Medicine, to support fellowships for medical research.

**The William U. Gardner Memorial Research Fund.** Established by Katherine H. Gardner in memory of her husband William U. Gardner, Ph.D., Ebenezer K. Hunt Professor of Anatomy and Professor Emeritus of Anatomy at Yale, to support research projects related to endocrinological aspects of cancer.

**The Richard K. Gershon, M.D., Student Research Fellowship.** Established in 1986 by the faculty and friends in honor of Richard K. Gershon, M.D. 1959, to support a medical student for a fifth year of medical school in order to be able to carry out research in immunology or a related discipline.

**The Gilbert H. Glaser, M.D., Postdoctoral Fellowship Fund.** Established in 1989 by the Department of Neurology, colleagues, family, and friends in honor of Gilbert Glaser, M.D., Sc.D., to support the initial year of a postdoctoral fellowship in the study of epilepsy at Yale.

**The Samuel Jordan Graham Fellowship.** Established in 1961 in memory of Judge and Mrs. Samuel Jordan Graham by the Estate of E. Norma P. (Mrs. S. J.) Graham. To be used to assist students who are pursuing postgraduate study or research in the School of Medicine, preferably those specializing in surgery.

**The James G. Hirsch, M.D., Endowed Medical Student Research Fellowship.** Established in 1988 by the Josiah Macy, Jr. Foundation as a tribute to its late president and member of the Yale Corporation, James G. Hirsch, Class of 1943S, M.D., to support medical students extending their course of study to pursue research projects from four to five years.

**The Richard Alan Hirshfield Memorial Fellowship.** Established in 1961 by Mr. and Mrs. Jack Hirshfield in memory of their son. To be awarded to a student doing research in ulcerative colitis or related diseases.

**The G.-D. Hsiung, Ph.D., Student Research Fellowship Fund.** Established in 1989 by colleagues and friends to honor Gueh-Djen Edith Hsiung, Ph.D., Professor Emeritus of Laboratory Medicine, and to provide medical students who are promising scientists with research fellowships in clinical virology and related projects in viral pathogenesis.

**The Charles Linnaeus Ives Fellowship.** Founded in 1924 by bequest from the widow of Charles Linnaeus Ives, B.A. 1852, for research in pathology.

**The Eric P. Kindwall, M.D. 1960 International Clinical Rotation Fund.** Established to support the travel for an international clinical rotation of a highly motivated medical student in an underdeveloped country or a country where there is a pressing health-care need.

**The Francis G. Kingsley Memorial Fellowships.** Established in 1986 by friends and family to honor Francis G. Kingsley, a special friend to the Yale School of Medicine. To be awarded for one to three years to young investigators at Yale whose research shows great promise.

**The Paul H. Laviertes, M.D., Summer Research Fellowship Fund.** Established in 1991 in honor of Paul H. Laviertes, B.S. 1927, M.D. 1930, former Clinical Professor of Medicine and Public Health at the Yale School of Medicine and Medical Director of Community Health Care Plan, by his friends and family. To provide significant support for summer research fellowships for promising medical students.

**The Vernon W. Lippard, M.D., Student Summer Research Fellowship in Pediatrics.** Established in 1985 by the William T. Grant Foundation to honor former dean of the Yale School of Medicine, Vernon William Lippard, M.D., Sc.D., Dean Emeritus and Professor Emeritus of Pediatrics. To be awarded annually to students working in the area of children's behavior within the Department of Pediatrics or the Child Study Center.

**Howard A. Pearson Fellowship in Pediatric Hematology/Oncology.** Established in 2000 to support fellows in pediatrics.

**George G. Posener Endowed Fellowship for Education and Training in Trauma and Surgical Critical Care.** Established in 2002 by George G. Posener as a memorial to his beloved wife, parents, four sisters, brother (Morris, Yale Class of 1938), and his two precious sons, and to honor Dr. Reuven Rabinovici of the Trauma and Surgical Critical Care Section of the Department of Surgery at the Yale School of Medicine. The fund is to educate and train residents and fellows of the Trauma and Surgical Critical Care Section of the Department of Surgery.

**The George G. and Leah E. Posener Memorial Fellowship in Hematology.** Established in 1995 by the generosity of George G. Posener in memory of his beloved wife Leah E. Posener and his brother Morris M. Posener (Yale Class of 1938) who received care at Yale-New Haven Hospital. To be awarded annually to assist financially a young physician/scientist whose research focuses on polycythemia vera and related blood diseases.

**Bertran Roberts Memorial Fund.** Originally established in 1955 by family members, friends, and colleagues, as an annual lecture in the field of psychiatry. In 1973 the family decided to use these funds not only for lectures, but also to assign summer stipends to medical students interested in field study or other projects in the field of social psychiatry.

**Leon Rosenberg Medical Student Research Fund in Genetics.** Established in 2004 by Leon E. Rosenberg, M.D., former Dean of Yale School of Medicine, to be awarded to one medical student who elects to spend a fifth year at Yale School of Medicine engaged full time in research in the Department of Genetics.

**Robert Shapiro, M.D., Memorial Fellowship in Diagnostic Radiology.** Established in 2000 to provide research support in all diagnostic interventional procedures for postdoctoral fellows in diagnostic radiology.

**The Daniel B. Stryer, M.D. 1990, Class of 1990 International Clinical Rotation Fund.** Established in memory of Daniel Stryer to support the travel for an international clinical rotation of a highly motivated medical student in an underdeveloped country or a country where there is a pressing health care need.

**The Thudichum Post-Doctoral Research Fellowship in Neuro-oncology.** Established in 2005 by Irene M. Voynick in honor of the nineteenth-century German medical practitioner and surgeon Johann Ludwig Wilhelm Thudichum (1828–1901), who characterized the chemical composition of the brain and is regarded as the pioneer of neurochemistry. This postdoctoral fellowship supports a Ph.D. or M.D./Ph.D. student for the study of brain tumors utilizing such areas as cell biology, neurochemistry, and adult stem cell research.

**The Michael S. Voynick Fellowship in Neuro-oncology.** Established in 1997 for an annual award in recognition of distinguished contributions in the field of neuro-oncology, to be presented during a symposium to promote education in such areas as oncogenesis, novel and effective therapies, and neuroscience.

**The Voynick Visiting Fellowship in Neuro-oncology.** Established in 2001 to support a visiting fellow who will engage in such investigative areas as tumor excisions and innovative therapies based on tumor cell biology and genetics.

**The Jane Danowski Weiss Family Foundation Fellowship.** Established in 2000 in memory of Dr. Thaddeus S. Danowski '36, Mr. Edwin F. Danowski (Yale studies interrupted by World War II, killed in action in 1941), and Pelagia V. Danowski Sellers. To support medical students in a fifth year of research investigations in the areas of diabetes, stroke, and heart disease.

**Susan Wolf, M.D. 1997, and William Greene, M.D., International Clinical Rotation Fund.** Established to support the travel for an international clinical rotation of a highly motivated medical student in an underdeveloped country or a country where there is a pressing health care need.

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## Honors and Prizes

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### COMMENCEMENT AWARDS, MAY 2007

**Cum laude.** The degree of Doctor of Medicine cum laude will be conferred on students whose academic performance shows unusual merit. *Karen Archabald, Nana Akua Agyei-waa Asafu-Agyei, Aaron J. Berger, Ranjit Singh Bindra, Bridget F. Collins, Farrah Mikhail Datko, Matthew C. Egalka, Christopher Michael Janson, Viral Virendra Juthani, Paul S. A. Kalanithi, Jennifer Melissa Kalish, April Robyn Levin, Robert H. McGlynn, Sally Dunne Romano, Caryn M. St. Clair, Kristen Tomiko Sueoka, Lara Kim Suh.*

**ACP Internal Medicine Award.** Awarded to a graduating student who will be entering a categorical or primary care internal medicine residency in Connecticut and has demonstrated outstanding academic achievement and community service. *Brendan R.G. Jackson.*

**Alpha Omega Alpha.** Recognizes students for their scholastic excellence, integrity, capacity for leadership, compassion, and fairness in dealing with their colleagues. *Karen Archabald, Nana Akua Agyeiwaa Asafu-Agyei, Aaron J. Berger, Sean Ryan Christensen, Farrah Mikhail Datko, Matthew C. Egalka, Lucy Emily Goddard Kalanithi, Hassana Aisha Ibrahim, Christopher Michael Janson, Paul S. A. Kalanithi, Jennifer Melissa Kalish, April Robyn Levin, Rajesh Chalamalasetty Rao, Sally Dunne Romano, Oren S. Rosenberg, Stephen L. Shiao, Kristen Tomiko Sueoka, Lara Kim Suh.*

**American Academy of Neurology Award.** Awarded to recognize graduating medical students for excellence in clinical neurology. *Mary A. Dombrowski.*

**Norma Bailey Berniker Prize.** Established in 1970 by bequest of John H. Bailey, B.A. 1900, M.D. 1903. To be awarded to members of the graduating class who, in the judgment of the faculty, give promise of best exemplifying the disciplines and precepts of the Oath of Hippocrates and Maimonides's Prayer. *Aaron J. Berger, Matthew C. Egalka, Rajesh Chalamalasetty Rao, Sally Dunne Romano, Oren S. Rosenberg, Lara Kim Suh.*

**The Campbell Prize.** Founded in 1900 by bequest from James Campbell, honorary M.A. 1891, Professor of Obstetrics and Gynecology 1886 to 1899. Awarded to the graduating student who secures the highest rank on Step 2 (Clinical Knowledge) of the National Board of Medical Examiners. *Brendan R.G. Jackson.*

**Connecticut Academy of Family Physicians Award.** Established in 1994 to recognize outstanding students entering a career in Family Practice. *Rebecca Kershner.*

**Connecticut Chapter of American College of Surgeons Prize.** Awarded to a graduating student for excellence in the surgical sciences. *Brent Earl Schultz and Aaron J. Berger.*

**The Cortlandt Van Rensselaer Creed Award.** Established in 1999 in honor of Cortlandt Van Rensselaer Creed, M.D. 1857, the first African American graduate of Yale University School of Medicine Awarded through peer nomination to a graduating, underrepre-

sented, minority student in medicine and public health who has demonstrated outstanding academic achievement, exemplary leadership, and a significant commitment to the community at large. *Karen Sarena Morris-Priester.*

**Miriam Kathleen Dasey Award.** Established in 1950 in honor of Miriam Kathleen Dasey, Registrar from 1921 to 1950. To be presented annually to students who by strength of character, personal integrity, and academic achievement give promise of fulfilling the ideal of the compassionate physician. *Rebecca Stephanie Hunter, April Robyn Levin, Maya Maxym, Oyere Kalu Onuma, Kristen Tomiko Sueoka.*

**The Dean's Prize for Community Service.** This annual award recognizes the graduating students who, by leadership and service, have made major contributions to the School of Medicine, to the New Haven community, or to the community at large. *Karen Archabald, Nana Akua Agyeiwaa Asafu-Agyei, Hristos Z. Kaimakliotis, Ahou Meydani, Karen Sarena Morris-Priester, Priya B. Shete.*

**Selma and Karl Folkers Prize in Biomedical Research.** This prize is awarded to graduating M.D./Ph.D. students whose thesis research has demonstrated excellence in basic cell and molecular biology. *Sean Ryan Christensen and Oren S. Rosenberg.*

**The Peter A. T. Grannum Prize.** Established in 1990. Awarded to outstanding African American graduates. This annual award is supported by The Shirley, Maggie and Hugh Comer Fund. *Anika Nina Watson.*

**The Norman Herzig International Fellowship.** The Norman Herzig International Fellowship named in honor of Dr. Norman Herzig is awarded to a student who has shown continuing dedication to humanitarian service throughout his or her education. *Phoebe Este Koch.*

**M.D./Ph.D. Award.** This prize is awarded to outstanding members of the graduating M.D./Ph.D. class who have shown excellence in both research and clinical activities. *Aaron J. Berger and Kristopher Thomas Kahle.*

**M.D./Ph.D. Alumni Award.** This prize is awarded to graduating M.D./Ph.D. students who have demonstrated outstanding academic achievements, leadership, and service. *Jennifer Melissa Kalish and Stephen L. Shiao.*

**Merck Book Awards.** Awarded to two outstanding graduating students. *Jason Randolph Andrews and Brian Richard Yablon.*

**New England Pediatric Society Prize.** Awarded to that member of the graduating class entering pediatrics who in the opinion of peers and faculty best exemplifies those qualities one looks for in a pediatrician. "A competent, caring, good humored person who I would want to take care of my children." *Matthew C. Egalka.*

**The Parker Prize.** Established in 1914 by bequest from Frank J. Parker, Ph.D. 1895, M.D. 1898. Awarded annually to the graduating students who, during the course, have shown the best qualifications for a successful physician, the faculty to be the judges. *Omar Rehman Chaudhary, Jana Alexandra Colton, Viral Virendra Juthani, Brent Earl Schultz.*

**The Perkins Prize.** Awarded to the student who achieves the highest rank on Step 1 of the National Board of Medical Examiners. *Russell James Hubbard Ryan.*

**The Dr. David and Arthur Schuman Award of Excellence in Family Practice.** Awarded annually to recognize a student or resident in the State of Connecticut for his or her academic excellence and contributions to the Connecticut Academy of Family Physicians and other organizations that promote understanding of the specialty of Family Medicine. *Emlyn Starr Jones.*

**The Society for Academic Emergency Medicine Award.** Awarded to the student who has demonstrated excellence in the specialty of emergency medicine. *Lauren Kendall Krause.*

**The Leonard Tow Humanism in Medicine Award Presented by The Arnold P. Gold Foundation.** Established to honor a graduating student who demonstrates the highest standard of compassion and sensitivity in his or her interaction with patients. *Bridget F. Collins.*

**Lauren Weinstein Award.** Established in 1992 in memory of Lauren Weinstein (Yale medical student 1988–1989). Given to a student who displays courage, perseverance, and compassion and has dared to reach for the best in herself or himself. *Alain Ramirez.*

#### THESIS PRIZES, MAY 2007

**The American Cancer Society Prize.** Given by the Connecticut Chapter of the American Cancer Society and awarded to a graduating student for an outstanding thesis in the area of cancer. *Bernice Yu Jing Ng.*

**The Association for Academic Surgery–Novartis Research Award.** Awarded to the senior medical student entering a surgical field, who has done outstanding research during medical school. *Alison Michelle Mares.*

**The Peter F. Curran Prize.** Established in 1976. To be presented to a graduating medical student for an outstanding thesis. Peter F. Curran was Professor of Physiology at Yale, 1967 to 1974. *Lauren Kendall Krause.*

**The Ferris Prize.** Established in 1934 and endowed in 1937 by anonymous donors in honor of Harry Burr Ferris, A.A. 1887, M.D. 1890. Awarded to a graduating student for an outstanding thesis. *Karen Archabald.*

**The William U. Gardner Thesis Prize.** Established in 1989 by Dr. Gardner's widow and awarded to the graduating student with the most outstanding thesis in the graduating class. *Brent Earl Schultz.*

**The Nicholas J. Giarman Prize.** Established in 1976. Nicholas Giarman was Professor of Pharmacology, 1949 to 1968. To be presented to a student for an outstanding thesis. *April Robyn Levin.*

**The International Health Prize.** Established in 1988 for the best thesis in the area of international health. *Jason Randolph Andrews.*



**The Keese Prize.** Established in 1880 by bequest from Mary M. Keese in memory of her son, Hobart Keese, M.D. 1855. Awarded annually to a student who presents an outstanding thesis. *Priya B. Shete.*

**The Laboratory Medicine Award.** Established in 1988 for the best thesis in the area of laboratory medicine. Sponsored by the Department of Laboratory Medicine. *Rajesh Chalamalasetty Rao.*

**The Dr. Harold H. Lampont Biomedical Research Prize.** Established in 1976. To be presented to a student for an outstanding thesis reporting original biomedical research. *Russell James Hubbard Ryan.*

**M.D./Ph.D. Thesis Prize.** This prize is for the most outstanding M.D./Ph.D. thesis. The student receiving this prize will also be asked to give a talk on Student Research Day. *Ranjit Singh Bindra.*

**The Dr. Louis H. Nahum Prize.** Founded in 1973 by bequest from Louis H. Nahum, M.D. 1916. Awarded annually to a member of the senior class of the School of Medicine, who merits such award by virtue of the excellence of the thesis which the student has written as required for the medical degree. *Paul S. A. Kalanithi.*

**The John P. Peters Prize.** Established in 1976. To be presented to a student for an outstanding thesis in the area of internal medicine. John P. Peters was Professor of Medicine at Yale, 1927 to 1955. *Bridget F. Collins.*

**The Louis G. Welt Prize.** Established in 1976. To be presented to a student for an outstanding thesis. Louis Welt was Chairman and Professor of Medicine, 1972 to 1974. *Mary A. Dombrowski.*

**The Yale Cancer Center Prize.** Yale Cancer Center established this prize in 2006 for an outstanding, original thesis in the area of cancer research. *Rebecca Stephanie Hunter.*

## STUDENT RESEARCH DAY ORAL PRESENTATIONS, MAY 8, 2007

Paul Kalanithi. *Altered Parvalbumin-Positive Neuron Distribution in Basal Ganglia of Individuals with Tourette Syndrome* (Dr. James Leckman, Child Study Center).

Rajesh Rao. *Platelet-Derived Growth Factor Enables Direct Derivation of Oligodendrocyte Progenitors from CNS Stem Cells* (Dr. Diane Krause, Laboratory Medicine).

Bernice Ng. *Chronic Inflammation-Driven Tumor Promotion Associated with CD8+ T Cells* (Dr. Michael Girardi, Dermatology).

Brent Schultz. *Epi-Genetic Abnormalities of Infantile Hemangiomas: Regulation of the IGF2/H19 Locus* (Dr. Deepak Narayan, Surgery).

Ranjit S. Bindra. *Regulation of DNA Repair in Hypoxic Cancer Cells* (Dr. Peter Glazer, Therapeutic Radiology and Experimental Pathology).

**AWARDS TO FACULTY AND HOUSE STAFF, MAY 2007**

**The Francis Gilman Blake Award.** Established in 1952 by Nu Sigma Nu. Endowed by Dr. Robert C. Kirk, B.S. 1930, as a memorial to his twin brother, Dr. Gilman D. Kirk, B.S. 1930. Awarded annually to that member of the faculty of the School of Medicine designated by the senior class as the most outstanding teacher of the medical sciences. *Hal Blumenfeld, M.D., Ph.D., Associate Professor of Neurology, Neurobiology, and Neurosurgery.*

**Bohmfolk Prizes.** Established in 1989 under the terms of the Alice Bohmfalk Charitable Trust. Prestigious teaching prizes will be awarded annually to individuals who have made outstanding contributions to the teaching program, one in the basic sciences and one in the clinical sciences, as judged by the faculty and students. *Basic Science: Fred Gorelick, M.D., Professor of Medicine (Digestive Diseases) and Cell Biology. Clinical Sciences: Jessica Illuzzi, M.D., Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences.*

**The Alvan R. Feinstein Award.** Presented to a Yale University School of Medicine faculty member chosen as the outstanding teacher of the year of clinical skills by a committee of chairs of the clinical departments, associate chairs and students. *Leo M. Cooney, Jr., M.D., Humana Foundation Professor of Geriatric Medicine.*

**The Leah M. Lowenstein Award.** Presented annually by the Office for Women in Medicine and by the graduating class, to that member of the faculty who most clearly represents the highest degree of excellence in the promotion of humane and egalitarian medical education. *Vincent Quagliarello, M.D., Professor of Medicine (Infectious Diseases), and Karen Santucci, M.D., Associate Professor of Pediatrics (Emergency Medicine).*

**The Leonard Tow Humanism in Medicine Award Presented by The Arnold P. Gold Foundation.** Established in 1998 to honor the faculty member who demonstrates the highest standard of compassion and sensitivity in his or her interaction with patients. *Majid Sadigh, M.D., Associate Professor of Medicine (General Medicine).*

**The Betsy Winters House Staff Award.** Established by the Fourth Year Class and presented annually to that member of the House Staff of the Yale-New Haven Medical Center, designated by the Fourth Year Class, who has made the most significant contribution to the education of medical students. *Damani Piggot, M.D., Ph.D.*

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## General Information

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### HUMAN RELATIONS CODE OF CONDUCT

Yale University School of Medicine is committed to the promotion of personal and professional development of all individuals in its community, and encourages dialogue that will foster the growth, well-being, and dignity of all its members. In pursuit of these goals, the School is dedicated to maintaining an environment which places the highest priority on collegial relationships, mutual respect, and sensitivity among its students, faculty, staff, and patients. An educational community functions best when there is civility and respect for the dignity and worth of each individual. It must be ensured that the School is free from discrimination and acts of intolerance such as those based on race, gender, sexual orientation, religion, national origin, ancestry, age, or physical handicap. This commitment remains consonant with the obligation to protect open and wide-ranging public discourse. The principle of freedom of expression that might otherwise protect even the most offensive public speech does not protect, nor does it even encompass, a right to threaten the dignity and privacy of an individual. Such personally directed behavior will not be tolerated; it is antithetical to academic values, debilitates its victims, compromises the offenders, and undermines the University's fundamental commitment to individual freedom and respect for all its members. Furthermore, acts of intolerance may destroy the very atmosphere wherein freedom of expression is otherwise tolerated and cherished.

### GRIEVANCE PROCEDURES

The expectation at Yale School of Medicine is that all members of the community will conduct themselves professionally and respectfully. The following statement has been issued by the Association of American Medical Colleges (AAMC) regarding institutional standards of behavior in the learning environment:

The medical learning environment is expected to facilitate students' acquisition of the professional and collegial attitudes necessary for effective, caring, and compassionate health care. The development and nurturing of these attitudes is enhanced and, indeed, based on the presence of mutual respect between teacher and learner. Characteristic of this respect is the expectation that all participants in the educational program assume their responsibilities in a manner that enriches the quality of the learning process.

While these goals are primary to a school's educational mission, it must be acknowledged that the social and behavioral diversity of students, faculty, residents, and staff, combined with the intensity of the interactions between them, will, from time to time, lead to alleged, perceived, or real incidents of inappropriate behavior or mistreatment of individuals.

At Yale, there are several mechanisms in place to deal with such incidents, as follows.

### *Sexual Harassment*

Sexual harassment is not tolerated at Yale Medical School. During orientation in the first year and again early in the third year before starting clinical rotations, students have mandatory training sessions in sexual harassment and assault.

#### THE SEXUAL HARASSMENT AND ASSAULT RESOURCES AND EDUCATION (SHARE) CENTER

The SHARE Center is located at the Yale Health Services Center and has a director on staff to deal with problems around sexual assault. There is a sexual assault response line (432.6653) available twenty-four hours a day, seven days a week in the event of a crisis or the need for information on how to proceed in the event of an assault. Students who are the victims of sexual harassment or assault may feel stunned, afraid, disoriented or stigmatized and will need help and advice about making decisions. That help is available at all times. Web site: [www.yale.edu/yuhs](http://www.yale.edu/yuhs) (Under Information, link to SHARE Center). The Web site provides additional, detailed information about sexual assault, how to get help, possible steps to take, availability of medical, legal and psychological care, additional resources, as well as basic information and facts, definitions, and beliefs about sexual assault.

#### DEAN'S BOARD ON SEXUAL HARASSMENT

The "grievance procedures for complaints of sexual harassment brought by Faculty, Students, and Postdoctoral Fellows at Yale University School of Medicine" define sexual harassment, include a formal policy statement condemning it, provide for the appointment of a Dean's Board on Sexual Harassment, urge mediation and conciliation, stress confidentiality, describe informal and formal methods of dealing with complaints, list possible sanctions, consider protection from retaliation, and note alternative channels for redress. Copies of these procedures and the names of the members (including student representation) of the Dean's Board on Sexual Harassment are listed on the Web site: [www.info.med.yale.edu/owm](http://www.info.med.yale.edu/owm) (Click on Sexual Harassment Policy). Medical students may consult any of the members of the board informally, or may opt to bring a formal complaint.

#### SEXUAL ASSAULT

Sexual assault is defined as any undesired physical contact of a sexual nature perpetrated against another person. While associated with rape, sexual assault is much broader. According to the U.S. Department of Health and Human Services, sexual assault is any type of sexual activity that you do *not* agree to, including:

- Inappropriate touching
- Vaginal, anal, or oral penetration
- Rape/sexual intercourse that you say "no" to
- Rape
- Attempted rape
- Child molestation

Sexual assault and rape can be perpetrated by a date, a friend, an acquaintance, a family member, someone in authority, or a stranger. Sexual assault happens to both men and women regardless of race, class, religion, sexual orientation, age, and ability. Perpetrators of sexual assault can also be a man or woman from any race, class, religion, sexual orientation, age, and ability.

The above information is taken from materials put together by SHARE, Sexual Harassment and Assault Resources and Education. SHARE, which runs out of the Yale Health Plan, can be contacted twenty-four hours a day. Weekdays between the hours of 8:30 A.M. and 5 P.M., calls to 203.432.6653 will be answered by mental health professionals. After hours, between 5 P.M. and 8:30 A.M. and on weekends, calls to that number will be connected to the sexual assault crisis line. If you have been sexually assaulted, you should call that number as soon as possible and follow instructions about what to do next. The Web site is: [www.yale.edu/yuhs](http://www.yale.edu/yuhs) (Under Information, link to SHARE Center).

### *Racial and Ethnic Harassment*

The Committee on Multicultural Affairs chaired by the assistant dean for multicultural affairs was created to combat racial and ethnic insensitivity and harassment throughout the School of Medicine. Vigorous steps are taken to investigate any allegation, to counsel the offender, and to recommend disciplinary action, if necessary. In addition, any student, employee, or applicant for programs or employment at Yale who is concerned about affirmative action, equal opportunity, sexual harassment, racial harassment, or fairness in admissions or employment at Yale, either in a general sense or with respect to his or her own situation, is encouraged to contact the Office for Equal Opportunity Programs. The Web site is [www.yale.edu/equalopportunity/](http://www.yale.edu/equalopportunity/). A student who believes that he or she has been harassed on the basis of race, religion, or ethnic origin by any member of the Yale community can file a complaint with one of the University's human relations counselors, who will investigate the complaint. If a resolution has not been achieved and the student wishes to pursue the complaint further, he or she may request the President's Committee on Racial and Ethnic Harassment to consider the matter.

### *Student Mistreatment, Abuse, and Harassment Peer Advocates*

In addition to the above mechanisms for addressing harassment, there is a peer-advocate program. Two Peer Advocates are named by students in the second year, third year, fourth year, and fifth year; one Peer Advocate is named from the M.D./Ph.D. program, and one from the Physician Associate program. Peer Advocates' names and beeper numbers are distributed to the student body on laminated cards that can be carried in the student's ID sheath and be consulted at all times. Students are encouraged to consult any of the Peer Advocates regarding issues of mistreatment, abuse, and harassment or to reality-check about incidents that they find disturbing or concerning. The Peer Advocates, who can be accessed anonymously if desired, are trained each year in a session with the director of mental health services for the Yale Health Plan. Those problems that need a higher level of attention are brought to the advisory committee, which is made up of all the Peer Advocates as well as the director of mental health services, the assistant dean for

multicultural affairs, the ombudsperson, the associate dean for graduate medical education, several respected faculty, and the associate dean for student affairs. Confidentiality is assured to the extent covered by law. Peer Advocates are available for thinking through options and helping the student decide on different levels of attention to a problem. Action can range from merely noting the problem to taking it to the department chair and the dean of the medical school. It is important to note that Peer Advocates are not mental health counselors, but they are trained in how to get help to a student who needs mental health services. Any members of the advisory committee may be contacted directly by a student.

### *Power Day*

Issues of abuse of power as experienced by students at all levels are made the topic of discussion at Power Day I, before the students in the third year start their clinical rotations, and again at Power Day II near the end of the third year. These discussions are held throughout the clinical year in the departments of Internal Medicine, Pediatrics, Obstetrics and Gynecology, and Surgery.

### *Provost's Procedure for Students' Complaints*

This procedure governs any case in which a student has a complaint including but not limited to a complaint of sexual harassment or a complaint of discrimination on the basis of race, sex, color, religion, national or ethnic origin, or handicap against a faculty member who is not a member of the faculty of the complainant's school, or against an employee who is not an administrator of the student's school or who is not subject to discipline by the student's dean. This procedure is to be used for all complaints of discrimination on the basis of handicap where structural modifications of University facilities is the remedy sought.

### *Progress Committee*

The Progress Committee is made up of approximately twelve highly respected faculty members from different departments. The registrar and deputy dean for education are ex-officio members, and the committee is chaired by the associate dean for student affairs. These faculty members are thoughtful and fair individuals who have a deep interest in the well-being of students. The committee has monthly scheduled meetings to review the progress of students, to decide whether each student should progress into the next year, and to consider special situations and disciplinary actions, but special and emergency meetings throughout the year may be called as well. Each student's record is reviewed for academic standing, moral and ethical character, professional behavior, good judgment, a sense of responsibility, sensitivity and compassion for individual needs, the ability to synthesize and apply knowledge, and emotional stability, demonstrating that the student is capable of becoming a safe and effective physician. The committee may take into account the academic record of the student, performance on board exams, letters and reports regarding incidents of unprofessional behavior, and personal testimony.

If, in the opinion of the Progress Committee, a student should repeat a course or a year, take a year's leave of absence for special study, be suspended or be dismissed, the student will be notified in writing of the decision. A student who is put on academic probation or suspension will be advised in writing what must be done to get off academic probation or suspension or the consequences of not progressing satisfactorily over a specified timeline. A student may also be suspended for behavior deemed unprofessional or unethical. The student will be notified in writing of the reason for the suspension, what must be accomplished during the suspension, and when and on what conditions the suspension will terminate. A student having academic or professional problems being considered by the Progress Committee, may be asked to choose or be assigned a neutral faculty advocate who has no responsibility for evaluating or promoting that student. The role of this person is to be available to the student for advice and to keep the student on track. Language regarding disciplinary action taken regarding a student may appear in the student's dean's letter. If a student protests the decision of the Progress Committee, he or she may petition a hearing of the committee and may appear alone, with a member or members of the faculty, or with legal counsel. Legal counsel at these meetings is for the purpose of support only. Final decisions of the Progress Committee may be appealed directly to the dean of the School of Medicine.

When a question arises which cannot wait for the next full meeting of the Progress Committee, an emergency meeting may be called, a subcommittee may be convened, or members of the Progress Committee may be polled for their opinions by phone or e-mail.

Students requesting to take more than five years to complete medical school (more than six years for a joint-degree student in business or public health, more than seven years for a joint-degree student in law), must petition the Progress Committee in writing.

## RESIDENCE AND DINING FACILITIES

### *Edward S. Harkness Memorial Hall*

Harkness Hall, located only steps away from the School of Medicine and Yale-New Haven Hospital, houses students from the School of Medicine, the School of Nursing, and the Epidemiology and Public Health and Physician Associate programs. Residents of Harkness Hall live in a secure building with recently renovated single rooms, and they have access to many amenities including computer network access in all units. Yale administrative offices occupy the first through third floors of the building. The great advantages of living in Harkness Hall are its close proximity to classes, and the opportunity it provides in bringing together students from the various medical-related fields in a relaxed social setting.

Accommodations include single rooms with sinks, a limited number of two-room suites, a popular dining hall, television lounges, kitchenettes, and other recreational rooms. All dormitory rooms are furnished, and all rooms must be single occupancy. Dormitory room rental rates are \$4,640 to \$6,450 during the 2007–2008 academic year

(August 2007 to May 2008). All rents include Ethernet hook-up, cable television, and all utilities except telephone. A meal plan is mandatory for all residents of Harkness Hall.

The first floor houses a dining and lounge area, known as Marigolds, which is open to the Yale community and provides both intimate and large gathering spaces for socializing, reading, watching television, and other activities. A Steinway baby-grand piano is also available for residents. The building contains limited resident storage including a bike storage area, an exercise/weight room, a billiard room, and a laundry room. The Class of 1958 Fitness Center, which opened during the 1999–2000 school year, contains a wide assortment of cardiovascular and weight training equipment. All medical, public health, physician associate, and nursing students are welcome to use this Center, where Student ID card scanners provide access. There is no fee for Harkness residents. All medical center program students can use the gym on a fee basis. All users are required to register for gym membership.

For information about Edward S. Harkness Memorial Hall, contact the Graduate Housing Office at 203.432.2167; or the Web site, [www.yale.edu/gradhousing/Dorms/harkness.html](http://www.yale.edu/gradhousing/Dorms/harkness.html). For information about other Yale graduate residences, consult the Graduate Housing Office's Web site at [www.yale.edu/gradhousing](http://www.yale.edu/gradhousing).

### *Dining Services*

Marigolds, at the School of Medicine, is the popular student dining area and gathering place located in Edward S. Harkness Hall. Marigolds is open from 7:30 A.M. until 7 P.M., Monday through Friday, and it offers continental breakfast, lunch, and dinner. Dining hours are shortened during summer and vacation periods. Faculty members, students, and staff are welcome to dine at the dining hall on an à la carte basis.

Those living in Harkness dormitory are required to participate in a meal plan. The rate for the 2007–2008 academic year is \$2,964 per year for dormitory residents. The meal plan is a debit-balance system allowing students to spend their board points anytime that the dining room is open. Pricing is à la carte.

All first- and second-year medical students living off campus will be assessed a mandatory off-campus board fee of \$494 per year. This dining charge was initiated to encourage all medical students to socialize in the Harkness Student Center, regardless of whether they live in the dormitory.

## HEALTH SERVICES FOR STUDENTS

Yale University Health Services (YUHS) is located on campus at 17 Hillhouse Avenue. YUHS offers a wide variety of health care services for students and other members of the Yale community. Services include student medicine, gynecology, mental health, pediatrics, pharmacy, laboratory, radiology, a twenty-three-bed inpatient care facility (ICF), a round-the-clock urgent care clinic, and such specialty services as allergy, dermatology, orthopedics, and a travel clinic. YUHS also includes the Yale Health Plan (YHP), a health coverage option that coordinates and provides payment for the services outlined above, as well as for emergency treatment, off-site specialty services, inpatient hospital



care, and other ancillary services. YUHS's services are detailed in the YHP Student Handbook, available through the YHP Member Services Department, 203.432.0246, or on the YHP Web site at [www.yale.edu/yhp](http://www.yale.edu/yhp).

### *Eligibility for Services*

All full-time Yale degree-candidate students who are paying at least half tuition are enrolled automatically for YHP Basic Coverage. YHP Basic Coverage is offered at no charge and includes preventive health and medical services in the departments of Student Medicine, Internal Medicine, Gynecology, Health Education, and Mental Hygiene. In addition, treatment for urgent medical problems can be obtained twenty-four hours a day through Urgent Care.

Students on leave of absence or on extended study and paying less than half tuition are not eligible for YHP Basic Coverage but may enroll in YHP Student Affiliate Coverage. Students enrolled in the Division of Special Registration as nondegree special students or visiting scholars are not eligible for YHP Basic Coverage but may enroll in the YHP Billed Associates Plan and pay a monthly premium. Associates must register for a minimum of one term within the first thirty days of affiliation with the University.

Students not eligible for YHP Basic Coverage may also use the services on a fee-for-service basis. Students who wish to be seen fee-for-service must register with the YHP Member Services Department. Enrollment applications for the YHP Student Affiliate Coverage, Billed Associates Plan, or Fee-for-Service Program are available from the YHP Member Services Department.

All students are welcome to use specialty and ancillary services at YUHS. Upon referral, YHP will cover the cost of these services if the student is a member of YHP Hospitalization/Specialty Coverage (see below). If the student has an alternate insurance plan, YHP will assist in submitting the claims for specialty and ancillary services to the other plan and will bill through the Office of Student Financial Services for noncovered charges and services.

### *Health Coverage Enrollment*

The University also requires all students eligible for YHP Basic Coverage to have adequate hospital insurance coverage. Students may choose YHP Hospitalization/Specialty Coverage or elect to waive the plan if they have other hospitalization coverage, such as coverage through a spouse or parent. The waiver must be renewed annually, and it is the student's responsibility to confirm receipt of the waiver form by the University's deadlines noted below.

#### **YHP HOSPITALIZATION/SPECIALTY COVERAGE**

For a detailed explanation of this plan, see the *YHP Student Handbook*, which is available online at [www.yale.edu/yhp/pdf/studenthb.pdf](http://www.yale.edu/yhp/pdf/studenthb.pdf).

Students are automatically enrolled and charged a fee each term on their Student Financial Services bill for YHP Hospitalization/Specialty Coverage. Students with no break in coverage who are enrolled during both the fall and spring terms are billed each

term and are covered from September 1 through August 31. For students entering Yale for the first time, readmitted students, and students returning from a leave of absence who have not been covered during their leave, YHP Hospitalization/Specialty Coverage begins on the day the dormitories officially open. A student who is enrolled for the fall term only is covered for services through January 31; a student enrolled for the spring term only is covered for services through August 31.

*Waiving the YHP Hospitalization/Specialty Coverage:* Students are permitted to waive YHP Hospitalization/Specialty Coverage by completing a waiver form that demonstrates proof of alternate coverage. Waiver forms are available from the YHP Member Services Department. It is the student's responsibility to report any changes in alternate insurance coverage to the YHP Member Services Department. Students are encouraged to review their present coverage and compare its benefits to those available under the YHP. The waiver form must be filed annually and must be received by September 15 for the full year or fall term or by January 31 for the spring term only.

*Revoking the Waiver:* Students who waive YHP Hospitalization/Specialty Coverage but later wish to be covered must complete and send a form voiding their waiver to the YHP Member Services Department by September 15 for the full year or fall term, or by January 31 for the spring term only. Students who wish to revoke their waiver during the term may do so, provided they show proof of loss of the alternate insurance plan and enroll within thirty days of the loss of this coverage. YHP premiums will not be prorated.

#### YHP STUDENT TWO-PERSON AND FAMILY PLANS

A student may enroll his or her lawfully married spouse or same-gender domestic partner and/or legally dependent child(ren) under the age of nineteen in one of two student dependent plans: the Two-Person Plan or the Student Family Plan. These plans include services described in both the YHP Basic Coverage and the YHP Hospitalization/Specialty Coverage. YHP Prescription Plus Coverage may be added at an additional cost. Coverage is not automatic and enrollment is by application. Applications are available from the YHP Member Services Department or can be downloaded from the YUHS Web site ([www.yale.edu/yhp](http://www.yale.edu/yhp)) and must be renewed annually. Applications must be received by September 15 for full-year or fall-term coverage, or by January 31 for spring-term coverage only.

#### YHP STUDENT AFFILIATE COVERAGE

Students on leave of absence or extended study or students paying less than half tuition may enroll in YHP Student Affiliate Coverage, which includes services described in both the YHP Basic and the YHP Hospitalization/Specialty Coverage. Prescription Plus Coverage may also be added for an additional cost. Applications are available from the YHP Member Services Department or can be downloaded from the YUHS Web site ([www.yale.edu/yhp](http://www.yale.edu/yhp)) and must be received by September 15 for full-year or fall-term coverage, or by January 31 for spring-term coverage only.

## YHP PRESCRIPTION PLUS COVERAGE

This plan has been designed for Yale students who purchase YHP Hospitalization/Specialty Coverage and student dependents who are enrolled in either the Two-Person Plan, the Student Family Plan, or Student Affiliate Coverage. YHP Prescription Plus Coverage provides protection for some types of medical expenses not covered under YHP Hospitalization/Specialty Coverage. Students are billed for this plan and may waive this coverage. The waiver form must be filed annually and must be received by September 15 for the full year or fall term or by January 31 for the spring term only. For a detailed explanation, please refer to the *YHP Student Handbook*.

### *Eligibility Changes*

*Withdrawal:* A student who withdraws from the University during the first ten days of the term will be refunded the premium paid for YHP Hospitalization/Specialty Coverage and/or YHP Prescription Plus Coverage. The student will not be eligible for any YHP benefits, and the student's YHP membership will be terminated retroactive to the beginning of the term. The medical record will be reviewed, and any services rendered and/or claims paid will be billed to the student on a fee-for-service basis. At all other times, a student who withdraws from the University will be covered by YHP for thirty days following the date of withdrawal or to the last day of the term, whichever comes first. Premiums will not be prorated or refunded. Students who withdraw are not eligible to enroll in YHP Student Affiliate Coverage.

*Leaves of Absence:* Students who are granted a leave of absence are eligible to purchase YHP Student Affiliate Coverage during the term(s) of the leave. If the leave occurs during the term, YHP Hospitalization/Specialty Coverage will end on the date the leave is granted and students may enroll in YHP Student Affiliate Coverage. Students must enroll in Affiliate Coverage prior to the beginning of the term during which the leave is taken or within thirty days of the start of the leave. Premiums paid for YHP Hospitalization/Specialty Coverage will be applied toward the cost of Affiliate Coverage. Coverage is not automatic and enrollment forms are available at the YHP Member Services Department or can be downloaded from the YUHS Web site ([www.yale.edu/yhp](http://www.yale.edu/yhp)). Premiums will not be prorated or refunded.

*Extended Study or Reduced Tuition:* Students who are granted extended study status or pay less than half tuition are not eligible for YHP Hospitalization/Specialty Coverage and YHP Prescription Plus Coverage. They may purchase YHP Student Affiliate Coverage during the term(s) of extended study. This plan includes services described in both the YHP Basic and the YHP Hospitalization/Specialty Coverage. Coverage is not automatic and enrollment forms are available at the YHP Member Services Department or can be downloaded from the YUHS Web site ([www.yale.edu/yhp](http://www.yale.edu/yhp)). Students must complete an enrollment application for the plan prior to September 15 for the full year or fall term, or by January 31 for the spring term only.

For a full description of the services and benefits provided by YHP, please refer to the *YHP Student Handbook*, available from the YHP Member Services Department, 203.432.0246, 17 Hillhouse Avenue, PO Box 208237, New Haven CT 06520-8237.

### *Required Immunizations*

*Measles (Rubeola) and German Measles:* All students who were born after December 31, 1956, are required to provide proof of immunization against measles (rubeola) and German measles (rubella). Connecticut state law requires two doses of measles vaccine. The first dose must have been given after January 1, 1969, *and* after the student's first birthday. The second dose must have been given after January 1, 1980. These doses must be at least 30 days apart. Connecticut state law requires proof of one dose of rubella vaccine administered after January 1, 1969, *and* after the student's first birthday. The law applies to all students unless they present (a) a certificate from a physician stating that such immunization is contraindicated, (b) a statement that such immunization would be contrary to the student's religious beliefs, or (c) documentation of a positive blood titer for measles and rubella.

*Meningococcus (Meningitis):* All students living in on-campus housing must be vaccinated against Meningococcal disease. The vaccine must have been received after January 1, 2001. Students who are not compliant with this law will not be permitted to register for classes or move into the dormitories for the fall term, 2007. Please note that the State of Connecticut does not require this vaccine for students who intend to reside off campus.

In addition to University requirements, all School of Medicine students must also meet immunization requirements of the various hospitals in which they will work. Yale-New Haven Hospital requires that, before beginning any clinical work, all students with negative serology be successfully vaccinated against hepatitis B and must ascertain that students are immune to polio, mumps, rubeola, rubella, and varicella. Those refusing the hepatitis B vaccine must do so in writing at the time of matriculation. Students must show evidence that they have received a tetanus toxoid or tetanus-diphtheria booster within the past ten years. They must also show evidence of a PPD within the past year, or a chest X-ray for individuals known to be PPD positive.

*Note:* Students who have not met these requirements prior to arrival at Yale University must receive the immunizations from YHP and will be charged accordingly.

Any students who will be traveling abroad should make an appointment in the Travel Clinic at YUHS at least six to eight weeks prior to departure. In addition, those who are working in areas where they might encounter blood or fluid exposure must contact the Student Medicine Department (432.0312) at YHP. Such students will be given a seven-day supply of antiretroviral medication at no charge. They will also receive instructions about how to handle possible exposure.

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## DISABILITY INSURANCE

Yale University School of Medicine provides a long-term disability program for each active medical student starting in the first year. (A student may not be on a leave of absence, suspended, or In Absentia to Submit.) Coverage applies regardless of any prior medical condition. During medical school, premiums are paid in full by the School. The policy provides options for expanding coverage after leaving the School of Medicine, but premiums then become the responsibility of the insured. Sign-up takes place during orientation in the first week of the first year. Representatives from the insurance company are present to explain and answer questions about the policy. They also make themselves available for an exit interview before graduation to discuss continuation of coverage after leaving medical school.

## MEDICAL CENTER SECURITY

Yale University has its own police force, and at least one officer patrols the Medical Center twenty-four hours a day. At strategic times, two officers patrol a wider area. The officers are in police uniform, are armed, and have full police powers similar to New Haven police officers. The Yale University Security Programs Department is located at 100 Church Street South. The Central Alarm Station at that location monitors all alarms and cameras in the School of Medicine area. Security personnel have radio and telephone communications with all area police and fire departments. Security officers in the Yale department provide a variety of services including checking IDs; parking enforcement; building patrol; monitoring closed circuit television (CCTV) and alarm systems; providing escorts; providing “lock-out” service for individuals locked out of their room, lab, or office; and offering general assistance to Medical Center personnel and the general public.

The Security Department provides walking and vehicle escorts twenty-four hours a day, seven days a week for the School of Medicine area and central campus. Uniformed security officers radio the Security Central Alarm Station at the beginning and end of each escort and communicate any problems/unusual situations that may occur.

There are over one hundred security officers employed by the University Security Department. Their role is to provide high visibility, and to observe and report potential problems to the security dispatcher and Yale University Police.

University security officers carry two-way radios for communication. Security personnel respond to a variety of situations on campus and notify the proper police agency when necessary. The officers currently wear a white uniform shirt with a Yale security patch on each shoulder, dark blue trousers, and a dark blue tie. Each security officer wears a numbered shield over his or her left breast pocket. The University Security Department can be reached twenty-four hours a day at 785.5555.

Yale-New Haven Hospital also has a security force. They check IDs at hospital entry points, patrol the interior and exterior of hospital property, and provide contractual security services at the Air Rights Garage and the Yale School of Nursing.

There are emergency telephones in the Medical Center. Yale emergency telephones are designated by a blue light above the telephone and are for use by anyone to get quick police assistance. All outside doors are locked or attended at all times.

## THE YALE JOURNAL OF BIOLOGY AND MEDICINE

The *Yale Journal of Biology and Medicine* publishes original contributions in all fields of medicine, the fields of biology that are related to medicine, and the history and teaching of these subjects. Four issues a year are published electronically under the editorial direction of a board of students and faculty members. The *Yale Journal of Biology and Medicine* is the oldest scientific journal in the country that has medical and graduate students on its editorial board. Student editors are chosen each year from the students of the School of Medicine and the Combined Program in the Biological and Biomedical Sciences. It affords students the opportunity to review and edit scientific articles for publication. Manuscripts on a wide variety of topics in basic and clinical sciences are received from authors around the world.

## SPECIAL SUPPORT SERVICES

### *Office for Women in Medicine*

The Office for Women in Medicine (OWM) serves as a focal point for a variety of concerns, both general and specific, within the School and the University. The OWM provides women students, house staff, and faculty access to advisers and mentors and facilitates access by students to professional women in an informal setting. Throughout the year, the office sponsors workshops and seminars on professional development and career opportunities for women in medicine and the sciences that address the broader concerns of women and men in the medical community. These programs are designed to provide an area for interchange, to increase the visibility of women in medicine, to introduce women at Yale School of Medicine to a spectrum of role models, to provide access to notable speakers, and to serve as a forum for relevant issues. The very existence of OWM demonstrates Yale's strong commitment to women and to the creation of a milieu where women at all levels (from beginning students to senior staff and faculty) can develop to full potential.

### *Office of the Ombudsperson*

The Office of the Ombudsperson is a neutral, safe, and confidential place where persons can bring issues with which they are concerned. The ombudsperson serves as a neutral complaint-handler who attempts to insure that people are treated fairly and equitably. Any matter in the Yale School of Medicine community may be discussed with the ombudsperson. Discussions are not limited in scope and all are held in strict confidence. The ombudsperson has broad powers of inquiry to resolve conflicts and solve problems through mediation, informal third-party intervention, and shuttle diplomacy. The Office of the Ombudsperson supplements, but does not replace, the existing resources

for conflict resolution and fair practice available at the Yale School of Medicine. The ombudsperson follows no prescribed sequence of steps and does not participate in any formal grievance process; the function is to listen, advise, suggest options, make recommendations, and investigate informally with the goal of conflict resolution; to consider all sides of an issue; to remain neutral and impartial; and to protect confidentiality. The only exception to this privilege of confidentiality is where there appears to be imminent risk of serious harm. Discussions with the ombudsperson do not constitute formal notice to the School or University.

### *Office of Multicultural Affairs*

The Office of Multicultural Affairs (OMCA) organizes and administers programs and initiatives designed to serve and advance the professional, social, and academic goals of students and faculty underrepresented in medicine. The office is actively involved in the recruitment and retention of students, house staff, fellows, and faculty. Through a number of educational programs, the OMCA works to increase sensitivity to and awareness of issues important to equitable health care in our multicultural society. The office provides outreach support to assist the New Haven school system in educating high school students for future careers in science and health care. The OMCA also administers yearly summer academic enrichment and research programs for college students. The OMCA works in conjunction with such medical student groups as the Student National Medical Association (SNMA), Boricua/Latino Health Organization (BLHO), Asian Pacific American Health Students Association (APAHSa), Native Americans@Yale Med, and Lambda Health Alliance. Assistant Dean Forrester A. Lee, M.D., heads the office. The contact person is the assistant director, Linda V. Jackson, 367 Cedar Street, Suite 320, New Haven CT 06511; telephone, 203.785.7545; fax, 203.737.5507; e-mail, [omca@yale.edu](mailto:omca@yale.edu); Web site, <http://info.med.yale.edu/omca>.

### *Computing at the School of Medicine*

Students who need help with computing resources may contact the ITS Help Desk Monday–Friday from 7 a.m. to 9 p.m. (785.3200, [helpdesk@yale.edu](mailto:helpdesk@yale.edu)) or visit the Computing and Media Center Monday–Friday from 9 a.m. to 5 p.m. (in IE 90 SHM).

The Medical Library offers seventy-one public computers for use in the Information Room and the Computer Resources Laboratory (CRL) (<http://info.med.yale.edu/library/technology/computers.html>). Both facilities contain Windows and Macintosh computers. All computers have access to the Internet and many have access to productivity software such as Microsoft Office and EndNote and other tools including desktop publishing software, statistical software (SAS), database management software, programming languages, and medical education software. Each computer is equipped with common browser plug-ins, such as Adobe Acrobat Reader, Quicktime, Real Player, Shockwave, Flash, and Windows Media Player. All run Norton Antivirus.

All computers are equipped with CD “burners” and DVD-ROMs. Select computers have DVD “burners.” All computers have USB ports for personal USB portable storage devices.

The Medical Library offers two scanning stations at the CRL Digital Imaging Center. One scanner is attached to a Dell GX260 running Windows. The other is attached to an Apple Power Mac G5.

Access to these “productivity” workstations requires a Medical Center NetID. The CRL is open for use twenty-four hours a day (with a Yale ID after library hours); the reference area computers are available during library hours.

The Yale Wireless network is available throughout the Medical Library to registered wireless devices. Library patrons may bring their own laptops to the library and may connect to the the Yale network via wired Ethernet laptop stations or via the Yale Wireless network. Full details are available at [www.med.yale.edu/library/technology/laptopsinlibrary.html](http://www.med.yale.edu/library/technology/laptopsinlibrary.html).

The Circulation Desk lends a variety of electronic devices, such as external USB Zip drives, wireless network pc cards, two digital cameras, and a digital video camera. This equipment may be lent to anyone with a valid Yale ID. The Medical Library offers a laptop computer loaner program for Medical Center students.

Computer facilities at the Anlyan Center include five teaching laboratories, each equipped with eight iMac computers for students and one for instructors. This facility allows small-group teaching and interactive use of online resources such as the virtual microscope. The gross anatomy laboratory in the Anlyan Center is also equipped with forty computers to provide online anatomy reference resources to complement traditional dissection.

All students can use their own personal computers at a variety of public, library, or teaching space locations that are equipped with wireless network access. Wireless coverage maps are available at <http://its.med.yale.edu/wireless>. Students in Harkness Dormitory can use their personal computers in the dorm, which is fully networked.

Yale has negotiated agreements with computer vendors enabling students to buy computers (IBM, Dell, or Apple), supplies, and software at discounted prices. The University provides online ordering through its e-portal, [www.yale.edu/eportal](http://www.yale.edu/eportal). Students who are interested in buying a personal computer, or who simply want advice and information on personal computers or software packages and how to order them, can consult the staff of the Computing and Media Center in IE90 Sterling Hall of Medicine. Hours are Monday through Friday from 9 A.M. until 5 P.M.

For more information on student computing resources, see [http://its.med.yale.edu/academic\\_resources/students](http://its.med.yale.edu/academic_resources/students).

### *ID Policy*

A picture ID is issued when a student registers for the first year. Twice a year a student is asked to reregister in the Office of Student Affairs where he or she receives an updated sticker for the ID card for the fall and spring/summer terms. Should the ID be lost, a replacement fee is required and another picture may be taken at the Office of Security and Parking, in SHM CE1B, and another ID processed. This ID should be worn visibly at all times while in the Medical Center.



### *Card Key Access Policy*

Each student receives a picture ID card which opens all perimeter doors to the School of Medicine, as well as some interior connector doors, when he or she registers for the first year. Students in their third year and beyond completing clinical rotations are given ID card access to the Yale-New Haven Hospital card readers. Malfunctioning or accidentally damaged cards are replaced at no charge. Lost, stolen, or deliberately damaged cards are replaced at a fee of \$20 for cards with gate and building access capability and \$5 for other cards.

### *Parking*

Bicycle parking is available in secured bicycle cages, and keys are available from Yale-New Haven Hospital security. Limited automobile permit parking is available to all Yale faculty, staff, and students in two garages. Off-peak parking (nights and weekends) is also available in designated lots to Yale personnel by application to the Office of Security and Parking.

### *Shuttle Bus Service*

For personnel with a Yale ID, free shuttle bus service is provided on weekdays around the University on a fixed route, to the railroad station, and to various parking lots. In addition, a free shuttle service runs between the VA Connecticut Healthcare System, West Haven, and the School of Medicine on weekdays. There is also a free minibus/night shuttle within designated areas of New Haven seven nights a week from 6 p.m. until 7 a.m.

## UNIVERSITY RESOURCES

Two sources of information about the broad range of events at the University are the *Yale Bulletin & Calendar (YB&C)*, a newspaper printed weekly during the academic year, and the Yale Calendar of Events, an interactive calendar that can be found online at <http://events.yale.edu/opa>. The YB&C, which also features news about Yale people and programs, is available without charge at many locations throughout the campus and is sent via U.S. mail to subscribers; for more information, call 203.432.1316. The paper is also available online at [www.yale.edu/opa/yb&c](http://www.yale.edu/opa/yb&c).

The Yale Peabody Museum of Natural History contains collections in anthropology, mineralogy, oceanography, paleontology, and some aspects of geology.

The Yale University Art Gallery is known worldwide for its collections of American art, the Jarves Collection of early Italian paintings, the finds excavated at the ancient Roman city of Dura-Europos, the Société Anonyme Collection of early-twentieth-century European and American art, and most recently the Charles B. Benenson Collection of African art. The Gallery is both a collecting and an educational institution, and all activities are aimed at providing an invaluable resource and experience for Yale University faculty, staff, and students, as well as for the general public.

The Yale Center for British Art houses an extraordinary collection of British paintings, sculpture, drawings, and books given to the University by the late Paul Mellon, Yale Class of 1929.

There are more than eighty endowed lecture series held at Yale each year on subjects ranging from anatomy to theology, and including virtually all disciplines.

More than four hundred musical events take place at the University during the academic year. These include concerts presented by students and faculty of the School of Music, the Department of Music, the Yale Concert and Jazz bands, the Yale Glee Club, the Yale Symphony Orchestra, and other undergraduate singing and instrumental groups. In addition to graduate recitals and ensemble performances, the School of Music features the Philharmonia Orchestra of Yale, the Chamber Music Society at Yale, the Duke Ellington Series, the Horowitz Piano Series, New Music New Haven, Yale Opera performances and public master classes, and the Faculty Artist Series. The Institute of Sacred Music sponsors Great Organ Music at Yale, the Yale Camerata, the Yale Schola Cantorum, and numerous special events.

For theatergoers, Yale and New Haven offer a wide range of dramatic productions at the University Theatre, Yale Repertory Theatre, Yale Cabaret, Long Wharf Theatre, Palace Theater, and Shubert Performing Arts Center.

The religious resources of Yale University serve all students, faculty, and staff. These resources are the University Chaplaincy (located on the lower level of Bingham Hall on Old Campus); the Yale University Church at Battell Chapel, an open and affirming church; and Yale Religious Ministry, the on-campus association of clergy and nonordained representatives of various religious faiths. The ministry includes the Chapel of St. Thomas More, the parish church for all Roman Catholic students at the University; the Joseph Slifka Center for Jewish Life at Yale, a religious and cultural center for students of the Jewish faith; Indigo Blue: A Center for Buddhist Life at Yale; several Protestant denominational ministries and nondenominational ministries; and student religious groups such as the Baha'i Association, the Yale Hindu Council, and the Muslim Student Association. Additional information is available at [www.yale.edu/chaplain](http://www.yale.edu/chaplain).

The Payne Whitney Gymnasium is one of the most elaborate and extensive indoor athletic facilities in the world. This complex includes the 3,100-seat John J. Lee Amphitheater, the site for many indoor varsity sports contests; the Robert J. H. Kipphuth Exhibition Pool; the Brady Squash Center, a world-class facility with fifteen international-style courts; the Adrian C. Israel Fitness Center, a state-of-the-art exercise and weight-training complex; the Brooks-Dwyer Varsity Strength and Conditioning Center; the Colonel William K. Lanman, Jr. Center, a 30,000-square-foot space for recreational/intramural play and varsity team practice; the Greenberg Brothers Track, an eighth-mile indoor jogging track; and other rooms devoted to fencing, gymnastics, rowing, wrestling, martial arts, general exercise, and dance. Numerous physical education classes in dance (ballet, jazz, modern, and ballroom), martial arts, yoga and pilates, aerobic exercise, and sport skills are offered throughout the year. Yale undergraduates and graduate and professional school students may use the gym at no charge throughout the year. Academic term and summer memberships at reasonable fees are available for faculty, employees, postdoctoral and visiting fellows, alumni, and student spouses.

During the year various recreational opportunities are available at the David S. Ingalls Rink, the McNay Family Sailing Center in Branford, the Yale Outdoor Education Center in East Lyme, the Yale Tennis Complex, the Yale Polo and Equestrian Center, and the Golf Course at Yale. Students, faculty, employees, students' spouses, and guests of the University may participate at each of these venues for a modest fee. Up-to-date information on hours and specific costs at all these recreational facilities can be obtained from the Sport and Recreation Office (203.432.1431). Please check the Yale Athletics Web site (<http://yalebulldogs.collegesports.com>) for more information concerning any of these recreational facilities and programs.

Approximately fifty-five club sports and outdoor activities come under the jurisdiction of the Office of Outdoor Education and Club Sports. Many of these activities are open to graduate and professional school students. Yale faculty, staff, and alumni, and nonaffiliated groups may use the Yale Outdoor Education Center (OEC). The center consists of two thousand acres in East Lyme, Connecticut, and includes overnight cabins and campsites, a pavilion and dining hall, and a waterfront area with a supervised swimming area, rowboats, canoes, and kayaks. Adjacent to the lake, a shaded picnic grove and gazebo are available to visitors. In another area of the property, hiking trails surround a wildlife marsh. The OEC season extends from the third weekend in June through Labor Day and September weekends. For more information, telephone 203.432.2492 or visit the Web page at <http://yalebulldogs.collegesports.com> (click on Sports Rec, then on Outdoor Education).

Throughout the year, Yale University graduate and professional school students have the opportunity to participate in numerous intramural sports activities. These seasonal, team-oriented activities include volleyball, soccer, and softball in the fall; basketball and volleyball in the winter; softball, soccer, and volleyball in the spring; and softball in the summer. With few exceptions, all academic-year graduate-professional student sports activities are scheduled on weekends, and most sports activities are open to competitive, recreational, and coeducational teams. More information is available from the Intramurals Office in Payne Whitney Gymnasium, 203.432.2487, or online at <http://yalebulldogs.collegesports.com>.

## A GLOBAL UNIVERSITY

In a speech entitled "The Global University," Yale President Richard C. Levin declared that as Yale enters its fourth century, its goal is to become a truly global university—educating leaders and advancing the frontiers of knowledge not simply for the United States, but for the entire world:

The globalization of the University is in part an evolutionary development. Yale has drawn students from outside the United States for nearly two centuries, and international issues have been represented in its curriculum for the past hundred years and more. But creating the global university is also a revolutionary development—signaling distinct changes in the substance of teaching and research, the demographic characteristics of students, the scope and breadth of external collaborations, and the engagement of the University with new audiences.

Yale University's goals and strategies for internationalization are described in "The Internationalization of Yale: The Emerging Framework," a document that embraces the activity of all parts of the University. The report is available online at [www.world.yale.edu/pdf/Internationalization\\_of\\_Yale.pdf](http://www.world.yale.edu/pdf/Internationalization_of_Yale.pdf).

International activity is focused and coordinated in several University organizations.

Inaugurated in 2003–2004, the *Office of International Affairs* serves as an administrative resource to support the international activities of all schools, departments, offices, centers, and organizations at Yale; to promote Yale and its faculty to international audiences; and to increase the visibility of Yale's international activities around the globe. Web site: [www.yale.edu/oia](http://www.yale.edu/oia).

The *Whitney and Betty MacMillan Center for International and Area Studies* is the University's principal agency for encouraging and coordinating teaching and research on international affairs, societies, and cultures; [www.yale.edu/macmillan](http://www.yale.edu/macmillan).

*Yale Center for the Study of Globalization* draws on the rich intellectual resources of the Yale community, scholars from other universities, and experts from around the world to support teaching and research on the many facets of globalization, while helping to enrich debate through workshops, conferences, and public programs; [www.ycsg.yale.edu](http://www.ycsg.yale.edu).

*Office of International Students and Scholars* (OISS); [www.oiss.yale.edu](http://www.oiss.yale.edu). See the description below.

*Yale World Fellows Program* hosts twelve to eighteen Fellows from outside the United States each year for a term of concentrated study and close contact on the Yale campus; [www.yale.edu/worldfellows](http://www.yale.edu/worldfellows).

For additional information, the "Yale and the World" Web site is a compilation of resources for international students, scholars, and other Yale affiliates interested in the University's global initiatives: <http://world.yale.edu>.

## OFFICE OF INTERNATIONAL STUDENTS AND SCHOLARS

The Office of International Students and Scholars (OISS) coordinates services and support to Yale's international students, faculty, staff, and their dependents. OISS assists members of the Yale international community with all matters of special concern to them and serves as a source of referral to other university offices and departments. OISS staff provide assistance with employment, immigration, personal and cultural adjustment, and family and financial matters, as well as serve as a source of general information about living at Yale and in New Haven. In addition, as Yale University's representative for immigration concerns, OISS provides information and assistance to students, staff, and faculty on how to obtain and maintain legal status in the United States, issues the visa documents needed to request entry into the U.S. under Yale's immigration sponsorship, and processes requests for extensions of authorized periods of stay, school transfers, and employment authorization. All international students and scholars must register with OISS as soon as they arrive at Yale, at which time OISS will provide information about orientation activities for newly arrived students, scholars, and family members. OISS programs, like the international coffee hours, Community Friends hosting program,

daily English conversation groups and conversation partners program, U.S. culture workshops, and receptions for newly arrived graduate students, postdocs, and visiting scholars, provide an opportunity to meet members of Yale's international community and become acquainted with the many resources of Yale University and New Haven. OISS welcomes volunteers from the Yale community to serve as hosts and as English conversation partners. Interested individuals should contact OISS at 203.432.2305.

OISS maintains an extensive Web site ([www.oiss.yale.edu](http://www.oiss.yale.edu)) with useful information for students and scholars prior to and upon arrival in New Haven. As U.S. immigration regulations are complex and change rather frequently, we urge international students and scholars to visit the office and check the Web site for the most recent updates.

International students, scholars, and their families and partners can connect with OISS and the international community at Yale by subscribing to the following e-mail lists. *OISS-L* is the OISS electronic newsletter for Yale's international community. *YaleInternational E-Group* is an interactive list through which over 3,000 international students and scholars connect to find roommates, rent apartments, sell cars and household goods, find companions, and keep each other informed about events in the area. Spouses and partners of international students and scholars will want to get involved with the organization called International Spouses and Partners at Yale (ISPY), which organizes a variety of programs for the spouse and partner community. The *ISPY E-Group* is an interactive list of over 300 members to connect spouses, partners, and families at Yale. To subscribe to any list, send a message to [oiss@yale.edu](mailto:oiss@yale.edu).

Housed in the International Center for Yale Students and Scholars at 421 Temple Street, the Office of International Students and Scholars is open Monday through Friday from 8:30 A.M. to 5 P.M., except Tuesday, when the office is open from 10 A.M. to 5 P.M.

## INTERNATIONAL CENTER FOR YALE STUDENTS AND SCHOLARS

The International Center for Yale Students and Scholars, located at 421 Temple Street, across the street from Helen Hadley Hall, offers a central location for programs that both support the international community and promote cross-cultural understanding on campus. The center, home to OISS, provides a welcoming venue for students and scholars who want to peruse resource materials, check their e-mail, and meet up with a friend or colleague. Open until 9 P.M. on weekdays, the center also provides office and meeting space for student groups, and a space for events organized by both student groups and University departments. In addition, the center has nine library carrels that can be reserved by academic departments for short-term international visitors. For more information, call 432.2305 or visit the center at 421 Temple Street.

## RESOURCE OFFICE ON DISABILITIES

The Resource Office on Disabilities facilitates accommodations for undergraduate and graduate and professional school students with disabilities who register with and have appropriate documentation on file in the Resource Office. Early planning is critical. Documentation may be submitted to the Resource Office even though a specific accommodation request is not anticipated at the time of registration. It is recommended that

matriculating students in need of disability-related accommodations at Yale University contact the Resource Office by June 30. Special requests for University housing need to be made in the housing application. Returning students must contact the Resource Office at the beginning of each term to arrange for course and exam accommodations.

The Resource Office also provides assistance to students with temporary disabilities. General informational inquiries are welcome from students and members of the Yale community and from the public. The mailing address is Resource Office on Disabilities, Yale University, PO Box 208305, New Haven CT 06520-8305. The Resource Office is located in William L. Harkness Hall (WLH), Rooms 102 and 103. Access to the Resource Office is through the Cross Campus entrance to WLH. Office hours are Monday through Friday, 8.30 A.M. to 4.30 P.M. Voice callers may reach staff at 203.432.2324; TTY/TDD callers at 203.432.8250. The Resource Office may also be reached by e-mail ([judith.york@yale.edu](mailto:judith.york@yale.edu)) or through its Web site ([www.yale.edu/rod](http://www.yale.edu/rod)).

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## Departments and Sections

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This section provides information for all departments and some sections in the School of Medicine. Each listing provides a roster of faculty, fellows, and associates, as well as descriptions of courses.

Courses designated a meet in the fall term only. Courses designated b meet in the spring term only. Courses enclosed in brackets are not offered in the current academic year.

## ANATOMY AND EXPERIMENTAL SURGERY

(Section of the Department of Surgery)

*Office:* TAC N322B, 785.2814

### *Associate Professors*

L. J. Rizzolo (Director of Medical Studies), W. B. Stewart (Section Chief)

### *Lecturers*

H. Briggs, S. Ghofrany, S. E. Kapadia

**Anatomy 103, Principles of Human Anatomy and Development.** This course, designed specifically for first-year medical students, provides an opportunity to dissect or observe all structures of the human body. Lectures, conferences, models, radiology, and Web-based curriculum materials are included. Four students are assigned to each cadaver; students work on different regions simultaneously. W. B. Stewart and staff.

**Anatomy 104a/b, Special Dissections in Anatomy.** A laboratory designed to meet the needs of individual students. Any part of the cadaver may be dissected. Each student is assigned an anatomist and/or clinical specialist to act as consultant(s). Prerequisite: Anatomy 103. Staff.



## ANESTHESIOLOGY

Office: TMP 3, 785.2802

### *Professors*

P. G. Barash, F. R. Braveman, J. G. Collins, J. Ehrenwerth, R. L. Hines (*Chair*), Z. Kain, L. M. Kitahata (*Emeritus*), C. J. Kopriva (*Emeritus*), R. H. LaMotte, P. L. Miller (*Medical Informatics*), T. H. Oh, A. C. Perrino, T. D. Rafferty, S. H. Rosenbaum, W. Rosenblatt, K. J. Ruskin, R. N. Shiffman (*Pediatrics*), D. G. Silverman, R. S. Sinatra

### *Associate Professors*

C. A. Brandt (*Medical Informatics*), S. Garwood, T. M. Halaszynski, K. Haspel, B. C. McClain, G. F. McCloskey, L. E. Niklason, C. D. Rinder, J. J. Schwartz, K. H. Shelley, N. Vadivelu, S. Wang

### *Assistant Professors*

S. Akhtar, G. Ang, R. T. Aouad, J. F. Arthur, C. Cantemir, J. H. Chung, S. Dabu-Bondoc, D. Freyle, D. J. Gaal, T. J. Golembeski, G. W. Grass, A. S. Haddadin, L. E. Helgeson, K. Hernandez, A. Herrera, M. J. Higgins, N. F. Holt, D. H. Jablonka, S. Khan, V. J. Kurup, A. M. Lobo, S. M. Luczycki, I. Maranets, L. N. Marengo (*Medical Informatics*), K. E. Marschall, H. Mikhaeil, R. K. Modak, W. C. Popescu, M. Punjala, R. Ramani, R. M. Romero, H. Saadat, N. Saidi, V. Salgar, R. C. Schoenfelder, C. B. Spencer, R. G. Stout, H. E. Tantawy, A. K. Thung, I. Vaitkeviciute, D. W. Vaughn, J. M. Watkins-Pitchford, Q. Zhu

### *Instructors*

M. Anwar, W. C. Popescu

### *Research Scientist*

F. G. Sayward (*Medical Informatics*)

### *Associate Research Scientists*

S. J. Frawley (*Medical Informatics*), Z. Gong, N. Liu (*Medical Informatics*), C. Ma, M. A. Shifman (*Medical Informatics*)

### *Associate Clinical Professors*

K. S. Chung, L. P. Kirschenbaum, B. Kosarussavadi, A. L. Mandel, E. K. Prokop, S. B. Stone, A. D. Weinstock

### *Assistant Clinical Professors*

S. I. Assaad, C. Ayoub, P. A. Blume (*Orthopaedics and Rehabilitation*), M. K. Ghori, M. Lomanto, R. G. Steadman, J. A. Wagner, L. Wang, K. T. Watson, J. C. Weinberg

### *Clinical Instructors*

E. T. Cortland, M. Dudley

### *Lecturers*

A. M. Deshpande (*Medical Informatics*), T. J. Handler (*Medical Informatics*), B. Kaplan (*Medical Informatics*), P. G. Thomas

**Anesthesiology 103, Clinical Clerkship.** Full-time clinical clerkship for students. Students are assigned throughout the year to Yale-New Haven Hospital for introduction to clinical anesthesiology, including preoperative evaluation of patients, selection of anesthetic technique, and administration of anesthetics under supervision. Perioperative medicine, airway management, monitoring techniques, clinical pharmacology, and physiology are emphasized. J. Schwartz, S.Akhtar, V. Kurup.

**Anesthesiology 104, Advanced Clinical Clerkship.** Four-week elective, full-time clinical clerkship throughout the year (except July and August) for two students. Individualized program of instruction in anesthesia subspecialties, including cardiovascular, neurosurgical, obstetrical, and pediatric anesthesia. J. Schwartz, S.Akhtar, V. Kurup.

**Anesthesiology 141, Clinical Research.** One or two students—hours arranged. Participation in ongoing research by departmental faculty involving clinical responses to drugs affecting cardiopulmonary and central nervous systems. The development of individual research projects is also encouraged. D. Silverman et al.

**Anesthesiology 142, Basic Research within Anesthesiology.** One or two students—hours arranged. Focuses on cardiovascular tissue engineering and on mechanical characteristics of native and engineered vascular structures. General research projects involve the culturing of implantable engineered arteries and the development of microvasculature in vitro. L. Niklason.

## CELL BIOLOGY

Office: SHM C207, 785.4320

### *Professors*

N. W. Andrews (*Microbial Pathogenesis*), R. Baron (*Orthopaedics and Rehabilitation*), M. J. Caplan (*Cellular and Molecular Physiology*), L. Cooley (*Genetics*), P. Cresswell (*Immunobiology*), P. De Camilli, S. S. Ferro-Novick, J. E. Galan (*Microbial Pathogenesis*), F. Gorelick (*Medicine*), J. D. Jamieson (*Acting Chair*), T. L. Lentz (*Emeritus*), H. Lin, V. T. Marchesi (*Pathology*), I. S. Mellman, M. S. Mooseker (*Molecular, Cellular, and Developmental Biology*), M. H. Nathanson (*Medicine*), P. J. Novick, G. E. Palade (*Emeritus*), T. D. Pollard (*Molecular, Cellular, and Developmental Biology*), J. K. Rose (*Pathology*), E. Ullu (*Medicine*), S. L. Wolin

### *Associate Professors*

C. Hashimoto, G. Miesenboeck, K. M. Reinisch

### *Assistant Professors*

J. S. Bogan (*Medicine*), P. A. Takizawa, D. K. Toomre

### *Senior Research Scientist*

T. L. Lentz

### *Research Scientist*

M. Pypaert

### *Associate Research Scientists*

O. E. Bloom, X. Chen, L. Gong, A. Jiang, C. Qiu, C. Rahner, A. Satoh, L. Volpicelli-Daley, B. Zemelman

**CBIO 502a/b, Molecules to Systems.** This full-year course is designed to provide medical students with a current and comprehensive review of biologic structure and function at the cellular, tissue, and organ system levels. Areas covered include replication and transcription of the genome; regulation of the cell cycle and mitosis; protein biosynthesis and membrane targeting; cell motility and the cytoskeleton; signal transduction; nerve and muscle function; and endocrine and reproductive cell biology. Clinical correlation sessions, which illustrate the contributions of cell biology to specific medical problems, are interspersed in the lecture schedule. Histophysiology laboratories provide practical experience with the light microscope for exploring cell and tissue structure. This course is offered only to M.D. and M.D./Ph.D. students. This course runs from September to mid-May and is equivalent to three graduate credits. J. Jamieson, T. Lentz, F. Gorelick, and staff.

**CBIO 503a/b, Histology Laboratory.** Histophysiology laboratory provides practical experience with the light microscope for exploring cell and tissue structure. This course is offered only to Ph.D. students. T. Lentz and staff.

**CBIO 601a/b, Molecular and Cellular Basis of Human Disease.** This course emphasizes the connections between diseases and basic science using a lecture and seminar format. It is designed for students who are committed to a career in medical research, those who are considering such a career, or students who wish to explore scientific topics in depth. The course is organized in four- to five-week blocks that topically parallel CBIO 502a,b. Examples of

blocks from past years include “Diseases of protein folding” and “Diseases of ion channels.” Each topic is introduced with a lecture given by the faculty. The lecture is followed by sessions in which students review relevant manuscripts under the supervision of a faculty mentor. Several special sessions are dedicated to technologic advances. In addition, three sessions are devoted to academic careers and cover subjects such as obtaining an academic position, promotions, and grant writing. The course is open to M.D. and M.D./Ph.D. students who are taking or have taken Cell Biology 502a,b. Student evaluations are based on attendance, participation in group discussions, formal presentations, and a written review of an NIH proposal. This course runs from September to mid-May and is equivalent to three graduate credits. F. Gorelick, J. Jamieson, and staff.

**CBIO 602a/MB&B 602a/MCDB 602a, Molecular Cell Biology.** A comprehensive introduction to the molecular and mechanistic aspects of cell biology for graduate students in all programs. Emphasizes fundamental issues of cellular organization, regulation, biogenesis, and function at the molecular level. S. Wolin, P. Novick, T. Pollard, C. Crews, and faculty.

**CBIO 603a/MCDB 603a, Seminar in Molecular Cell Biology.** A graduate-level seminar course in modern cell biology. The class is devoted to the reading and critical evaluation of classical and current papers. The topics are coordinated with the CBIO 602a lecture schedule. Thus, concurrent or previous enrollment in CBIO 602a is required. S. Wolin, P. Novick, T. Pollard, C. Crews, and faculty.

**CBIO 604b, Systems Cell Biology.** Introduction to the organization and function of cells within complex multicellular systems as encountered in the human body. Covers major tissues and organs as well as the cardiovascular, immune, and nervous systems, with special emphasis on the molecular and cellular bases of developmental processes and human diseases. Lectures supplemented by electronic based tutorials on the histology of tissues and organs. C. Hashimoto and faculty.

**CBIO 606b, Advanced Seminar Course.** This seminar course, which meets once a week, covers several topics suggested by the second year Cell Biology students. It should serve to introduce students to areas they might not have considered in prior courses. Each topic is spread over three to four sessions, starting with an introductory overview and followed by a detailed analysis of key papers. This course is run in alternate years with CBIO 727b. S. Ferro-Novick, P. Novick.

**CBIO 701b, Illuminating Cellular Function.** Introduction to the principles and practical methods of live cell imaging. Covers principles of fluorescent microscopy (including genetically encoded probes and physiological indicators), image formation, image detection, and image analysis. Includes hands-on demonstrations of state-of-the-art instrumentation, such as video-rate confocal and multi-photon microscopes. D. Toomre and faculty.

**CBIO 900a and 901b/GENE 900a and 901b/MCDB 900a and 901b, First-Year Introduction to Research.** Lab rotations, grant writing, and ethics for Molecular Cell Biology, Genetics, and Development track students. C. Hashimoto, S. Roeder, M. Stern, and faculty.

## CELLULAR AND MOLECULAR PHYSIOLOGY

Office: SHM B147, 785.2989

### *Professors*

P. S. Aronson (*Medicine*), H. J. Binder (*Medicine*), E. L. Boulpaep, T. H. Brown (*Psychology*), L. G. Cantley (*Medicine*), M. J. Caplan, W. K. Chandler, L. B. Cohen, A. B. Du Bois (*Epidemiology*), B. E. Ehrlich (*Pharmacology*), B. Forbush, J. P. Geibel (*Surgery*), G. H. Giebisch (*Emeritus*), S. C. Hebert (*Chair*), J. F. Hoffman (*Emeritus*), W. H. Miller (*Ophthalmology and Visual Science*), P. A. Preisig (*Medicine*), G. B. Richerson (*Neurology*), W. Saltzman (*Faculty of Engineering*), J. Santos-Sacchi (*Surgery*), G. I. Shulman (*Medicine*), F. J. Sigworth, C. L. Slayman, C. W. Slayman (*Genetics*), T. Wang, F. S. Wright (*Medicine*), L. H. Young (*Medicine*)

### *Associate Professors*

A. Bordey (*Neurosurgery*), C. Canessa, M. E. Egan (*Pediatrics*), G. Miesenboeck (*Cell Biology*), V. A. Pieribone

### *Assistant Professors*

M. N. Nitabach, S. Tomita, D. Zenisek, Y. Zhou

### *Senior Research Scientists*

G. H. Giebisch, J. F. Hoffman

### *Research Scientist*

D. P. Zecevic

### *Associate Research Scientists*

B. Baker, C. X. Bleau, M. Carmosino, D. W. Chester, K. Dong, Z. Du, Q. Leng, J. Lu, M. Lu, A. Rivetta, L. Tang, Q. Yan, Y. Yang

**C&MP 500, From Molecules to Systems: Medical Physiology.** This course is only open to first-year medical students. The purpose of the course is to understand complex physiological processes at the level of component molecules, cells, specific tissues, organs, organ systems, and whole-body. Lectures cover human medical physiology in eleven modules: Cell Physiology/Membrane Transport, Nerve, Muscle, Metabolism, Blood, Cardiovascular, Respiratory, Kidney, Gastrointestinal, Endocrine, and Reproduction. Two major themes emerge during the course: (1) the human body employs a multitude of approaches for regulating the environment around its individual cells, and (2) these individual cells perform tasks necessary for sustaining life in the whole organism. Weekly Physiology Case Conferences illustrate the course material by means of clinical cases, relevant to the study of physiology. E. Boulpaep and staff.

**C&MP 520a, Current Perspectives in Physiology.** This seminar course explores a diverse range of topics in physiology, emphasizing readings and discussions of recent primary literature. Topics such as structural biology, membrane transport, signal transduction, sensory systems, and neurophysiology are presented by a variety of expert physiologists. Instructors guide the discussion regarding the background, the experiments, the methods, and most importantly the impact of relevant research papers. The aim of the course is to understand how physiological approaches integrate the study of organismal function from genes, to sys-

tems, to behavior and disease. D. Zenisek.

**C&MP 550a/ENAS 550a/MCDB 550a, Physiological Systems.** The course develops a foundation in human physiology by examining the homeostasis of vital parameters within the body, and the biophysical properties of cells, tissues, and organs. Basic concepts in cell and membrane physiology are synthesized through exploring the function of skeletal, smooth, and cardiac muscle. The physical basis of blood flow, mechanisms of vascular exchange, cardiac performance, and regulation of overall circulatory function are discussed. Respiratory physiology explores the mechanics of ventilation, gas diffusion, and acid-base balance. Renal physiology examines the formation and composition of urine and the regulation of electrolyte, fluid, and acid-base balance. Organs of the digestive system are discussed from the perspective of substrate metabolism and energy balance. Hormonal regulation is applied to metabolic control and to calcium, water, and electrolyte balance. The biology of nerve cells is addressed with emphasis on synaptic transmission and simple neuronal circuits within the central nervous system. The special senses are considered in the framework of sensory transduction. Weekly discussion sections provide a forum for in-depth exploration of topics. Graduate students evaluate research findings through literature review and weekly meetings with the instructor. W. Saltzman, E. Boulpaep.

**C&MP 560b/MCDB 560b, Cell and Molecular Physiology: Molecular Machines in Human Disease.** This course focuses on understanding the processes that transfer molecules across membranes at the cellular, molecular, biophysical, and physiologic levels. Students learn about the different classes of molecular machines that mediate membrane transport, generate electrical currents, or perform mechanical displacement. Emphasis is placed upon the relationship between the molecular structures of membrane proteins and their individual functions. The interactions among transport proteins in determining the physiologic behaviors of cells and tissues are also stressed. Molecular motors are introduced and their mechanical relationship to cell function is explored. Students read papers from the scientific literature that establish the connections between mutations in genes encoding membrane proteins and a wide variety of human genetic diseases. E. Boulpaep, F. Sigworth.

**C&MP 610, Medical Research Scholars Program: Mentored Clinical Experience.** The goals of this two-term course are to introduce MRSP students to aspects of clinically important human diseases. Students explore each disease over three 1½-hour sessions led by a clinician-scientist who is an expert in the relevant organ system. Students explore two disease processes per term. The first of the three sessions is devoted to a discussion of the clinical presentation, natural history, pathology, epidemiology, treatment, and prognosis of the disease process. During this session students have the opportunity to view gross or microscopic specimens of diseased tissue in association with members of the Pathology faculty. Students are assigned readings in pathology and pathophysiology and in clinical texts to prepare for the first class session. The second session focuses on translational aspects of the disease process. Students read and present papers relevant to the molecular basis of the disease and cutting-edge approaches to its therapy. In the third session students meet with patients who have experienced the disease and/or visit and explore facilities associated with diagnosis and treatment of the disease process. Prior to the third session students receive guidance as to what they will observe and how to approach the experience and, at the end of the session, the group discusses its thoughts and impressions. Students are expected to prepare for sessions, to participate actively, and to be scrupulously respectful of patients and patient facilities. M. Caplan and staff.

**C&MP 710b/MB&B 710b4, Electron Cryo-Microscopy for Protein Structure Determina-**

**tion.** Understanding cellular function requires structural and biochemical studies at an ever-increasing level of complexity. The course is an introduction into the concepts and applications of high-resolution electron cryo-microscopy. This rapidly emerging, new technique is the only tool known to date that allows biological macromolecules to be studied at all levels of resolution ranging from their cellular organization to near atomic detail. No specific prerequisites. However, parts of the course deal with diffraction theory and physical principles of image formation. Therefore, knowledge of calculus and basic physics is advantageous. F. Sigworth, V. Unger.

## CHILD STUDY CENTER

Office: NIHB 208, 785.2513

### *Professors*

J. P. Comer, S. L. Kagan (*Adjunct*), Z. Kain (*Anesthesiology*), R. A. King, J. F. Leckman, J. M. Leventhal (*Pediatrics*), P. J. Lombroso, R. W. Makuch (*Public Health*), S. Marans, A. Martin, L. Mayes, D. F. Musto, J. E. Schowalter (*Emeritus*), S. E. Shaywitz (*Pediatrics*), D. L. Snow (*Psychiatry*), S. M. Southwick (*Psychiatry*), S. S. Sparrow (*Emeritus*), F. R. Volkmar (*Chair*), J. Woolston, H. Zhang (*Public Health*)

### *Associate Professors*

A. S. Carter, B. W. Forsyth (*Pediatrics*), E. L. Grigorenko, S. M. Horwitz (*Public Health*), J. Kaufman (*Psychiatry*), A. J. Klin, T. J. McMahon (*Psychiatry*), L. Sadler (*Nursing*), L. D. Scahill (*Nursing*), R. Schultz, M. Schwab-Stone, M. W. State, D. Stubbe, J. K. Tebes (*Psychiatry*), F. M. Vaccarino, C. C. Weitzman (*Pediatrics*), M. Westerveld (*Neurosurgery*)

### *Assistant Professors*

S. J. Berkowitz, K. Chawarska, N. L. Close, W. S. Gilliam, Y. Kim, N. E. Suchman (*Psychiatry*), J. E. Swain, V. Weersing (*Adjunct*)

### *Senior Research Scientist*

S. S. Sparrow

### *Research Scientists*

G. M. Anderson, E. L. Grigorenko, M. K. Pruett (*Psychiatry*), V. R. Seitz

### *Associate Research Scientists*

M. Akbar, K. M. Balestracci, S. J. Bishop-Josef, P. R. Britto, F. E. Brown, L. Cardona, E. Culler, S. L. Durso, C. Emmons, D. B. Findley, M. Finn-Stevenson, L. M. Gault, M. A. Goyette-Ewing, H. Hahn, K. Koenig, M. A. Levett, S. L. Macari, J. C. McPartland, S. S. Nicholls, Y. O. Ohkubo, S. J. Paterson, Y. B. Poncin, C. T. Rowland, V. V. Ruchkin, D. H. Saul, C. A. Saulnier, C. B. Sicher, C. Singh, A. Slade, S. S. Stahl, C. S. Stover, D. Sukhodolsky, K. D. Tsatsanis, J. M. Wolf

### *Clinical Professors*

J. Adnopoz, R. Angoff (*Pediatrics*), T. W. Downey, R. Evans, P. Fonagy, A. S. Kaufman, A. E. Kazdin (*Psychology*), N. Laor, S. Ritvo, H. S. Sacks

### *Associate Clinical Professors*

S. Boltax-Stern, C. Canny (*Pediatrics*), A. S. Carter, P. M. Cohen, L. Combrinck-Graham, K. Dahl, L. Deutsch, J. B. Ferholt, N. M. Haynes, D. Koenigsberg, E. L. Loewald, J. G. Narad, E. A. Perlschwig, J. D. Saccio, A. H. Schwartz, M. Target, A. P. Thies, L. A. Vitulano, T. Zanker



*Assistant Clinical Professors*

H. A. Allen, A. Avni-Singer (*Pediatrics*), E. Becker-Dunn (*Psychiatry*), M. Berkman, J. D. Bregman, K. H. Brody, P. Cantor, P. B. Chappell, J. T. Collins, E. M. Dykens, H. Edelson-Costa, G. E. Epstein-Wilf, D. Flanagan, R. P. Franks, C. L. Gallo, G. D. Gammon, M. Gladstone, R. M. Greenbaum, F. X. Gregory, K. E. Hanson, A. G. Hess, E. O. Jennings, I. R. Jennings, E. T. Joyner, H. P. Kahn, M. D. Kaplan, R. G. King, P. K. Leebens, D. I. Lowell (*Pediatrics*), A. S. Lustbader, M. Lustick, N. M. Lustman, J. A. Madigan, J. P. Marachi, R. S. McWilliam, J. C. Meyers, N. Moss, S. F. Nagler, R. N. Nikolov, F. J. Ninivaggi, B. Nordhaus, J. F. Poll, M. D. Powers, G. R. Racusin (*Psychiatry*), C. H. Ripple, E. Rodriguez-Keyes, W. Roosen, D. L. Rotnem, H. L. Sacks, M. Schaefer, L. P. Siegel, A. G. Smaller, R. Sotsky, P. Van Wattum, S. Werblood, H. S. Wetstone, C. P. Wiles, P. Yeung, L. D. Zimmerman

*Clinical Instructors*

J. C. Allen, R. Avni-Singer, B. J. Barile, K. M. Barrett, L. Budnick, A. Caracansi, K. F. Clougherty, J. M. Connell, J. D. Cunningham, M. B. de-Naclerio, V. DeVarennes, S. W. Dobuler, D. M. Dodge, L. M. Donovan, K. E. Dubois-Walton, J. Eisenberg, G. E. Epstein-Wilf, S. S. Fleming, J. A. Gallalee, J. L. Grimsley, L. C. Hayden, C. Heise, P. Hetherington, C. Hogan, K. Holdt, R. Jones, N. Kennedy, B. A. Keyes, B. Kleine, A. C. Koegler, A. T. Kravitz, E. Kressley, J. S. Landau, W. S. Levine, J. P. Marachi, W. Marans, B. L. Mason, M. A. McCarthy, P. J. McGreen, C. Migdole, L. Monaco, R. J. Nunes, D. Perera, R. Plant, R. G. Pugliese, J. Radawich, B. N. Rickler, R. A. Ritvo, S. Ritz, A. Rivas, L. Robinson, P. B. Rockholz, M. C. Rosario-Campos, P. I. Sadowitz, C. Schaefer, J. Schoenleber, A. Schuessler, C. Schwartz, A. N. Smoke, B. Taggart, E. O. Tongul, G. Weiss, C. White, G. O. Winn, M. Womer, M. Yazgan

*Lecturers*

K. F. Bailey, L. G. Barbieri, L. L. Booth, K. Carlson, C. J. Cooper, D. M. Esserman, S. Goldstein, J. M. Gruendel, M. Gunsalus, D. P. Hauser, S. Heidmann, C. M. Horwitz, N. L. Kaufman, B. D. Kerman, S. W. Levy, L. B. Nash, C. H. Olson, R. Paul, D. L. Pauls, B. S. Peterson, J. P. Platner, C. Reberkenny-Frisketti, D. N. Rosen, B. P. Rourke, C. Savo, B. B. Sherman, V. M. Shiller, D. Smolover, J. Stoneman, C. A. Talbot, P. K. Thomas, E. C. Wolff (*Child Study Center*)

The Child Study Center is a multidisciplinary academic department of the School of Medicine for the study and care of children from birth through adolescence and their families. Child psychiatrists, psychologists, pediatricians, social workers, psychoanalysts, biomedical scientists, nurses, and other professionals collaboratively engage in research and treatment programs on various aspects of children's growth and development, both normal and deviant. Research programs include child development, psychiatric disorders, social systems and schools, mental retardation, psychosomatic conditions, crisis and trauma, and treatment. Clinical services are provided in general and specialized outpatient clinics, in the Child Psychiatry Inpatient Service in the Children's

Hospital of Yale-New Haven, and in the Child and Adolescent Psychiatry Consultation-Liaison Service. The center provides courses and other academic opportunities for undergraduates and graduate students in various disciplines concerned with children and families, as well as specialized training in child psychiatry, psychology, social work, and clinical research.

**CHLD 122b, Aspects of Child and Adolescent Development in the Practice of Medicine.**

CAD explicitly deals with normal development, and specifically emphasizes social, cognitive, and emotional aspects of this lifelong process. It seeks to heighten the student's awareness of how different phases of development intersect with the clinical practice of medicine. It covers different schools of thought and approaches to developmental processes, leading to a better understanding of (among others) cognitive, language, motor, social, sexual, and interpersonal milestones, from birth through senescence. Since it can be challenging to understand the importance of these normative processes in a clinical vacuum, the course complements the lectures given in the first hour (11 a.m. to noon) with clinical applications and extensive videotaped examples of that developmental phase in the second (noon to 1 P.M.). This approach provides the main "formula" for the course. First year, spring term, 16 hours. A. Martin and faculty.

**CHLD 222, Childhood Psychopathology.** Students are offered lectures, workshops, and videotapes of children with major or common psychiatric disorders usually first evident during infancy, childhood, and adolescence, including autism, mental retardation, attention deficit hyperactivity disorder, school phobia, learning disabilities, Tourette's Syndrome, obsessive-compulsive disorder, and adolescent disorders. Second year. R. A. King and faculty.

**CHLD 322, Developmental, Psychiatric, and Psychological Assessment of Infants, Children, and Adolescents.**

A series of lectures on developmental assessment (DA), psychological testing (P), and the Mental Status Examination (MSE) of children is offered to all students on the Pediatric Clerkship. Students may have the opportunity to observe such evaluations while on the Pediatric Clerkship. Further opportunities to observe DA and P, and to perform mental status examinations of children, are provided during the Child Psychiatry track of the Psychiatry Clerkship. L. Mayes, N. Close, M. Kaplan, and faculty.

**CHLD 323, The Child Psychiatry Track of the Psychiatry Core Requirement.**

This track is offered to four students per six-week rotation (three at the Children's Psychiatric Inpatient Service (CPIS) of Yale-New Haven Hospital, one at the Consultation-Liaison (CL) track of the pediatrics wards at YNH). The CPIS and CL rotations meet the requirements for the "patient in crisis" and "interface with medicine" requirements of the core psychiatric clerkship of the third year. Both rotations provide extensive opportunities to observe and practice the process used to evaluate, diagnose, and plan the treatment of the child and his or her family. The rotations additionally provide for interview and write-up tutoring experiences, with both child and adult psychiatric patients. The track has three components: (a) a set of core experiences and lectures, (b) a group of optional selective experiences (such as visits to a therapeutic school), and (c) practica and directed readings. The practicum includes interviewing, working up, and writing reports on inpatients under the supervision of a child psychiatry tutor. In addition, each student prepares a written presentation related to an area of interest in child psychiatry. A. Martin, D. Stubbe, Y. Poncin, L. Cardona, and faculty.

**CHLD 324, Electives in Research.**

Medical students join with faculty and postdoctoral research fellows in participating in patient-oriented or laboratory-based research projects. Students participate in weekly research seminars and multidisciplinary work groups as well as being directly engaged in some aspect of a new or ongoing research project with a faculty

mentor. The elective is full time and has a minimum duration of three months. As of 2006, there is one available slot for a year-long research rotation for fifth-year medical students. J. Leckman, A. Martin, and faculty.

**CHLD 325/Psychiatry 325, Child Psychiatry Elective, Yale Child Study Center.** The aim of this elective is to provide the student with an intensive experience in infant, child, and adolescent psychiatry. The curriculum includes assessments of normal development and psychopathology in childhood, treatment methods, and research in major disorders of childhood. The elective takes advantage of the wide range of ongoing seminars, conferences, and clinical services in place at the Child Study Center and at Riverview Hospital in Middletown, Connecticut. Teaching methods include seminars, conferences, field observations, ward rounds, and practica selected by the student following consultation with the director of medical studies. Open to fourth-year students throughout the year. A. Martin, D. Stubbe, L. Siegel, and faculty. To enroll in this advanced clinical elective, please contact Dr. Martin directly.

## COMPARATIVE MEDICINE

*Office:* 375 Congress Avenue, LSOG 117, 785.2525

### *Professors*

T. Horvath (*Chair*), R. O. Jacoby (*Emeritus*)

### *Associate Professors*

J. L. Brandsma, F. R. Homberger (*Adjunct*), J. D. Macy, J. D. Reuter (*Adjunct*),  
C. J. Zeiss

### *Assistant Professors*

C. J. Booth, G. J. DeMarco, Q. Gao, P. C. Smith

### *Senior Research Scientist*

R. O. Jacoby

### *Research Scientists*

S. R. Compton, J. M. McGrath, G. Yao

### *Associate Research Scientists*

J. A. Carlson, M. J. Harding, T. P. Nottoli, M. Shlyankevich, Y. Sun, S. R. Wilson

## DERMATOLOGY

Office: LCI 501, 785.4092

### *Professors*

J. L. Bolognia, D. E. Brash (*Therapeutic Radiology*), I. M. Braverman, P. Cresswell (*Immunobiology*), R. L. Edelson (*Chair*), F. M. Foss (*Medicine*), E. J. Glusac (*Pathology*), P. W. Heald, D. J. Leffell, J. M. McNiff, L. M. Milstone (*Emeritus*), J. S. Pober (*Immunobiology*), R. E. Tigelaar, L. D. Wilson (*Therapeutic Radiology*)

### *Associate Professors*

R. J. Antaya, M. Girardi, C. A. Herrick, R. Lazova

### *Assistant Professors*

S. Z. Aasi, S. E. Cowper, S. Imaeda, C. J. Ko, A. Subtil, V. D. Thomas, M. M. Tomayko

### *Instructors*

J. N. Choi, A. Galan, J. M. Scott

### *Senior Research Scientist*

R. Halaban

### *Research Scientists*

C. L. Berger, A. K. Chakraborty, M. S. Kluger, L. M. Milstone

### *Associate Research Scientist*

D. J. Hanlon

### *Clinical Professors*

K. A. Arndt, I. Dvoretzky, M. T. Johnson, R. C. Savin, K. L. Watsky

### *Associate Clinical Professors*

A. Bronin, F. M. Castiglione, I. S. Cohen, D. M. Davidson, L. M. Donofrio, J. S. Dover, J. W. Edelglass, R. S. Kahan, T. P. Kugelman, R. C. Langdon, E. B. Milstone, P. I. Schneiderman, P. E. Shapiro, L. A. Sibrack

### *Assistant Clinical Professors*

M. R. Alexiades-Armenakas, J. N. Alter, A. V. Atton, S. H. Barrett, S. H. Bender, P. M. Bevilacqua, D. L. Bilinski, S. E. Book, C. B. Carroll, T. Chartier, C. Chess, K. A. Cohen, L. A. Daman, K. M. Diette, S. B. Dietz, D. Duke, D. L. Feinberg, B. Goldberg, M. J. Goldstein, D. R. Greene, V. L. Gross, W. S. Jacoby, M. Kaminer, J. D. Knispel, S. A. Kolenik, L. C. Kugelman, J. C. Lehrman, S. P. Lerner, A. B. Lewis, L. E. Luck, E. A. Markstein, E. R. Marsh, B. J. McGrath, D. R. Miller, E. Mirrer, E. Naidorf, M. P. Noonan, W. A. Notaro, R. G. Oshman, B. J. Richter, J. G. Sansing, N. K. Sherline, N. R. Silverman, A. D. Syrengelas, A. Zalka, J. R. Zirn

### *Clinical Instructors*

M. P. Coolidge, M. A. Gohara, J. M. Grant-Kels, J. Moss, M. I. Oestreicher, J. B. Sabetta, J. Wilder, B. Zubkov

*Lecturer*

L. K. Friedlaender

**Dermatology 120.** Instruction in the evaluation and management of patients with dermatologic problems in both outpatient and inpatient settings. Emphasis is on common dermatologic problems and cutaneous pathophysiology. Ambulatory patients are seen in the 2 Church St. South, Yale-New Haven Hospital Primary Care Center and at the VA Connecticut Healthcare System, West Haven. Inpatient rounds are made at Yale-New Haven Hospital. Grand rounds and weekly lectures are also an important feature of the elective. Course is offered for four four-week sessions. S. Aasi, R. Antaya, J. Bolognia, I. M. Braverman, J. Choi, S. Cowper, R. L. Edelson, A. Galan, M. Girardi, E. Glusac, P. Heald, C. Herrick, S. Imaeda, C. Ko, R. Lazova, D. Leffell, J. McNiff, L. Milstone, A. Subtil, V. Thomas, R. E. Tigelaar, M. Tomayko.

## DIAGNOSTIC RADIOLOGY

Office: TE-2, 785.6938

### *Professors*

J. J. Abrahams, J. A. Brink (*Chair*), R. A. Bronen, M. I. Burrell, R. E. Carson, R. T. Constable, E. A. Cornelius (*Emeritus*), A. M. Curtis, Y. Ding, J. S. Duncan, H. P. Forman, J. J. Frost, M. G. Glickman (*Emeritus*), R. J. Gusberg (*Surgery*), H. P. Hetherington (*Neurosurgery*), L. D. Katz, E. Kier, J. P. Lawson (*Emeritus*), C. H. Lee-French, S. M. McCarthy, B. L. McClennan, J. Pollak, I. Prohovnik (*Adjunct*), A. T. Rosenfield (*Emeritus*), D. L. Rothman, L. M. Scoutt, C. Shaw, A. J. Sinusas (*Medicine*), B. Sumpio (*Surgery*), J. H. Sunshine (*Adjunct*), G. Sze, I. Tocino, F. J. Wackers, J. C. Weinreb, R. I. White, B. L. Zaret (*Medicine*)

### *Associate Professors*

J. E. Aruny, H. Blumberg (*Psychiatry*), S. Bokhari, D. W. Cheng, R. de Graaf, R. K. Fulbright, T. R. Goodman, A. H. Haims, H. Y. Huang, F. Hyder, G. M. Israel, M. H. Johnson, W. S. Kubal, G. F. Mason, C. R. Miller, J. W. Pan (*Neurosurgery*), L. E. Philpotts, R. R. Russell (*Medicine*), R. Schultz (*Child Study Center*), L. H. Staib, J. K. Staley-Gottschalk (*Psychiatry*), H. D. Tagare, M. G. Tal, C. R. Taylor, S. W. Woods (*Psychiatry*)

### *Assistant Professors*

L. Andrejeva, M. H. Arici, K. E. Baker, T. M. Catanzano, D. Cornfeld, I. Doddamane, R. J. Hooley, L. J. Horvath, R. H. Kent, J. D. Kirsch, H. R. Mojibian, J. A. Obando, X. Papademetris, P. Pawha, C. Poon (*Adjunct*), E. Reiner, A. N. Rubinowitz, E. M. Shapiro, M. Spector, P. Varma

### *Instructors*

S. Kim, H. Moukaddam

### *Senior Research Scientist*

R. G. Shulman (*Molecular Biophysics and Biochemistry*)

### *Research Scientists*

F. D'Errico, M. Hampson, J. Wang

### *Associate Research Scientists*

S. V. Chelikani, G. M. Chowdhury, P. Herman, H. Kim, D. C. Labaree, N. Nabulsi, M. Negishi, V. Neklesa, K. Purushothaman, M. Qiu, N. Rajeevan, J. R. Ropchan, R. J. Schafer, J. Watzl

### *Clinical Professors*

D. B. Nunez, M. S. Shin, J. D. Slavin

*Associate Clinical Professors*

G. R. Berg, V. J. Caride, G. Fishbone, L. W. Hammers, E. A. Hyson, T. R. McCauley, I. Zubal

*Assistant Clinical Professors*

S. B. Berger, T. Berkmen, K. M. Bochenek, M. Carino, J. K. Crowe, A. R. Daftary, H. M. Dey, H. W. Gahbauer, L. H. Greenwood, B. D. Griffith, K. M. Johnson, A. Kalyanpur, I. Kinori, J. Klein, C. T. Kubiak, P. H. Kuo, S. A. Messana, A. R. Niakosari, Z. Protopapas, Y. Safriel, S. Saluja, J. P. Seibyl, S. Sheikh, M. I. Straub, S. J. Sullivan, R. R. Tash, N. W. Tishkoff, J. Wruble

*Clinical Instructors*

C. T. Kubiak, J. A. Obando, S. T. Stewart

*Lecturers*

J. Arora, J. Bhawnani, G. J. Conlogue, F. Tokoglu

**Diagnostic Radiology 121, Diagnostic Radiology Clerkship.** The four-week clerkship introduces the student to the basic principles of all forms of radiologic interpretation. Each day the students rotate through a section of the department of diagnostic imaging, including gastrointestinal, genitourinary, chest, musculoskeletal, neuroradiology, pediatrics, computed tomography, magnetic resonance, nuclear medicine, ultrasound, vascular and interventional radiology, and emergency radiology. Five days of elective time may be spent in a subspecialty area of the students' choice. In addition to participating in the daily film reading with residents and staff, the students receive an introduction to the role of that section in the diagnosis and management of disease. Self-teaching materials are available in the radiology library. The students attend the department resident conferences twice daily as well as specific student seminars. Clerkships are offered at Yale-New Haven Hospital. A two-week diagnostic radiology elective is not offered. Prerequisites: None. Full-time: No on-call responsibilities. Limited to six students every four weeks. J. Abrahams, A. Haims, and staff.

**Diagnostic Radiology 134, Clinical Internship in Vascular and Interventional Radiology.** This elective is designed as an introduction to vascular and interventional radiology: the use of radiological imaging to guide procedures in various organ systems of the body and the evaluation and management of patients who are candidates for these. In the vascular system, this includes arterial and venous angiography, angioplasty, stenting, embolization for bleeding, tumors (such as uterine fibroids), and vascular malformations, venous reflux management, inferior vena cava filter placement, hemodialysis access management, and placement of a variety of venous access devices. Nonvascular experience includes percutaneous approaches to biliary and urinary track pathology, drainage of abscesses and other fluid collections, and tumor ablation. Students also participate in the interventional radiology clinic and admitting service. Electives last two to four weeks, but additional time can be arranged. This rotation is limited to one student at a time. J. Pollak, J. Aruny, and staff.

**Diagnostic Radiology 135, Clinical Clerkship in Pediatric Diagnostic Imaging.** Introduction to the clinical care of infants, children, and adolescents through the use of integrated diagnostic imaging. Students participate through review of imaging studies with residents and attendings; observation of fluoroscopic, ultrasound, computed tomography (CT), and MRI procedures; and attendance at daily clinical conferences. Students are encouraged to use the teaching file and also to add an interesting case. Elective periods of two to four weeks are possible, times to be arranged, limited to one student per period. C. Miller and staff.



**Diagnostic Radiology 137, Clinical Clerkship in Neuroradiology.** This rotation is designed as an introduction to neuroradiology. The student becomes an integral part of the neuroradiology team which consists of the resident, fellow, and attending physician. A number of teaching conferences are offered including a daily case review session. The student is exposed to the various subsections of neuroradiology including neuro CT, neuro MR, and neuro special procedures, e.g., angiography, myelography, CT biopsy, interventional angiography. J. Abrahams, G. Sze, and staff.

## SECTION OF EDUCATION

*Office of Education:* ESH 305, 737.4190

*Office of Student Research:* ESH 308, 785.6633

**Sect Ed 101, Intensive Pedagogical Experience in Laboratory Research Techniques.** Intensive one-week summer course in biomedical research protocols and techniques is open to first-year medical students at Mount Desert Island Biological Laboratory in Bar Harbor, Maine. Four biomedical research topics are the focus of each course: (1) physiological studies of chloride transport in an intact epithelial organ from *Squalus acanthias*; (2) ion channel gene expression in a heterologous expression system (*Xenopus oocytes*); (3) studies in isolated tubule preparations, including immunocytochemistry of phosphorylated vs. non-phosphorylated co-transporters, tissue processing, confocal microscopy, Western blots, and antibody design; molecular biology of membrane proteins and transporters in shark salt gland, including methods in RNA, cDNA, PCR, cloning, and sequencing.

**Sect Ed 102, Organization and Leadership.** This course is an introduction to topics in the field of organizational behavior. It is designed to offer participants an opportunity to explore a variety of concepts that relate to the effective and humane management of organizations. Though medicine was once a profession made up primarily of individual practitioners, it is increasingly true that medical professionals, both clinicians and researchers, are now involved in collective endeavors that require coordinated efforts to produce meaningful results. This is the domain of organizational behavior and the subject matter of this course. D. Berg.

**Sect Ed 103, Applied Principles of Clinical Research (First-Year Seminars) – Office of Student Research.** The purpose of this intensive two-week course is to provide an overview of the objectives, research strategies, and methods of conducting patient-oriented research. Topics include research designs, how to ask a research question, data collection, how to write a protocol, bias in studies, qualitative methods, etc. Emphasis is placed on applying concepts to students' actual research projects. Sessions are workshops that combine didactics and use students' projects to illuminate concepts. Students must have declared interest in conducting patient-oriented research by May. Consent of instructor required. Two weeks in summer to be announced. Staff.

**Sect Ed 104, Applied Principles of Clinical Research (Fifth-Year Seminars) – Office of Student Research.** The purpose of this intensive two-week course is to provide an overview of the objectives, research strategies, and methods of conducting patient-oriented designs, how to ask a research question, data collection, how to write a protocol, bias in studies, qualitative methods, etc. Emphasis is placed on applying concepts to students' actual research projects. Sessions are workshops that combine didactics and use students' projects to illuminate concepts. Students must be funded for one year of research. Consent of instructor required. Two weeks in summer to be announced. Staff.

**Sect Ed 105, Pre-Clinical Clerkship.** This course, extending throughout the first two years, is intended to teach medical students skills in communication, medical history taking, and physical examination, as well as end-of-life care. The format of the course involves several large group sessions for the purpose of demonstrating or modeling interview techniques and many small group sessions in which students get a chance to observe and practice specific skills. An integral part of the Pre-Clinical Clerkship is the tutorial program in which groups of four students meet with their tutor(s) weekly over a two-year period to practice their newly learned skills on patients in the hospital or clinic.

In the first year, students learn the basics of interviewing patients in formal sessions and the clinical tutorials. Emphasis is placed on a patient-centered approach utilizing standard-

ized patients. Students also learn how to perform a complete physical examination in structured, supervised sessions in which they examine one another. Other activities include practicing their observation skills in an art museum, understanding the skills needed in the care of children, and understanding how to assess geriatric patients, as well as end-of-life care.

During their second year, students are learning more sophisticated skills in obtaining a medical history, the components of a proper patient write-up, and the elements of oral patient presentations. Standardized patients are used again for teaching interviewing skills, but also for breast, pelvic, scrotal, and rectal examinations. At the beginning of their second term, students are evaluated on their ability to perform a complete history and physical examination at the Clinical Skills Assessment Program at UConn utilizing their standardized patients.

Students pass the Pre-Clinical Clerkship by attending all the skill-building sessions; demonstrating the ability to perform a complete history and physical exam from memory (at UConn); and having acquired the skills needed on the wards according to their tutor(s). Limited to medical students. M. Bia.

**Section Ed 106, Mechanisms of Disease: Systems/Organs.** The purpose of this course is to bridge the preclinical and clinical years and to teach students to use preclinical data in a clinical context. It introduces the pathologic variation of the normal physiologic mechanisms that the students have already learned. This required course is offered in a continuum from September through March for second-year medical students. It consists of 13 integrated discrete modules that present disease processes from various disciplinary perspectives. The components include pathology, laboratory medicine, diagnostic radiology, preventive medicine, geriatrics, pharmacology, clinical medicine, pediatrics, and surgery.

For each module, representatives from each discipline meet and create a course that presents a comprehensive overview of the organ/system, progressing and building information in a way that allows students to form a basis on which to add knowledge throughout their careers.

Material is taught in lecture format; small group workshops which discuss patient cases and laboratories. The modules are Blood/Hematology; Cardiovascular System; Clinical Neuroscience; Psychiatry; Endocrine Systems; Reproductive System; Gastrointestinal System; Musculoskeletal System; Renal System; Respiratory System; Ophthalmology; Oncology; and Skin. Each module has a faculty coordinator. These modules provide excellent preparation for clinical work on the wards as well as preparation for second-year USMLE boards, the questions of which use a clinical paradigm. Course is limited to second-year medical students. S. Flynn.

**Section Ed 107b, Professional Responsibility.** Through a series of lectures and small group case discussions, this course examines physicians' responsibilities to their patients, their colleagues, their communities, and to society at large. The course examines the nature of the physician-patient relationship and its ethical underpinnings, as well as the legal, social, and economic contexts in which it operates. It focuses on the physician's obligations in several areas, including care for the underserved and vulnerable, respect for patients' privacy and confidentiality, obtaining informed consent for treatment, respecting the right to refuse treatment, respecting reproductive choices, and dealing with issues at the end of life. Finally, the course examines the flaws and strengths of the U.S. health care system, and the personal and social consequences of recent changes in the way health care is organized and financed in this country. J. S. Hughes.

**Section Ed 108, Integrative Clinical Medicine.** This three-work course is required of fourth-year students in the spring term immediately prior to the internship match. In the first two weeks the morning sessions, using an intensive small-group format under the supervision of experienced clinical faculty, examine the evolution of two complex cases that present important clinical, social, and behavioral Issues. The course involves significant student research and

peer presentations that address the salient issues that present themselves as the cases unfold. The small group sessions are followed by a final grand round that includes considerable patient participation and student interaction. In the third week, each day offers a separate grand-rounds-style presentation focusing on important aspects of medical practice, that is, Medical Informatics, Genomics, The Difficult Patient, and Mistakes in Medicine. The afternoon sessions include an emergency medicine lecture series conducted by faculty in that discipline in preparation for internship, and several sessions covering current social and ethical issues. Director: J. Hughes.

**Sect Ed 158, Primary Care Clerkship.** The Primary Care Clerkship provides students with an opportunity to acquire knowledge and develop clinical and interpersonal skills applicable to outpatient primary care practice. Students are assigned to an office or clinic where they care for patients under supervision by either a family practitioner, internist, or pediatrician on Mondays, Wednesdays, and Fridays for one month. On Tuesdays and Thursdays students attend a case-based Workshop Program based upon common disorders and core skills relevant to primary care practice. Students may also obtain their clinical experience at an “away site” in the United States or abroad and complete the Workshop Program on campus during another rotation. Director: F. Haeseler; with a faculty comprised of physician educators who share a commitment to practice-based teaching.

**Sect Ed 158-1, Primary Care Wednesday Evening Clinic.** This longitudinal outpatient clerkship in the Primary Care Center provides experience in the longitudinal care of adults. Students are directly responsible for care of medical problems and preventive care as well as coordination of specialty care for their own patient panel for a minimum of one calendar year. There are weekly pre-clinic conferences which include Journal Club and primary care case-centered topics presented by students or specialty attendings. Students also become acquainted with the administration of outpatient clinic medicine. The clinic is held every Wednesday evening, 5–9 p.m., except the day before Thanksgiving and between Christmas and New Year’s. It is open to a limited number of fourth-year students and fulfills the primary care requirement. Students must have completed Hospital Medicine I and II of the Core Medicine Clerkship and three other third-year Clerkships, preferably Ambulatory Medicine, Psychiatry, and Obstetrics, Gynecology, and Reproductive Sciences. Director: K. P. White; and staffed by M. Dillard and rotating attending physicians.

## EPIDEMIOLOGY AND PUBLIC HEALTH

Office: LEPH 210, 785.2867

### *Professors*

S. Aksoy, W. A. Andiman (*Pediatrics*), M. Y. Armstrong (*Emeritus*), R. S. Baltimore (*Pediatrics*), M. Barry (*Medicine*), M. B. Bracken (*Epidemiology*), E. H. Bradley (*Public Health*), K. D. Brownell (*Psychology*), R. Bucala (*Medicine*), M. Cappello (*Pediatrics*), E. B. Claus, P. D. Cleary (*Dean*), M. R. Cullen (*Medicine*), V. T. DeVita (*Medicine*), A. B. Du Bois (*Emeritus*), E. Fikrig (*Medicine*), D. Fish (*Epidemiology*), H. P. Forman (*Diagnostic Radiology*), G. Friedland (*Medicine*), T. M. Gill (*Medicine*), R. Heimer (*Epidemiology*), W. J. Hierholzer (*Emeritus*), T. R. Holford (*Public Health*), R. I. Horwitz (*Medicine*), S. M. Horwitz (*Emeritus*), J. R. Ickovics (*Epidemiology*), S. C. Jacobs (*Psychiatry*), J. F. Jekel (*Emeritus*), E. H. Kaplan (*School of Management*), S. V. Kasl, H. M. Krumholz (*Medicine*), B. P. Leaderer (*Epidemiology*), L. S. Levin (*Emeritus*), R. W. Makuch (*Public Health*), L. E. Marks (*Epidemiology*), S. T. Mayne, R. McCorkle (*Nursing*), D. McMahon-Pratt, I. Miller (*Pediatrics*), A. Ostfeld (*Emeritus*), A. D. Paltiel (*Public Health*), C. L. Patton (*Emeritus*), H. A. Risch, R. Rosenheck (*Psychiatry*), N. H. Ruddle (*Epidemiology*), P. Salovey (*Psychology*), M. J. Schlesinger (*Public Health*), E. D. Shapiro (*Pediatrics*), J. L. Sindelar, D. L. Snow (*Psychiatry*), J. T. Stitt (*Emeritus*), J. A. Stolwijk (*Emeritus*), G. H. Tignor (*Emeritus*), M. E. Tinetti (*Medicine*), C. White (*Emeritus*), D. Zelterman, H. Zhang (*Public Health*), H. Zhao (*Public Health*), T. Zheng

### *Associate Professors*

S. H. Busch, M. Cappello (*Pediatrics*), D. C. Cone (*Surgery*), L. C. Degutis (*Surgery*), L. Dembry (*Medicine*), R. A. Desai (*Psychiatry*), L. A. Dipietro, R. Dubrow (*Epidemiology*), E. L. Grigorenko (*Child Study Center*), N. E. Groce (*Public Health*), P. M. Hartigan (*Adjunct*), J. J. Hoh (*Epidemiology*), B. A. Jones, A. C. Justice (*Medicine*), D. Katz (*Adjunct*), B. Levy (*Epidemiology*), J. H. Lichtman, H. Lin, M. B. Russi (*Medicine*), A. N. Sofair (*Medicine*), N. S. Stachenfeld (*Epidemiology*), J. K. Tebes (*Psychiatry*), C. Tschudi, H. Yu

### *Assistant Professors*

C. L. Barry, M. L. Bell, M. M. Desai (*Psychiatry*), M. A. Diuk-Wasser, A. J. Epstein, J. M. Fletcher, A. P. Galvani, Y. Guan, M. L. Irwin, P. S. Keenan, T. Kershaw, K. Khoshnood (*Epidemiology*), T. T. Lewis, S. Ma, X. Ma, K. M. McCarty, A. M. Molinaro, I. M. Nembhard, L. M. Niccolai, M. M. Pettigrew, J. P. Rugar (*Public Health*), H. Wang, C. W. Yeckel (*Epidemiology*), Y. Zhang, Y. Zhu

### *Senior Research Scientist*

J. E. Childs (*Epidemiology*), L. E. Munstermann

### *Research Scientists*

K. Belanger (*Epidemiology*), B. Cartmel (*Epidemiology*), L. Curry (*Public Health*), W. T. Gallo, R. Gueorguieva, N. Sun, E. W. Triche

*Associate Research Scientists*

N. Abdala, L. C. Barry, K. M. Blankenship, L. Calvocoressi, J. F. Gent, L. E. Grau, L. M. Grosso, H. Kampen, M. E. Ulcickas Yood

*Clinical Professors*

J. B. Borak (*Epidemiology*), M. G. Curnen

*Associate Clinical Professor*

D. L. Humphries

*Assistant Clinical Professors*

K. A. Hartwig, D. Shenson

*Clinical Instructor*

D. L. Humphries

*Lecturers*

A. A. Afkhami, L. Alexander, H. M. Allen, E. Anderson, J. F. Anderson, T. G. Andreadis, S. G. Austin, D. D. Aye, T. J. Balczak (*Medicine*), M. G. Bochenek, A. L. Boissevain, M. P. Borgstrom, E. A. Bortnichak, J. Bradley, A. Caccone (*Ecology and Evolutionary Biology*), M. M. Callaway (*Public Health*), P. F. Canny, G. L. Capozzalo, B. Cartmel (*Epidemiology*), P. A. Charpentier, J. E. Childs (*Epidemiology*), K. H. Clark, J. G. Culhane, L. Curry (*Public Health*), M. G. Dale, R. D'Aquila, A. S. Darefsky, H. G. Dove, J. D. Dunn, A. J. Durante, J. L. Fernando, C. Fields, A. Foltz, B. Fontes, S. D. Geballe (*Public Health*), W. A. Gillespie, G. L. Ginsberg, C. H. Grantham-Millman (*Epidemiology*), J. F. Jekel (*Public Health*), B. Jennings, B. D. Kerker, K. Khoshnood (*Epidemiology*), R. A. Lavelly, M. Lee, L. S. Levin (*Public Health*), D. Li, M. F. Lopes, J. R. Mande, L. G. Marc, R. Marcus, J. A. Mattera, S. M. Merz, L. M. Mueller, J. M. Mullen (*Epidemiology*), C. K. Pope, W. P. Quinn, P. R. Rose, B. Schachtel, J. A. Sparer (*Medicine*), D. E. Stevens, J. T. Stitt (*Epidemiology*), J. A. Stolwijk, M. H. Stowe (*Medicine*), P. H. Van Ness (*Medicine*), J. T. Wack, C. White (*Public Health*), D. Wild, K. A. Yonkers (*Psychiatry*), J. A. Zaccagnino, F. Zhao, E. Ziglio

The Department of Epidemiology and Public Health offers a wide variety of courses, across several divisions. Many of these are also available for medical student enrollment. The course catalogue and registration procedures may be obtained by contacting the EPH Registrar's Office.

## GENETICS

Office: SHM I308, 785.2649

### *Professors*

E. A. Adelberg (*Emeritus*), A. E. Bale, S. J. Baserga (*Molecular Biophysics and Biochemistry*), D. E. Brash (*Therapeutic Radiology*), W. R. Breg (*Emeritus*), L. Cooley, D. C. DiMaio, J. M. Eisenstadt (*Emeritus*), B. G. Forget (*Medicine*), J. Gelernter (*Psychiatry*), P. M. Glazer (*Therapeutic Radiology*), A. L. Horwich, P. B. Kavathas (*Laboratory Medicine*), K. K. Kidd, R. P. Lifton (*Chair*), M. J. Mahoney, C. M. Radding (*Emeritus*), G. Roeder (*Molecular, Cellular, and Developmental Biology*), L. E. Rosenberg (*Adjunct*), M. R. Seashore, C. W. Slayman, S. Somlo (*Medicine*), J. B. Sweasy (*Therapeutic Radiology*), P. J. Tattersall (*Laboratory Medicine*), S. M. Weissman, T. Xu, H. Zhao (*Public Health*)

### *Associate Professors*

J. H. Cho (*Medicine*), J. R. Gruen (*Pediatrics*), V. Reinke, M. W. State (*Child Study Center*)

### *Assistant Professors*

A. J. Giraldez, M. K. Khokha (*Adjunct*), T. Kim, P. Li, J. Noonan, Z. Sun

### *Senior Research Scientist*

P. J. Flory

### *Research Scientists*

T. Ashley, W. A. Fenton, E. I. Golub, E. C. Goodwin, J. R. Kidd, J. M. McGrath (*Comparative Medicine*), A. J. Pakstis, C. M. Radding

### *Associate Research Scientists*

L. M. Boyden, A. Canaan, G. W. Farr, A. M. Hudson, W. Ji, D. Li, T. Li, J. Lian, Z. Lian, B. Lin, K. Lu, Y. Lu, M. C. Mahajan, E. T. Matloff, K. Mishra, D. N. Nguyen, X. Pan, P. M. Rabinovich, A. M. Szekely, L. Xue, Y. Yasukochi, Z. Ye, H. Z. Zhang

**GENE 500b, Principles of Human Genetics.** A genetics course taught jointly for graduate students and medical students covering current knowledge in human genetics as applied to the genetic foundations of health and disease. A. Bale.

**GENE 603b/IBIO 603b, Teaching in the Science Education Outreach Program (SEOP).** TAs, along with volunteers, teach three projects in Genetics to seventh-graders in two or three New Haven schools. In addition TAs take a short course on teaching and serve as science judges. For more details visit [www.seop.yale.edu](http://www.seop.yale.edu). P. Kavathas, at 785.6223.

**GENE 625a/MB&B 625a/MCDB 625a, Basic Concepts of Genetic Analysis.** The universal principles of genetic analysis in eukaryotes are discussed in lectures. Students also read a small selection of primary papers illustrating the very best of genetic analysis and dissect them in detail in the discussion sections. While other Yale graduate molecular genetics courses emphasize molecular biology, this course focuses on the concepts and logic underlying modern genetic analysis. T. Xu, T.H. Kim, M. Koelle, R. Lifton, V. Reinke, S. Roeder.

**GENE 631a/BIS 531a, Genetic Epidemiology.** This course deals with the interface of genetics and epidemiology as they relate to problems of public health, covering both the epidemiology of Mendelian disorders and the genetic and environmental contributions to common, complex genetic traits. Topics include study designs for assessing the importance of genetic factors (family, twin, and adoption studies), population genetics, and mapping and identification of genetic variants responsible for diseases through linkage and association analyses. Applications to various disease areas, such as cancer, obesity, psychiatry, and cardiovascular disease, are discussed. H. Zhao, E. Claus, K. Kidd.

**GENE 642a/EMD 642a/MB&B 642a/MBIO 642a/MCDB 642a, Roles of Microorganisms in the Living World.** A topical course exploring the biology of microorganisms. Emphasis on mechanisms underlying microbial adaptations and how they influence biological systems. L. N. Ornston, D. McMahon-Pratt, D. Söll.

**GENE 675, Graduate Student Seminar.** Students gain experience in preparing and delivering seminars and in discussing presentations by other students. A variety of topics in molecular, cellular, developmental, and population genetics are covered. Required for all second-year students in Genetics. Graded Sat/Unsat. J. Sweasy.

**GENE 743b/MB&B 743b, Advanced Eukaryotic Molecular Genetics.** Selected topics in regulation of gene expression, genome structure and evolution, signal transduction, and cellular physiology, development, and carcinogenesis. Prerequisite: biochemistry or permission of the instructor. A. Koleske, M. Hochstrasser, P. Sung.

**GENE 749a/MB&B 749a, Medical Impact of Basic Science.** 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. Emphasis is placed on the fundamental principles on which these advances rely. Reading is from the primary scientific and medical literature, with emphasis on developing the ability to read this literature critically. Aimed at undergraduates. Prerequisite: MB&B 600a/601b or permission of the instructor. J. Steitz, E. De La Cruz, M. Hochstrasser, A. Miranker, L. Regan, P. Sung.

**GENE 777b/MCDB 677b, Mechanisms of Development.** This is an advanced course on mechanisms of animal development focusing on the genetic specification of cell organization and identity during embryogenesis and somatic differentiation. The use of evolutionarily conserved signaling pathways to carry out developmental decisions in a range of animals is highlighted. Course work includes student participation in critical analysis of primary literature, and a final research proposal term paper. V. Reinke, L. Cooley, X.-W. Deng, S. Holley, Z. Sun.

**GENE 840a,b, Medical Genetics.** Clinic Rotation. A clinical rotation offering medical and graduate students the opportunity to participate in the Genetic Consultation Clinic, genetic rounds, consultation rounds, and genetic analysis of clinical diagnostic problems. By arrangement with instructor. M. R. Seashore.

**GENE 900a and 901b/CBIO 900a and 901b/MCDB 900a and 901b, First-Year Introduction to Research.** Laboratory rotations, topic-based seminars for Molecular Cell Biology, Genetics, and Development (MCGD) track students. F. Slack.

**GENE 921a/b, Reading Course in Genetics and Molecular Biology.** Directed reading with faculty. Term paper required. Permission of Genetics DGS is required.



## HISTORY OF MEDICINE

Office: SHM L132, 785.4338

### *Professors*

D. Kevles (*History*), D. F. Musto (*Child Study Center*), F. Snowden (*History*),  
J. H. Warner (*Chair*)

### *Associate Professors*

S. E. Lederer, N. Rogers

### *Assistant Professors*

C. A. Connolly (*Nursing*), B. J. Strasser

*Yale College and Graduate School courses open to medical students:*

**HSHM 205a/678a, Alcohol and Other Drugs in American Culture.** The interrelation of alcohol and other drugs since the establishment of the nation. Consideration of scientific, religious, legal, literary, gender, and minority aspects. D. Musto.

**HSHM 210b/670b/HIST 918b, Magic Bullets and Wonder Pills.** This course explores the history of pharmaceutical drugs from the nineteenth century to the present. It covers the biographies of selected drugs (e.g., vaccines, vitamins, antibiotics, and steroids), the rise of the pharmaceutical industry, the modes of drug innovation, and broader social, political, and cultural issues. It shows how the development of drugs reflects changes in the relationships among academia, industry, and the state; the laboratory, the clinic, and the market; the physician, the patient, and the consumer. B. Strasser.

**HSHM 215a, Public Health in America, 1793–2000.** A survey of public health in America from the yellow fever epidemic of 1793 to AIDS and breast cancer activism at the end of the past century. Focusing on medicine and the state, topics include quarantines, medical and social welfare failures and successes, the experiences of healers and patients, and organized medicine and its critics. N. Rogers.

**HSHM 277a/677a/HIST 939a, Genetics, Reproduction, and Society.** A history of the interplay of modern biology with its social, economic, legal, and cultural context. Lecture topics include eugenics and sterilization, the Scopes trial, contraception and abortion, the new reproductive technologies, medical genetics, the human genome project, and human cloning. A two-hour graduate discussion section emphasizes the development of genetics, molecular biology, and biotechnology. D. Kevles.

**HSHM 321b/631b/HIST 937b, The Cultures of Western Medicine: A Historical Introduction.** A survey of medical thought, practice, institutions, and practitioners from classical antiquity through the present. Changing concepts of health and disease in Europe and America explored in their social, cultural, economic, scientific, technological, and ethical contexts. J. H. Warner.

**HSHM 328a, Methods and Literature in the History of Science and Medicine.** 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. B. Strasser.

**HSHM 328b, Methods and Literature in the History of Science and Medicine.** 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. O. Molvig.

**HSHM 410a, Intellectual History of the Scientific Revolution.** A study of the philosophical developments in early modern Europe that resulted in the emergence of modern science. The intellectual traditions leading to the period, such as Platonism, Aristotelianism, and Scholasticism; the work of particular authors during the period, such as Galileo, Descartes, and Newton. D. Miller.

**HSHM 413b, X-Ray Visions: Medical Imaging since 1895.** 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. B. Kevles.

**HSHM 421b/633b/HIST 916b, Introduction to the History of Mathematics: Certainty, Uncertainty, and the Infinite.** This seminar course considers the history of several mathematical topics from antiquity until the present time. It is not a mathematics course, but rather treats mathematics as examples of intellectual problems rather than technical accomplishments. The graduate students in this seminar are required to complete more extensive research papers, both at midterm and at the end of the course (approximately double in length), than the undergraduates. These papers are evaluated at a significantly more stringent level, in terms of both research methods and analytical sophistication, than the undergraduate written work. W. Summers.

**HSHM 433a/637a/AMST 883a/HIST 761/ WGSS 725a, Race and Medicine in America, 1800–2000.** An examination of race and medicine in America, 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. S. Lederer.

**HSHM 435a, Heart Disease in America.** The emergence of the “epidemic” of heart disease, the leading cause of death in the United States for much of the twentieth century. Examination of the fascination with heart disease and the heart in American culture. T. Olszewski.

**HSHM 445b/625b, Women and Medicine in America from the Colonial Era to the Present.** American women from the colonial era to the present as midwives, patients, healers, reformers, revolutionaries, innovators, and entrepreneurs. Ways that women have shaped American health care and medical research. N. Rogers.

**HSHM 450a, Children's Health in the United States, 1800–2000.** The history of children's health care, broadly defined to include not just physical and emotional health but also cognitive and social development, in the United States. Topics include differences between children's and adults' health; governmental responsibility; portrayals of illness in film; variables of race, gender, social class, and geographic region; child abuse; and subspecialties such as neonatology and adolescent health care. C. Connolly.

**HSHM 451b/635b/HIST 945b, Science, Arms, and the State.** A history of chemical, nuclear, and biological weapons in the twentieth century that focuses on the integration in the United States of national security policy making, scientific research, and military innovation, including its consequences for the scientific community, the civilian economy, public attitudes toward weapons of mass destruction, and political movements to control them. D. Kevles.

**HSHM 470a, 471b, Directed Reading.** 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. S. Lederer, O. Molvig.

**HSHM 676b/HIST 938b/LAW 21441, The Engineering and Ownership of Life.** This seminar explores the historical development of intellectual property protection in living matter. Focusing on the United States in world context, it examines arrangements outside the patent system as well as within it. Topics include agriculture, medicine, biotechnology, and law. May be taken as a readings or research course. D. Kevles.

**HSHM 701a/HIST 930a, Introduction to the History of Medicine and Public Health.** An examination of the variety of approaches to the social and cultural history of medicine and public health. Readings are drawn from recent literature in the field. Topics include the role of gender, class, ethnicity, race, region, and religion in the experience of health care and sickness; the intersection of lay and professional understandings of the body; and the role of the marketplace in shaping professional identities and patient expectations. S. Lederer.

**HSHM 702b/HIST 931b, Introduction to the History of Science.** Study of secondary literature, recent and older, in the history of the physical and life sciences from the Renaissance to the early twentieth century. Students acquire familiarity with the development of science in general and of its major branches, including its content, instruments and methods, and social-institutional settings, and an acquaintance with various approaches that historians have followed in interpreting these events. O. Molvig.

**HSHM 710b/HIST 921b, Methods for the Social Studies of Science, Technology, and Medicine.** Exploration of the methods and debates in the social studies of science, technology, and medicine. This course covers the history of the field and its current intellectual, social, and political positioning. It emphasizes the debates on constructivism and relativism, and provides critical tools to address the relationships among science, technology, medicine, and society. B. Strasser.

**HSHM 732a/HIST 928a, Infection, Public Health, and the State.** This course is a comparative examination of public health strategies adopted by Western nations since 1800 with regard to high-impact infectious diseases—cholera, smallpox, tuberculosis, syphilis, malaria, polio, and HIV/AIDS. The course begins with “plague regulations” and then explores such alternative policies as vaccination, the sanatorium, the sanitation idea, the regulation of prostitution, health education, and the reporting and tracing of cases. Attention is also given to state planning to confront the threat of bioterrorism and to the present emergency in sub-Saharan Africa of malaria, tuberculosis, and HIV/AIDS. The class considers the strategies of the World Health Organization and of national governments to confront the crisis. This is a reading and discussion class, but it can be taken as a research seminar with the permission of the instructor. There are no prerequisites, and no prior knowledge is assumed. F. Snowden.

**HSHM 740a/AMST 884a/HIST 925a, The Cultures of American Medicine since 1800.** Reading and discussion of recent scholarly literature on medicine in the nineteenth- and twentieth-century U.S. Themes include the moral, social, political, aesthetic, and epistemological grounding of orthodox and alternative cultural authority; the role of the marketplace in shaping professional identities and patient expectations; gender, ethnicity, race, religion, class, and region in the construction and management of illness and in the production and circulation of medical beliefs; interplay between lay and professional understandings of the body; nationalism, citizenship, and colonialism; and representations of medical institutions, practitioners, and practices in visual media, including film. May be taken as a research seminar with permission of the instructor. J. H. Warner.

In addition to formal course offerings and tutorials offered in the School of Medicine, Yale College, and the Graduate School, section activities in the History of Medicine are supplemented by a number of related historical medical programs. Colloquia in the History of Science and Medicine are held fortnightly and are open to the School of Medicine community. The section sponsors an annual Frederic L. Holmes Lecture, and the Department of Surgery sponsors the annual Samuel Clark Harvey Memorial Lecture. The Nathan Smith Club, which annually awards the John F. Fulton Memorial Award, is composed of medical students interested in medical history who assemble monthly in the homes of various faculty. The Beaumont Medical Club, founded at Yale in 1920, sponsors six lectures in the History of Medicine during the academic year and annually selects a Beaumont Lecturer and a George Rosen Lecturer in the History of Medicine. Section faculty are available for M.D. thesis supervision.

The section faculty work with the Department of History to offer a Ph.D. program in the History of Science and Medicine. In addition, there is an M.A. program designed particularly for those who plan to combine teaching or scholarship in these fields with a professional career in medicine or the life sciences. For further information concerning admissions and the program itself, consult the Graduate School bulletin.

## IMMUNOBIOLOGY

Office: TAC S531, 785-3857

### *Professors*

J. R. Bender (*Medicine*), A. Bothwell, H. K. Bottomly (*Emeritus*), J. E. Craft (*Medicine*), P. Cresswell, R. A. Flavell (*Chair*), S. Ghosh, K. Herold, P. B. Kavathas (*Laboratory Medicine*), R. M. Medzhitov, I. S. Mellman (*Cell Biology*), J. S. Pober, N. H. Ruddle (*Epidemiology*), D. G. Schatz, M. J. Shlomchik (*Laboratory Medicine*), R. E. Tigelaar (*Dermatology*)

### *Associate Professors*

A. Iwasaki, W. D. Shlomchik (*Medicine*), B. Su

### *Assistant Professors*

T. H. Chi, S. Kaech

### *Senior Research Scientist*

H. K. Bottomly

### *Research Scientist*

E. E. Eynon

### *Associate Research Scientists*

V. Ablamunits, W. Chen, M. Ciubotaru, P. R. Clark, B. Ding, D. Hawiger, O. I. Henegariu, Y. Huang, M. Kamanaka, I. Kawikova, N. C. Kirkiles-Smith, K. G. Klemic, E. B. Kopp, J. H. Li, M. Liu, T. D. Manes, D. Sengupta, B. R. Shepherd, T. C. Town, S. Unniraman, M. M. Wan, X. Wang, P. A. Wearsch, W. Weiguo, T. Yarovinsky, T. Yi, W. Yuan

### *Lecturers*

J. W. Huleatt, I. Mills

For a complete listing of BBS courses, see <http://info.med.yale.edu/bbs/>

**IBIO 100a, Immunology for Students of Medicine.** Immunology and its application to clinical situations. 12 hours lecture, 8 hours tutorials.

**IBIO 530a/MCDB 530a, Biology of the Immune System.** The development of the immune system. Cellular and molecular mechanisms of immune recognition. Effector responses against pathogens; autoimmunity. S. Ghosh.

**IBIO 531b, Advanced Immunology.** The historical development and central paradigms of key areas in immunology. The course attempts to develop a clear understanding of how these paradigms were established experimentally. Landmark studies are discussed to determine how the conclusions were obtained and why they were important at the time they were done. Lecture and discussion format; readings of primary research papers and review articles. Prerequisite: Immunobiology 530a or equivalent. Enrollment limited to 15. A. Iwasaki and staff.

**IBIO 539b, Advanced Immunology Seminar: Lymphoid Organ Development and Cell Migration.** N. Ruddle, A. Iwasaki, and B. Su.

**IBIO 600a, Introduction to Research.** Introduction to the research interests of the faculty. Required for all first-year BBS Immunology Track students. Pass/Fail. A. Bothwell and staff.

**IBIO 601b, Fundamentals of Research.** Required for all first- and second-year Immunology Track students. A. Bothwell and staff.

**IBIO 603/GENE 603a and b, Teaching in the Science Education Outreach Program (SEOP).** TAs, along with volunteers, teach three projects in Genetics to seventh-graders in two or three New Haven schools. In addition, TAs take a short course on teaching and serve as science judges. Dates and times to be determined. For more details visit [www.seop.yale.edu](http://www.seop.yale.edu). BBS teaching credit. P. Kavathas.

## INTERNAL MEDICINE

Office: LMP 1072, 785.4119

*Professors*

R. J. Alpern, V. A. Andriole (*Emeritus*), P. S. Aronson, P. W. Askenase, C. E. Atterbury (*Emeritus*), M. Barry, W. P. Batsford, J. R. Bender, F. J. Bia, M. J. Bia, H. J. Binder, L. K. Bockenstedt, P. K. Bondy (*Emeritus*), J. L. Boyer, A. E. Broadus, R. Bucala, G. N. Burrow (*Emeritus*), H. S. Cabin, L. G. Cantley, E. Chu, M. W. Cleman, L. S. Cohen (*Emeritus*), D. L. Coleman (*Emeritus*), J. P. Concato, H. O. Conn (*Emeritus*), L. M. Cooney, D. L. Cooper, J. Costa (*Pathology*), J. E. Craft, M. R. Cullen, G. V. Desir, V. T. DeVita, T. P. Duffy, S. C. Edberg (*Laboratory Medicine*), J. A. Elias (*Chair*), D. G. Federman, E. Fikrig, R. L. Fisher, B. G. Forget, J. N. Forrest, F. M. Foss, G. Friedland, R. S. Galvin (*Adjunct*), G. Garcia-Tsao, J. B. Gee (*Emeritus*), R. H. Gifford (*Emeritus*), T. M. Gill, J. A. Goffinet (*Emeritus*), F. Gorelick, R. J. Groszmann, J. P. Hayslett, S. C. Hebert (*Cellular and Molecular Physiology*), K. Herold (*Immunobiology*), W. J. Hierholzer (*Emeritus*), N. J. Holbrook (*Adjunct*), E. S. Holmboe (*Adjunct*), R. I. Horwitz (*Emeritus*), J. S. Hughes, S. J. Huot, S. Inouye (*Adjunct*), K. L. Insogna, S. E. Inzucchi, C. Jaffe (*Emeritus*), F. S. Kantor, C. R. Kapadia, W. N. Kernan, H. M. Krumholz, F. A. Lee, R. J. Levine, H. Levitin (*Emeritus*), R. P. Lifton (*Genetics*), R. L. Mahnensmith, S. E. Malawista, M. J. Mamula, J. C. Marsh (*Emeritus*), R. A. Matthay, P. K. Mistry (*Pediatrics*), V. Mohsenin, M. H. Nathanson, P. G. O'Connor, R. J. Papac (*Emeritus*), P. A. Preisig, D. D. Proctor, V. J. Quagliarello, A. Rastegar, C. Redlich, F. F. Richards (*Emeritus*), S. H. Rosenbaum (*Anesthesiology*), R. S. Sherwin, G. I. Shulman, A. J. Sinusas, B. R. Smith (*Laboratory Medicine*), S. Somlo, R. Soufer, H. M. Spiro (*Emeritus*), M. Strazzabosco, L. Tanoue, M. E. Tinetti, E. Ullu, F. J. Wackers (*Diagnostic Radiology*), F. S. Wright, L. H. Young, B. L. Zaret

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R. Kinstlinger, H. Knight, C. R. Kramer, H. M. Kramer, M. L. Kraus, S. H. Kunkes, S. P. Lagarde, S. Lam, G. I. Lancaster, R. A. Lanzi, R. E. Lebson, R. J. Lewis, H. M. Likier, W. S. Long, R. I. Lovins, J. A. Magaldi, M. A. Mankus, M. E. Mann, M. A. Marieb, B. A. Martell, V. Martin, U. Masiukiewicz, A. B. Mayerson, S. W. McCalley, R. J. McDonald, K. C. McKenzie, C. C. McNair, C. F. McNamara, S. G. Menon, J. A. Merritt, K. Michels-Ashwood, S. P. Mickley, D. T. Miller, J. Morris, M. M. Munteanu, J. I. Nadelmann, R. J. Nardino, H. Nawaz, E. A. Nolfo, R. Nudel, J. W. O'Brien, J. P. O'Connell, G. Oliver, B. R. Olson, S. P. O'Mahony, P. Oray-Schrom, J. A. Orell, W. T. Panullo, L. A. Panzini, W. N. Pearson, B. Peck, P. E. Pertel, W. R. Petricone, D. Phanumas, M. Pouresmail, B. M. Priest, P. H. Pronovost, H. L. Quentzel, A. M. Radoff, H. H. Reinhart, C. R. Rethy, N. I. Riegler, B. Ringstad, B. A. Roach, D. Rocklin, D. Roer, P. R. Rogol, S. D. Rossner, M. C. Rubinstein, K. D. Sabbath, D. M. Sack, R. T. Sadock, J. A. Salvana, L. Sanders, S. Sandur, S. L. Saunders, R. R. Savino, A. Schaffner, G. S. Schleiter, J. A. Schmierer, H. M. Schwartz, A. O. Seltzer, J. Seltzer, M. L. Sher, J. M. Shi, W. Y. Shih, A. L. Silber, R. S. Silverman, K. S. Sinusas, M. L. Skluth, A. R. Skopek, M. J. Smith, J. M. Solomon, R. M. Stark, M. A. Stehney, R. H. Stember, S. D. Stocker Giles, B. C. Swirsky, T. Taylor, B. S. Thomas, J. Toksoy, J. Tomanelli, J. E. Topal, R. Torres, D. H. Trock, K. J. Twohig, J. G. Uberti, H. D. Uderman, R. Umashanker, J. S. Urbanetti, G. S. Varbaro, M. S. Villanueva, M. D. Virata, H. Ward, W. S. Warren, R. B. Wein, J. J. Weiner, D. A. Weinshel, S. B. Weissman, A. C. Wells, K. P. White, H. S. Wilkes, D. M. Wolfsohn, R. P. Wong, A. Wormser, K. H. Yang, A. Yee, M. Zain, C. S. Zalis, J. S. Zaretsky, J. S. Zesk, F. R. Zwas

### *Clinical Instructors*

O. T. Akande, R. G. Ali, O. Aliyu, S. A. Alston, L. Ameti, G. R. Angstreich, V. S. Argento, A. D. Assevero, H. H. Atkins, S. Banerjee, M. E. Blam, A. P. Blanco, M. L. Blitzler, J. J. Bowen, J. A. Brier, R. D. Bruce, J. A. Brunetti, D. M. Buonocore (*Nursing*), A. P. Burger, L. L. Calo, A. W. Camp, E. M. Carlson, D. L. Casey, S. B. Chabria, J. J. Chang, V. A. Chang, E. H. Chanko, C. Chen, J. M. Chua-Reyes, J. B. Chung, P. R. Cimino, T. M. Clarke, R. M. Cohen, W. L. Cushing, M. L. Dam, A. R. Datunashvili, S. B. D'Cunha, J. D. Demayo, S. Dey, T. A. Doherty, S. A. D'Souza, D. H. Dumont, A. M. Dunn, C. M. Edelmann, D. J. Edwards, J. Estrada, S. J. Farber, S. R. Fernando, D. Fine, J. S. Francis, E. H. Francois, J. H. Fullerton, M. W. Garber, H. B. Garfinkel, R. D. Gibbs, P. C. Greco, E. M. Grubman, G. A. Guadagnoli, S. S. Hahn, W. B. Hale, J. M. Hammond, K. T. Hartmann, J. Hauser, G. Henry, J. C. Hlawitschka, L. J. Huang, O. T. Imevbore, B. A. Indeck, D. M. Intihar, P. M. Jenei, K. Joshi, V. Joshi, M. Juthani-Mehta, S. V. Kanade, J. D. Kenkare, Y. Khan, D. C. King, L. Knoll, A. Kohli-Pamnani, A. A. Kramer, E. D. Kulaga, M. E. Kulaga, S. J. Kwon, U. Latif, M. Lee, T. H. Liao, J. C. Lim, F. A. Loria, C. P. Loscalzo, M. D. Marcus, H. B. Mayer, K. McArthur, J. L. Meizlish, C. J. Michos, J. D. Miller, E. A. Mirabile-Levens, C. B. Mittelman, B. P. Mobo, B. T. Montague, P. Morales, R. F. Morrison, A. S. Murray, K. G. Nair, G. J. Napolitano, E. R. Nash, S. Nawaz, K. K. Nelson, H. C. Nolasco, E. Obeid, C. J. O'Connor, D. A. Oelberg, J. R. Orlinick, J. R. Ouellette, W. W. Paramanathan, A. J.

Paz, T. E. Pellechi, A. A. Peterson, K. C. Pham, L. J. Phillips, P. T. Porello, H. R. Pun, N. C. Rabidou, N. G. Ragovis, S. Raissi, R. F. Ramos, A. J. Rodriguez, R. R. Rohatsch, L. S. Rome, S. E. Rosener, S. R. Rubenstein, O. V. Sakharova, J. Samuel, K. A. Schneider, M. B. Schwartz, A. E. Selkin, N. Shah, S. Sharma, J. F. Shea, G. P. Shields, B. A. Skudlarska, D. N. Smith, G. Spivack, S. A. Springer, D. C. Stair, K. P. Swan, G. F. Tansino, J. A. Testa, M. K. Tighe, J. E. Topal, C. G. Torres-Viera, P. C. Tortora, M. C. Trager, G. E. Tratt, A. Upadya, C. Vaid, C. K. Vaidya, D. J. Van Rhijn, S. Varano, I. Vashist, J. S. Waldman, O. G. Weis, S. C. Widman, J. E. Williams, D. H. Witt, J. Yu, R. A. Zlotoff

#### *Lecturers*

D. Acampora, L. Alaparthi, K. L. Altongy-Magee, W. H. Arend, M. Barnes, M. R. Bernbach, G. J. Bruch, M. Chomiak, M. B. Courtney, D. L. Dobkin, G. Draper-Ralls, M. J. Finnegan, C. Gyorgyey, E. J. Hamilton, V. F. Keller, K. G. Kett, J. A. Leach, D. C. Leake, R. Leventhal, P. G. Levinson, G. Lucas, P. M. Marriott, A. J. McCabe, L. H. Newton, J. K. Pacini, D. M. Philbin, D. J. Rodner, R. T. Rozett, M. A. Salm, M. D. Simmons, M. D. Slade, J. A. Sparer, A. J. Stannard, D. A. Stitz, M. E. Stoklosa, M. B. Taylor, Y. Wang, C. K. Wells

**Internal Medicine 103, Core Medicine Clerkship.** The Internal Medicine Clerkship comprises three one-month rotations: Hospital Medicine I, Hospital Medicine II, and Ambulatory Medicine. Students are assigned to complete these rotations in a specific order determined by the clerkship directors. During the Hospital Medicine clerkships, students serve as clinical clerks at participating hospitals. Students interview and examine patients, write admission and progress notes, and work with medical teams in the care of patients. Between Hospital Medicine I and Hospital Medicine II, students receive graduated responsibility for patient care. Conferences and teaching rounds are held daily. During the Ambulatory Medicine component of the clerkship, students complete a curriculum including general medicine practice, subspecialty practice, and classroom instruction. Clinical preceptors enable students to have an active part in patient evaluation and treatment commensurate with each student's experience and capability. Students interview and examine patients, develop differential diagnoses, present to preceptors, discuss treatment with patients, and write visit notes. At all clinical sites, students routinely telephone patients in follow-up. The overall course director is V. J. Quagliarello. The director for the ambulatory component is W. N. Kernan, Jr. Clinical precepting and classroom teaching involves over 100 physicians in the Department of Medicine.

**Internal Medicine 104, Medicine-Based Evidence.** The course objectives are to recognize sources and limitations of the evidence and strategies used by physicians in the care of patients. Students are introduced to methods in the design and analysis of patient-oriented research; the application of data (derived from research and physician-patient interactions) to individual decision making in clinical care; and problems in the axiomatic approach of Evidence-Based Medicine. The course includes introductory lectures on clinical epidemiology and biostatistics, as well as exercises and workshops on specific topics (e.g., observational and randomized study designs, diagnostic test characteristics, bivariate and multivariable statistics). Director: J. Concato.

**Internal Medicine 122, Endocrine Clerkship.** The student participates as an active member of the endocrine training program, making daily rounds with the endocrine fellows, residents, and attending physicians. Inpatient consultation, a variety of endocrine clinics, and

regularly scheduled metabolism-endocrine conferences are part of the rotation. Full time for three weeks. Offered during elective time. Limited to two students at a time throughout the year. J. Bogan, A. E. Broadus, B. Gulanski, R. G. Hendler, E. H. Holt, K. L. Insogna, S. Inzucchi, R. S. Sherwin, G. I. Shulman, J. Wysolmerski.

**Internal Medicine 123, Renal Clerkship.** This clerkship in clinical nephrology offers the student an opportunity for in-depth learning regarding problems in fluid and electrolyte disturbances, acute renal failure, chronic renal failure, and hypertension. Emphasis is placed on problem recognition, pathophysiologic diagnosis, evidence-based clinical judgment, and management based on pathophysiologic principles. The primary activity involves the inpatient consultation service in which the student works up and follows several patients per week, and participates in daily rounds with the attending physicians, postdoctoral fellows, and residents on service. Students participate in the weekly renal conferences. An introduction to hemodialysis, peritoneal dialysis, renal transplantation, and renal biopsy histology is also provided. Students have the opportunity to visit patients on rounds in the hemodialysis units. Students are encouraged to review renal pathology slides as appropriate and can extend their learning by working through a collection of case studies. The clerkship is limited to two students per hospital; full-time participation is expected. Students should have completed the Internal Medicine clerkship. Rotations can be three- to six-weeks' duration, although, to derive benefit, at least four weeks is recommended. The elective is offered at both Yale-New Haven Hospital and the VA Connecticut Healthcare System, West Haven. A. Abu-Alfa, P. S. Aronson, M. J. Bia, U. Brewster (supervisor), L. Cantley, S. Crowley, G. V. Desir, R. Formica, J. Forrest, A. Peixoto, J. P. Hayslett, S. Huot, R. Mahnensmith, M. Perazella, A. Rastegar, S. Somlo.

**Internal Medicine 136, Digestive Disease Conference.** Each Friday afternoon from 2 to 3:30 p.m., current patients with gastrointestinal and liver problems of medical, surgical, pediatric, or radiologic interest are presented and discussed. This is a practical series of discussions intended to interest anyone from a second-year student to a practitioner. Active participation by all who come is encouraged. Meets in Fitkin. J. Dranoff and Digestive Disease faculty.

**Internal Medicine 137, Clinical Gastroenterology Clerkship.** The student participates in the daily activities of the Gastroenterology Service. The student is an integral part of the GI team and should plan to spend full time on the elective at Yale-New Haven Hospital or the VA Connecticut Healthcare System, West Haven. Activities include rounds, consultations, conferences at both hospitals, and special procedures, including gastrointestinal endoscopy. Students participate in outpatient clinics held by the various physicians of the section. This is an opportunity to see a wide variety of gastrointestinal problems and patients, with discussion and review. Offered to one student each at Yale-New Haven Hospital and VA Connecticut Healthcare System. Rotations should be four weeks in duration. Students should have completed the Internal Medicine clerkship. Digestive Disease faculty.

**Internal Medicine 141, Cardiology Clerkship.** The student participates in the daily activities of the Cardiology Consultation Service, including rounds, consultations, seminars, and conferences dealing with clinical cardiology, nuclear cardiology, echocardiography, cardiac catheterization, and other special procedures. This is a full-time elective requiring a full day's activities but no night call. The training experience emphasizes the physiologic basis for clinical manifestations of cardiovascular diseases, and their therapy. The elective is limited to three students at Yale-New Haven Hospital and two students at the VA Connecticut Healthcare System, West Haven. The elective lasts a minimum of three weeks; six weeks is recommended if possible. Students must have completed basic Internal Medicine clerkships prior to clerkship. Following an initial Cardiology Clerkship, individual electives can be designed for specific cardiology laboratories or activities such as the coronary care unit,

cardiac catheterization laboratory service, echocardiography, nuclear cardiology, electrophysiology, etc. W. P. Batsford, J. R. Bender, J. J. Brennan, M. Burg, H. S. Cabin, J. Clancy, M. W. Cleman, L. S. Cohen, J. Curtis, F. Giordano, D. Goldstein, H. Haronian, C. Howes, F. Jadbabaie, S. Katz, H. M. Krumholz, R. Lampert, F. A. Lee, L. V. Lee, A. Mani, R. McNamara, S. E. Pfau, M. Remetz, L. Rosenfeld, K. Russell, R. Russell, M. Sadeghi, J. F. Setaro, A. J. Sinusas, R. Soufer, A. Vashist, F. J. Wackers, L. H. Young, B. L. Zaret. The individual supervisor is selected from the above participating faculty on a monthly basis.

**Internal Medicine 142, Infectious Diseases.** The goal of this clerkship is to broaden a student's experience and diagnostic skills in infectious diseases. Students participate as active members of the consultation service and training program in infectious diseases (Yale-New Haven and VA Connecticut Healthcare System, West Haven, hospitals). This requires a full-time daily commitment of four weeks although shorter clerkships are possible when justified. Activities include daily rounds with both fellows and attending physicians, attendance at all weekly subspecialty conferences, workup of several new consultations each week, formal case presentations, directed reading and library research, and case write-ups for review by the fellow and/or attending physician. Students are encouraged to work closely with fellows and to present cases. Training in clinical microbiology, including bacteriology, virology, and parasitic and fungal infections is conducted daily. Limited to a maximum of two students for each four-week period throughout the year. Outside students accepted through the Office of the Assistant Dean. Completion of all basic clinical clerkships is preferred, though only the basic clinical clerkship in Internal Medicine is required. R. Altice, F. J. Bia, D. L. Coleman, L. Dembry, A. Fisher, G. H. Friedland, K. Gupta, B. Kazmierczak, M. Kozal, R. Martinello, V. J. Quagliarello, M. Rigsby, A. Shaw, K. Wagner, B. Wong.

**Internal Medicine 143, Externship in HIV/AIDS.** Students desiring an intensive, more advanced experience with the care of HIV-infected persons may spend one month as a subintern on the Donaldson Firm. The Donaldson Firm offers a combined general internal medicine/HIV ward experience. Previously, Donaldson admitted only HIV-infected persons. However, with the advent of highly active antiretroviral therapy and effective opportunistic infection (OI) prophylaxis, the HIV inpatient census has decreased and both HIV-infected and general medical patients are cared for. The firm practices a multidisciplinary HIV care approach. There are two firms that admit HIV-infected patients. Each is comprised of an attending, one resident, two interns, and one third-year medical student. On average, approximately 50 percent of the patients are HIV-infected. Students who elect an externship on Donaldson function as an integral member of one of the two HIV teams. The subintern assumes primary responsibility for his/her patient under the direct supervision of the medical resident. Activities include supervised initial evaluation and daily management of patients with HIV disease; daily rounds with the team; case presentations to the attending physician; and attendance of tri-weekly attending rounds, during which various HIV-related infections and noninfectious problems are discussed. In addition, the student works closely with members from social work, nursing, pastoral care, and discharge planning to better appreciate the multidisciplinary nature of HIV care. Students can arrange to attend one outpatient HIV clinic per week in the Nathan Smith Clinic in order to supplement their inpatient experience with the ambulatory aspects of HIV disease. This elective accommodates one student per month and offers a unique opportunity to participate in comprehensive HIV care in the AIDS Care Program, preferably upon completion of all basic clinical clerkships. A previous medical or surgical subinternship is useful preparation. Outside students are accepted through the Office of the Assistant Dean. Supervising faculty include: F. L. Altice, N. Angoff, F. J. Bia, D. Bruce, A. Fisher, G. H. Friedland, M. Kozal, P. Pierce, V. Quagliarello, S. Springer, K. Wagner.

**Internal Medicine 146, Hematology Clerkship.** This clerkship provides intensive exposure to clinical hematology by direct participation in the activities of a busy clinical hematology service. Students work up new patients and consultations (at least two patients per week), and attend outpatient clinic on Tuesday mornings, where they are assigned to see one new patient or two follow-up patients. Students also attend daily hematology ward rounds, bone marrow readings, weekly inpatient and outpatient clinical review, and clinical teaching conferences. Students may limit participation to include only attendance at daily conferences, bone marrow readings, and weekly hematology clinic. One or two students for three to six weeks throughout the year. D. Beardsley, N. Berliner, T. P. Duffy, B. G. Forget, P. McPhedran, H. Rinder, B. R. Smith, L. Solomon, G. Vanasse.

**Internal Medicine 151/Environmental Health Sciences 575a,b, Introduction to Occupational and Environmental Medicine.** Geared toward those interested in full-time specialty careers in occupational or preventive medicine, material covers clinical toxicology, industrial hygiene and techniques for evaluation of clinical and workplace problems. This didactic course meets two hours weekly throughout the year, beginning in September. Enrollment limited to 10. M. R. Cullen, M. Russi, and Occupational Medicine faculty.

**Internal Medicine 152, Occupational and Environmental Medicine.** This full-time clinical elective emphasizes recognition, management, and prevention of occupational diseases. Approximately five half-days are spent in outpatient clinics, the remainder of the time in on-site plant evaluation, clinical follow-up, and didactic teaching sessions. This course is full time, limited to two students per rotation, scheduling year-round. M. R. Cullen, P. Rabinowitz, C. A. Redlich, M. Russi, J. Sparer, O. Taiwo.

**Internal Medicine 155, Advanced Clinical Clerkships ("Sub Internship").** Students serve as advanced clinical clerks on the floors of one of the following hospitals: Yale-New Haven Hospital; VA Connecticut Healthcare System, West Haven; and Waterbury Hospital, Waterbury. The students function in a role that provides a high degree of involvement in patient care decisions. Students function either as a pair in place of or with first-year residents, admitting patients to the medical service under the close supervision of an upper-level resident in charge of the service and the attending physician. In addition to daily work rounds and teaching-attending rounds, students are expected to participate in departmental conferences concerning their patients. The purpose of the course is to provide advanced undergraduate education in the broad field of internal medicine above that received in the third-year clerkship. It provides the opportunity for students to increase their overall knowledge of, and experience with, a wide variety of disease processes. In addition, it provides practical experience in the process of gathering clinical data, making appropriate formulations, and basing decisions and priorities upon those formulations. By following a larger number of patients more closely, students increase their clinical acumen, improve their technical skills, and develop an appropriate level of clinical confidence. The setting allows the development of an increased sense of patient care responsibility, from admission to discharge of the patient. Offered throughout the year for periods of four weeks each, to students who have completed their required medical clerkships. C. R. Kapadia (program director).

**Internal Medicine 156, Clerkship in Liver Disease.** The student becomes integrated into the team of physicians involved in inpatient and outpatient clinical hepatology. This team normally consists of a faculty attending, one to two postdoctoral fellows in liver disease, and one medical student. The student is expected to see inpatient consultations, discuss the findings with the fellow, and ultimately present the patient to the attending. Additionally, on Tuesday and Wednesday mornings the student sees patients in the Liver Outpatient Clinic. Attendance is expected at weekly liver biopsy, clinical and research conferences, and students may also attend the Liver Transplantation Clinic. This elective represents an intensive experience in hepatology, and during the six-week period the student is introduced not only to problems

in the clinical management of liver disease, but also gains a growing appreciation of the role of the liver in systemic disease. This elective is offered at Yale-New Haven Hospital (Drs. Boyer, Dranoff, Garcia-Tsao, Lim, Mehal, Nathanson, Strazabosco, Swenson, and Taddei) or the VA Connecticut Healthcare System (Drs. Chung, Garcia-Tsao, and Groszmann). Three or six weeks, full time.

**Internal Medicine 157, Gastroenterology.** Clinical rounds and clinics with local and Yale gastroenterologists; conferences on gastrointestinal problems with emphasis on physiologic, radiologic, and pathologic correlation; gastrointestinal radiology conferences; demonstrations of endoscopy (including fiberoptic visualization of the esophagus, stomach, duodenum, colon); other procedures, such as biopsy (liver, esophagus, stomach, small intestine, colon, and rectum), cytology (esophagus, stomach, pancreaticobiliary, and colon), polypectomy, laser, bicap, ERCP, sphincterotomy, sclerotherapy, and PEG. Emphasis on diagnosis and clinical management of gastrointestinal disease of all types. Available to fourth-year students throughout the year at Bridgeport Hospital. I. M. Roberts.

**Internal Medicine 159, Lung Diseases.** Students work closely with faculty and staff of the pulmonary group and participate in daily consulting and intensive care rounds. Students assist in the examination and treatment of patients with various cardiopulmonary diseases, including tuberculosis, chronic obstructive airways disease, asthma, lung cancer, interstitial lung diseases, respiratory lung infection, and other diagnostic problems. They receive practical instruction in lung function tests and their interpretation, in clinical and laboratory methods used for diagnosis and management (including intensive respiratory care), and in fiberoptic bronchoscopy. Didactic lectures are given at the weekly Yale State Chest conference. H. Cain, G. Chupp, L. Cohn, R. Enelow, M. Gulati, P. Lee, R. Matthay, J. McArdle, V. Mohsenin, D. Morris, P. Noble, M. Pisani, C. Redlich, C. Rochester, F. Roux, M. Siegel, L. Tanoue, T. Trow.

**Internal Medicine 180, Rheumatology.** Students participate in the inpatient Rheumatology consult service at Yale-New Haven Hospital and the VA Connecticut Healthcare System, West Haven. Students attend two general arthritis clinics at the VA Connecticut Healthcare System, one general arthritis clinic in the Dana 3 clinic at Yale-New Haven, and spend one or two afternoons per week with an attending rheumatologist in a private practice setting on Dana 3. They complete a core curriculum in Rheumatology and fill out pre- and post-rotation evaluation forms. Formal conferences include Rheumatology Grand Rounds, which are held each Wednesday at 8 a.m., and a Case Conference at 9 a.m. Optional conferences include a Rheumatology research-in-progress meeting held Friday mornings at 9 a.m. If interested, students may opt to combine Rheumatology and Allergy and Clinical Immunology. Rotation limited to two students for each period of four to six weeks throughout the year. L. Bockenstedt, R. Bucala, J. Craft, J. Evans, L. Fraenkel, I. Kang, S. Malawista, M. Mamula, R. Montgomery, L. Suter and selected members of the part-time community faculty.

**Internal Medicine 181, Medical Oncology Clerkship.** An intensive exposure to medical oncology including diagnosis, staging, evaluation and combined modality therapy, supportive care, and management of problems associated with cancer. Students work under the direct supervision of the attending staff and participate in the care and management of patients on the inpatient service and in the outpatient clinic. They join oncology morning rounds and present patients at the Clinical Oncology Conference. Limited to two students for two to six weeks throughout the calendar year. D. L. Cooper, Program Director.

**Internal Medicine 182/Psychiatry 209, Addictions Medicine Clerkship.** Offered jointly by the departments of Internal Medicine and Psychiatry. The Yale University School of Medicine offers an elective clinical training experience in Addictions Medicine for interested third- and fourth-year medical students. The primary training sites are the inpatient psychiatric service

for dual diagnosis patients at the Connecticut Mental Health Center, the outpatient substance abuse treatment services at the Connecticut Mental Health Center, the APT Foundation Central Medical Unit, and the Primary Care Center at Yale-New Haven Hospital. H. R. Pearsall, P. G. O'Connor. The Addictions Medicine Clerkship is an elective that is scheduled for four weeks. (Slightly longer or shorter training experiences are available by contacting H. R. Pearsall.) Students participate as medical student clerks on the Dual Diagnosis Unit at Connecticut Mental Health Center. This experience is an intensive one, and involves working closely with addicted patients with chronic mental illness. In addition to the inpatient experience, students participate in outpatient treatment under the supervision of clinicians at the Substance Abuse Treatment Unit and the Central Medical Unit, and in the substance abuse assessment and referral services of the Primary Care Center. Students are also invited to participate in the Substance Abuse Research Seminar as well as other educational activities of the Inpatient Division and the Substance Abuse Treatment Unit. For students desiring an intensive focus in one of the three areas of teaching (inpatient dual diagnosis, outpatient substance abuse treatment, or substance treatment in a primary care setting), a schedule can be tailored to provide more time in the setting of interest. H. R. Pearsall, P. G. O'Connor.

**Internal Medicine 184, Medical Informatics.** We explore topics in informatics, such as the definition and scope of the specialty, software engineering, networking and networks, database management systems, information retrieval, the electronic medical record, clinical decision support, and medical decision science. By arrangement with the instructor. R. N. Shiffman.

**Internal Medicine 187, Infectious Disease.** The elective emphasizes clinical diagnosis and treatment of patients with infectious diseases, hospitalized at the Hospital of Saint Raphael. Students make rounds with infectious disease fellows and with the infectious disease attending physician. Rounds include discussions of many common infectious diseases problems and of approaches to appropriate use of antibiotics. Students are expected to follow critically ill patients diligently, and may be asked to review articles regarding infections affecting patients followed by the infectious diseases service. J. M. Boyce, S. Weissman, M. Virata, M. Golden.

**Internal Medicine 188, Renal.** The elective is supervised by the Renal Service at the Hospital of St. Raphael. Discussions are held concerning glomerular, tubulo-interstitial, acid-base, and electrolyte disorders. The student participates by performing initial consultations on four or five new inpatients per week, as well as actively participating in the follow-up care of interesting renal, electrolyte, and acid-base problems being followed in the hospital. Student participation in the weekly outpatient Renal Clinic is encouraged. Participation in the outpatient hemodialysis unit and outpatient continuous ambulatory peritoneal dialysis facility is an optional feature of the elective. Formal attending/teaching rounds are held daily for renal fellows, residents, and students participating in the elective. Conferences include biweekly renal conference at the Hospital of St. Raphael, weekly renal conference at Yale-New Haven Hospital, and weekly hemodialysis and continuous ambulatory peritoneal dialysis conferences. The renal fellows at the Hospital of St. Raphael help in the supervision of the students. H. Carey, T. Eisen, F. O. Finkelstein, J. Hansson, M. Hotchkiss, D. Simon, D. Smith.

**Internal Medicine 189, Pulmonary Critical Care.** Supervised clinical management in the Medical-Pulmonary Intensive Care Unit of the Hospital of St. Raphael. The student shares responsibility for a variety of acute medical problems, with an emphasis on pulmonary diseases. Extensive experience with mechanical ventilation and other forms of respiratory therapy is available. A working understanding of cardiopulmonary physiology, arterial blood gases, and acid-base abnormalities in the assessment and management of respiratory disorders is obtained with the direct supervision of pulmonary medicine attending physicians as well as fellowship trainees in the Yale Pulmonary training program. H. Knight, J. Pippim.



**Internal Medicine 193, Subinternship in Medicine, Hospital of St. Raphael.** This subinternship allows the senior student the opportunity to assume more responsibility for patients and continuity of care. Working as a member of the team, the subintern has major responsibilities in initial assessment, plan formulation, and ongoing inpatient management, and will have the opportunity to provide outpatient hospital follow-up. Full-time medical directors provide supervision, feedback, and training. B. Wu, R. Nardino, and colleagues.

**Internal Medicine 195, Medical Intensive Care Unit Elective.** This rotation exposes highly qualified fourth-year students to the broad spectrum of medical critical care. Students are on call every fourth night with an intern and resident pair, assisting them in the admission of patients. Students follow patients in the MICU and assist in their care with their intern and resident. It provides the opportunity for participating in the acute management of common life-threatening illnesses such as sepsis, pulmonary edema, DKA, GI bleeding, acute respiratory failure, acute kidney injury, coma, drug overdoses, metabolic acidosis, and hypertensive emergencies. Students are expected to learn about the pathophysiology and treatment of these disorders in this non-subinternship setting. Basic cardiac life support training is expected. All students should be able to demonstrate satisfactory completion of a Medicine II clerkship before taking this elective. The director is M. Siegel.

**Internal Medicine 500, Methods of Clinical Research.** This composite course begins with an intensive set of summer events during July and the first two weeks of August. The course resumes in September and continues throughout the remainder of the academic year, ending in early June. The overall curriculum integrates several distinct components. The summer term contains sessions on statistics, epidemiology, and clinical and health services research methods and community-based participatory research. The fall term contains more advanced statistics and research methods, as well as several sessions on health policy, social and behavioral influences on health, and community-based research. The spring term contains remaining topics in research methods and several sessions on health management. Summer sessions are held four times a week (ten hours); fall sessions are held three times a week (six and one-half hours); spring sessions are held two times a week (five hours). Permission of instructor required. Directors: H. Krumholz, E. Bradley.

**Internal Medicine 501, Medical Journalism.** A course in review of scientific articles submitted to the Yale Journal of Biology and Medicine. Medical, public health, nursing, and graduate students in other biological sciences are selected on a competitive basis for the editorial board of the Journal, usually in the first year of their graduate program. Students review several manuscripts each year in conjunction with a faculty member and present their reviews to the editorial board. Students also prepare book reviews, review articles, and other kinds of articles for consideration for publication in the Journal. Students have the opportunity to participate in all phases of medical publication, including the technical and production work of the Journal. The students remain on the board for the full term of their graduate program. Editorial board meetings are held regularly throughout the year. Occasional guest lectures and regular discussions by editors of other journals supplement the review sessions. One hour biweekly. W. C. Summers and editorial staff.

**Internal Medicine 502, Clinical Clerkship, The Connecticut Hospice, Branford, Connecticut.** This fifty-two-bed inpatient program at the nation's first hospice provides intensive palliative care for patients with terminal illnesses. The medical, psychosocial, and spiritual needs of these patients and their families are met through the coordinated efforts of an interdisciplinary team of physicians, nurses, social workers, pharmacists, and clergy. When cure is no longer realistic, the goal of therapy becomes symptom control to enable the patient to carry on an alert and pain-free existence. To achieve this goal, a careful physical assessment and noninvasive diagnostic studies can permit the use of focused therapeutic approaches, carefully selected to meet the needs of the individual patient. The specialized hospice care

program emphasizes control of pain and other symptoms with a wide spectrum of both pharmacologic and nonpharmacologic modalities. Students participate in the care and management of hospice inpatients, potentially serving as primary physician for selected patients, under the close supervision of the hospice staff physicians and/or medical director. They participate in morning rounds, family conferences, and weekly Interdisciplinary Team Conferences. A two- or four-week rotation is offered. The four-week rotation includes time spent in the home care program, attending team conferences, and making home visits. The home care program encompasses eighty-nine cities and towns throughout Connecticut. Contact Louis Gonzalez at 203.315.7502.

**Internal Medicine 504, Bone Marrow Transplantation.** A one-month rotation on the adult bone marrow transplantation unit. Daily inpatient rounds are held. Students are involved in the care of the patients, including the performance of procedures, and attend a daily bone marrow transplant clinic for patient follow up. Weekly clinical conferences are also attended. A suggested reading program is provided. Students are required to present a short discussion about a topic of their choice. D. Cooper.

**Internal Medicine 680, Topics in Human Investigation.** This course teaches students about the process through which novel therapeutics are designed, clinically tested, and approved for human use. It is divided into two main components, with the first devoted to moving a chemical agent from the bench to the clinic, and the second to outlining the objectives and methods of conducting clinical trials. The latter section also includes a discussion of the FDA approval process. Consent of instructor is required. January 17–May 8, 2008. Course Directors: Karen Anderson and Joseph Craft.

### *Humanities in Medicine*

The courses listed below are offered through the Program for Humanities in Medicine for 2007–2008. Further information is available from Dr. Thomas Duffy or Clara Gyorgyey at 203.785.6102. Schedules of courses are flexible. Students who are interested in any (or all) of the following courses, or have other interests that could be addressed through this program, are asked to indicate this on the sign-up sheet. No obligation even if students sign up.

**Internal Medicine 505, Poetry and Medicine.** Hope, courage, devotion, anguish, pain, illness, and death—the substance of all great literature is also fundamental to medicine. Poetry and Medicine, a bi-monthly seminar elective, introduces students to works of poetry, illuminating the ethical, moral, and psychological issues continually confronting their profession. The course helps students develop an understanding of the ways in which interpreting literature enhances their interactions with patients and clarifies some dimensions of their work. Course schedule: Bi-monthly meetings at a mutually determined time. P. Kirwin, T. Duffy

**Internal Medicine 509b, Pregnancy and Neonatal Loss.** For first-year students. This elective centers around what a physician feels when his/her patient dies and how he/she can come to a resolution with regard to this loss. In particular, focus on the expression of feelings through letter writing, poetry, and face-to-face encounters with family members. Introduction to “case histories” based upon the lecturer’s experiences. Course schedule: six meetings at a mutually determined time. Please contact the instructor by e-mail: berman@hygeia.org. M. R. Berman.

## INVESTIGATIVE MEDICINE

Office: Edward S. Harkness Building (ESH), basement 18–19, 785.6842

### *Professors*

H. M. Krumholz (*Medicine*), E. D. Shapiro (*Pediatrics*), M. E. Tinetti (*Medicine*)

### *Associate Professors*

T. M. Gill (*Medicine*), J. R. Gruen (*Pediatrics*)

**IMED 615a, Functional Genomics in Translational Research.** In this two-week course, students learn how to access and interpret the vast amounts of genetic and genomic data that are rapidly being accumulated from genome sequencing projects. This course takes an integrated approach exploring how genomes are mapped and sequenced, how various computational methods convert this raw data into biologically relevant information, and how this information can then be utilized to design experimental approaches to gene function. Lectures are supplemented with computer laboratory sessions to reinforce ideas and to provide practical experience. The course provides practical training in bioinformatics methods, including accessing the major public sequence databases, use of the BLAST tools to find and compare sequences, analysis of protein and nucleic acid sequence motifs, gene structure and promoter analysis, sequence alignment and comparative genomics. Experimental approaches covered include PCR, real-time quantitative PCR, primer design, microarray, inhibitory RNA, and the design of transgenic and knockout mouse models. Consent of instructor required. Two weeks, August 13–August 24. J. Craft.

**IMED 625a, Principles of Clinical Research.** The purpose of this intensive two-week course is to provide an overview of the objectives, research strategies, and methods of conducting patient-oriented research. Topics include competing objectives of clinical research, principles of observational studies, principles of clinical trials, principles of meta-analysis, interpretation of diagnostic tests, prognostic studies, causal inference, qualitative research methods, and decision analysis. Sessions generally combine a lecture on the topic with discussion of articles that are distributed in advance of the sessions. Consent of instructor required. Two weeks, July 30–August 10. E. Shapiro.

**IMED 630a, Ethical and Practical Issues in Clinical Investigation.** This term-long course addresses topics that are central to the conduct of clinical investigation, including ethics of clinical investigation, scientific fraud, technology transfer, and interfacing with the pharmaceutical industry. Practical sessions include scientific presentations and teaching, NIH peer review process, journal peer review process, and career development models of academia. This course provides guidelines and a framework for the clinical investigator to obtain funding for, conduct, and present a clinical study. Format consists of didactic presentation followed by discussion. Consent of instructor required. H. Binder.

**IMED 645a, Introduction to Biostatistics in Clinical Investigation.** This course provides an introduction to statistical concepts and techniques commonly encountered in medical research. Previous course work in statistics or experience with statistical packages is not a requirement. Topics to be discussed include study design, probability, comparing sample means and proportions, survival analysis, and sample size/power calculations. The computer lab incorporates lecture content into practical application by introducing the statistical software package SPSS to describe and analyze data. Two weeks, July 16–27. H. Binder.

**IMED 650a, Seminars in Clinical Investigation.** In this term-long seminar course a range of

topics is covered in the format of an interactive seminar. Topics including detailed evaluation of study designs (cohort studies, case-control studies, and clinical trials), development and validation of indices, review of approaches to methodology and issues related to implementation of the methodology (assuring quality of the data, qualitative research methods, estimation of sample size and statistical power), and introduction to finding sources to fund grant proposals. The format for most of the seminars consists of a didactic presentation followed by intensive discussion of research articles and research protocols. Students lead the discussion in the critical analysis and evaluation of the articles. Attendance and active participation are required. Consent of instructor required. E. Shapiro.

**IMED 655b, Grants, NIH, and Manuscripts.** In this term-long course, students gain intensive, practical experience in evaluating and preparing grants, including introduction to NIH study section format. The course gives new clinical investigators the essential tools to design and to initiate their own proposals for obtaining grants to do research and to develop their own careers. The course is limited to students who plan to submit grant proposals (usually for either a K-23 or a K-08 grant). Attendance and active participation are required. Consent of instructor required. E. Shapiro.

**IMED 680b, Topics in Human Investigation.** This course teaches students about the process through which novel therapeutics are designed, clinically tested, and approved for human use. It is divided into two main components, with the first devoted to moving a chemical agent from the bench to the clinic, and the second to outlining the objectives and methods of conducting clinical trials. The latter section also includes a discussion of the FDA approval process. J. Craft, K. Anderson.

## LABORATORY MEDICINE

Office: CB 407, 688.2446

### *Professors*

A. Baumgarten (*Emeritus*), F. J. Bia (*Medicine*), J. R. Bove (*Emeritus*), Y. Choi (*Pathology*), R. K. Donabedian (*Emeritus*), S. C. Edberg, P. I. Jatlow, P. B. Kavathas, D. S. Krause, M. Landry, P. McPhedran (*Emeritus*), D. Seligson (*Emeritus*), M. J. Shlomchik, J. L. Sklar (*Pathology*), B. R. Smith (*Chair*), E. L. Snyder, P. J. Tattersall

### *Associate Professors*

S. M. Campbell, M. E. Hodsdon, C. D. Rinder (*Anesthesiology*), H. M. Rinder, G. E. Stack

### *Assistant Professors*

J. G. Howe, Y. Wu

### *Senior Research Scientist*

S. F. Cotmore

### *Research Scientists*

G. M. Anderson (*Child Study Center*), W. J. McMurray

### *Associate Research Scientists*

L. Devine, A. M. Haberman, C. Keeler, L. Li

### *Clinical Professors*

B. P. Griffith, R. A. Levine, S. C. Wardlaw

### *Associate Clinical Professors*

P. N. Fiedler (*Pathology*), D. R. Mayo, I. Nash, T. J. Tinghitella

### *Assistant Clinical Professors*

S. R. Gray, I. V. Kaplan, H. Malkus, R. R. Rathbone, C. A. Rauch, N. Shafi, M. Velleca, J. C. West

### *Lecturers*

M. Champion, S. A. Cohen, N. Drew, D. Ferguson, W. M. Gross

**Laboratory Medicine 102b.** This lecture, laboratory, and seminar course deals with scientific use of clinical laboratories (hematology, clinical chemistry, immunology, blood banking) as a basis for the understanding, diagnosis, and treatment of disease. Emphasis is on the selection and interpretation of laboratory tests used in the practice of medicine as well as on acquiring some understanding of the technology used in the clinical laboratories. Lectures and laboratories are integrated into the new organ-based modular system of clinical instruction for second-year medical students. Second-year course. M. L. Landry and associates.

**Laboratory Medicine 123a, Medical Microbiology.** This course focuses on both basic microbial pathophysiology and medical microbiology. The course is divided into four sections, consisting of microbial physiology and genetics, bacteriology and mycology, virology, and parasitology. Microbial pathogenesis is taught as it relates to human infectious disease on the cellular and molecular levels. The unique structures, lifestyles, and roles in producing disease of medically important microbes are taught in lecture, laboratory, and small group settings.

Laboratory sessions employ a case-based approach to teach the effective use of laboratory testing in the diagnosis and management of infectious diseases. Microscopy, culture and biochemical, immunological, and molecular techniques are demonstrated and discussed, and simple tests such as Gram stain and rapid antigen tests are performed. Problem-based learning sessions in clinical infectious disease are offered in the last half of the course to provide a bridge from the science of the microbe to the management of infected patients. Second-year course. S. Campbell, F. Bia, S. Edberg, M. L. Landry, T. Tinghitella, and associates.

**Laboratory Medicine Elective 131.** The Department of Laboratory Medicine offers a two- or four-week elective with rotations through the clinical laboratories, including Blood Bank, Therapeutic Apheresis, Clinical Chemistry, Toxicology, Hematology and Coagulation, Flow Cytometry, Immunology, Molecular Diagnostics, Microbiology, and Virology. The student works closely with residents, fellows, attendings, and laboratory staff; works up clinical cases under supervision; and attends morning report, case conference, journal club, clinical rounds, and didactic sessions. The student also has the opportunity to work with the resident on call for at least one weekend day during the elective. The student can rotate through all laboratories, or focus on specific laboratories of interest. The goals of the elective are to learn appropriate usage and interpretation of laboratory tests, and to gain a better understanding of the theoretical, technological, and clinical underpinnings of Laboratory Medicine. This elective is appropriate for students considering a career in Laboratory Medicine or combined Laboratory Medicine and Pathology, but also for all students who will use clinical laboratory testing in their careers. Electives are for two weeks or four weeks, and are limited to one student per session. M. L. Landry and associates.

**Laboratory Medicine and Surgical Pathology Elective.** The Departments of Laboratory Medicine and Pathology offer a four-week elective that combines two weeks of Laboratory Medicine and two weeks of Surgical Pathology. In Laboratory Medicine, students rotate through the clinical laboratories, including Blood Bank, Therapeutic Apheresis, Clinical Chemistry, Toxicology, Hematology and Coagulation, Flow Cytometry, Immunology, Molecular Diagnostics, Microbiology, and Virology. The student works closely with residents, fellows, attendings, and laboratory staff; works up clinical cases under supervision; and attends conferences and didactic sessions. The goals are to learn appropriate usage and interpretation of laboratory tests, and to gain a better understanding of the theoretical, technological, and clinical underpinnings of Laboratory Medicine.

In Surgical Pathology, students rotate through specialty and general anatomic surgical pathology, frozen section, hematopathology, renal and electron microscopy, molecular diagnostics, cytology, and autopsy. The students work with residents, fellows, attendings, and laboratory staff, participate in work up of clinical cases under supervision, attend tumor boards and other clinical conferences and didactic sessions. The goals are to understand the basic principles of diagnostic anatomic pathology and its role in clinical medicine. This elective is appropriate for students considering a career in Laboratory Medicine and/or Pathology, but also for all students who will use laboratory and pathology tests in their careers. Electives are for 4 weeks, and are limited to one to two students per session. M. L. Landry and D. Rimm.

**Laboratory Medicine Teaching Sessions for Third-Year Medical Students.** The purpose of the Laboratory Medicine Teaching Sessions is to introduce third-year students on their clinical rotations to basic concepts of laboratory diagnosis. On the first afternoon of their Internal Medicine rotations at Yale-New Haven Hospital, students visit four laboratories: Blood Bank, Hematology, Chemistry, and Microbiology/Virology. In each laboratory the faculty use clinical cases together with relevant slides, culture plates, or other test data to illustrate the use and interpretation, as well as pitfalls, of laboratory tests. These teaching sessions should also serve to encourage and facilitate communication with the laboratories after the students return to the wards. Third-year course. M.L. Landry and associates.

## MICROBIAL PATHOGENESIS

Office: 295 Congress Avenue, Room 336B, 737.2404

### *Professors*

N. W. Andrews, M. Cappello (*Pediatrics*), E. Fikrig (*Medicine*), J. E. Galan (*Chair*),  
M. K. Hostetter (*Pediatrics*)

### *Associate Professor*

W. Mothes, C. R. Roy

### *Assistant Professors*

H. F. Agaisse, B. I. Kazmierczak (*Medicine*), B. Lindenbach, J. D. Macmicking

### *Associate Research Scientists*

C. G. Briones, I. Derre, F. Du, D. Hofreuter, C. Huynh, M. D. Lara-Tejero, J. Patel

*The following courses in the Graduate School of Arts and Sciences are open to medical students with permission of the DGS.*

**MBIO 642a/EMD 642a/GENE 642a/MB&B 642a/MCDB 642a, Roles of Microorganisms in the Living World.** A topical course exploring the biology of microorganisms. Emphasis on mechanisms underlying microbial adaptations and how they influence biological systems. Prerequisites: biology, chemistry, and biochemistry. N. Ornston, D. Söll, D. McMahon-Pratt.

**MBIO 670a,b, Laboratory Rotation.** Rotation in three laboratories. Required for all first-year graduate students. J. Sweasy.

**MBIO 684b, Advanced Topics in Molecular Parasitology.** An advanced graduate-level seminar course in modern parasitology. The class is focused on the reading and critical evaluation of papers from the current literature selected by the students in cellular and molecular mechanisms of parasitism. Prerequisites: EMD 680a is highly recommended; permission of the instructor. D. McMahon-Pratt, C. Tschudi.

**MBIO 685b, Molecular Mechanisms of Microbial Pathogenesis.** This course focuses on current topics related to host pathogens interactions. Each week a lecture is given on the topic, followed by student presentations of seminal papers in the field. All participants are required to present a paper. J. Galán, N. Andrews, C. Roy, W. Mothes, J. MacMicking, H. Agaisse, B. Lindenbach.

**MBIO 700a, Seminal Papers on the Foundations of Modern Microbiology.** A required course for Microbiology first- and second-year students; not for credit. The course is offered every second year, alternating with MBIO 703a, so that it can be taken once during each student's tenure in the program. Students present and discuss papers describing fundamental discoveries in areas related to microbiology. The goal is to familiarize students with the process of scientific discovery and with the history of major developments in the field. Topics include important discoveries involving major human pathogens, fundamental processes in molecular biology, and the development of technology that has a major impact on current biomedical research. Offered every other year. P. Tattersall.

**MBIO 701a,b, Research in Progress.** All students, beginning in their third year, are required to present their research once a year at the Graduate Student Research-in-Progress. These presentations are intended to give each student practice in presenting his or her own work before a sympathetic but critical audience and to familiarize the faculty with the research. J. Sweasy.

**MBIO 702a,b, Microbiology Seminar Series.** All students are required to attend all Microbiology seminars scheduled throughout the academic year. Microbiologists from around the world are invited to describe their research. J. Sweasy.

**MBIO 703a, Evasion of Host Defenses by Viruses, Bacteria, and Eukaryotic Parasites.** A required course for Microbiology first- and second-year students; not for credit. The course is offered every second year, alternating with MBIO 700a, so that it can be taken once during each student's tenure in the program. Students present and discuss papers on the strategies employed by microbial organisms to evade either cell-intrinsic defenses, such as the induction of programmed cell death, or response operating at the level of the organism, such as adaptive immunity. P. Tattersall.

**MBIO 734a/GENE 734a, Molecular Biology of Animal Viruses.** Lecture course with emphasis on mechanisms of viral replication, oncogenic transformation, and virus-host cell interactions. D. DiMaio, G. Miller, P. Tattersall, W. Mothes, J. Rose, R. Means, M. Robek.



## MOLECULAR BIOPHYSICS AND BIOCHEMISTRY

Offices: JWG 304, 432.2077; SHM C106, 785.4246

### *Professors*

S. J. Baserga, G. W. Brudvig (*Chemistry*), D. M. Crothers (*Emeritus*), D. M. Engelman, A. Garen, M. B. Gerstein, S. Ghosh (*Immunobiology*), N. D. Grindley, A. D. Hamilton (*Provost*), M. W. Hochstrasser, W. H. Konigsberg, P. Lengyel (*Emeritus*), R. P. Lifton (*Genetics*), I. Miller (*Pediatrics*), P. B. Moore (*Chemistry*), T. D. Pollard (*Molecular, Cellular, and Developmental Biology*), A. Pyle, L. J. Regan, F. M. Richards (*Emeritus*), G. L. Schmir (*Emeritus*), R. G. Shulman (*Emeritus*), M. Snyder (*Molecular, Cellular, and Developmental Biology*), D. G. Söll, M. J. Solomon, J. A. Steitz, T. A. Steitz, S. A. Strobel (*Chair*), W. C. Summers (*Therapeutic Radiology*), P. Sung, S. L. Wolin (*Cell Biology*)

### *Professor (Adjunct) of Research*

K. R. Williams

### *Associate Professors*

J. H. Cabral, E. M. De La Cruz, M. R. Koelle, A. J. Koleske, A. D. Miranker, V. M. Unger

### *Assistant Professors*

T. Biederer, Y. E. Modis, A. E. Rhoades, Y. Xiong

### *Senior Research Scientists*

C. M. Joyce, F. M. Richards

### *Research Scientists*

J. L. Burton, P. Flory (*Genetics*), Z. Hu, S. M. Mane, K. Tycowski, J. Wang

### *Associate Research Scientists*

R. A. Albright, S. Bailey, S. Balasubramanian, R. K. Beran, G. Blaha, C. Bruce, A. Cheng, G. M. Clayton, C. M. Colangelo, J. K. Countryman, A. S. El-Guindy, J. I. Elliott, O. A. Fedorova, E. J. Folta-Stogniew, E. Gulcicek, P. Kim, D. E. Klimenko, Y. Kong, T. T. Lam, I. Lomakin, A. Lopez-Cortajarena, J. R. Lytle, D. Ostapenko, T. Ravid, J. S. Rozowsky, A. Sachpatzidis, M. Simonovic, F. Yi

### *Lecturers*

C. A. Bascom-Slack, A. A. Belperron (*Medicine*), R. J. Brown, E. L. Herzog (*Medicine*), J. S. Kahn (*Pediatrics*), A. B. Pawashe, M. P. Strout (*Medicine*), E. C. Thrower (*Medicine*), R. Torres

**MB&B 523a/PHYS 523a, Biological Physics.** An introduction to the physics of biological systems including molecular motors, protein folding, membrane self-assembly, ion pumping, and bacterial locomotion. Background concepts in probability and statistical mechanics are introduced as necessary. S. Mochrie.

**MB&B 545b/CPSC 545b/CB&B 545b, Introduction to Data Mining.** 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. M. Schultz, M. Gerstein.

**MB&B 550a, Molecular Foundations of Medicine.** This course is part of the Molecules to Systems course, which is open only to first-year medical students. An introduction to the major concepts of biochemistry and molecular biology, with emphasis on the human body. Special attention is devoted to how recent advances in basic science contribute to our understanding and treatment of human disease. S. Baserga, M. Solomon, D. Engelman. Conference leaders: A. Belperron, J. Kahn, E. Herzog, E. Thrower, R. Torres, M. Stroud, R.J. Brown.

**MB&B 600a, Principles of Biochemistry I.** 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. M. Koelle, T. Biederer.

**MB&B 601b, Principles of Biochemistry II.** A continuation of MB&B 600a 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. J. Steitz, S. Strobel.

**MB&B 602a/CBIO 602a/MCDB 602a, Molecular Cell Biology.** A comprehensive introduction to the molecular and mechanistic aspects of cell biology for graduate students in all programs. Emphasizes fundamental issues of cellular organization, regulation, biogenesis, and function at the molecular level. S. Wolin, M. Solomon, V. Unger, and staff.

**MB&B 625a/GENE 625a/MCDB 625a, Basic Concepts of Genetic Analysis.** The universal principles of genetic analysis in eukaryotes are discussed in lectures. Students also read a small selection of primary papers illustrating the very best of genetic analysis and dissect them in detail in the discussion sections. While other Yale graduate molecular genetics courses emphasize molecular biology, this course focuses on the concepts and logic underlying modern genetic analysis. T. Xu, M. Koelle, and staff.

**MB&B 630b/MCDB 630b, Biochemical and Biophysical Approaches in Molecular and Cellular Biology.** This graduate course introduces the theory and application of biochemical and biophysical methods to study the structure and function of biological macromolecules. The course considers the basic physical chemistry required in cellular and molecular biology but does not require a previous course in physical chemistry. One class per week is a lecture introducing a topic. The second class is a discussion of one or two research papers utilizing those methods. T. Pollard, E. De La Cruz, V. Unger, and staff.

**MB&B 635a<sup>II</sup>, Mathematical Methods in Biophysics.** Applied mathematical methods relevant to analysis and interpretation of biophysical and biochemical data are covered. Students apply these methods (statistics and error analysis, differential equations, linear algebra, and Fourier transforms) to analyze data from research groups in MB&B. Prerequisites: MATH 120 (or equivalent) and MB&B 600a (or equivalent) or permission of instructors. Y. Xiong, E. Rhoades.

**MB&B 650, Laboratory Rotation for First-Year Students.** Required for all MB&B first-year graduate students. Credit for full year only. M. Solomon.

**MB&B 675, Seminar for First-Year Students.** Required for all first-year MB&B graduate students. Y. Modis.

**MB&B 676b, Responsible Conduct of Research.** Designed for students who are beginning to do scientific research. The course seeks to describe some of the basic features of life in contemporary research and some of the personal and professional issues that researchers encounter in their work. Approximately six sessions run in a seminar/discussion format. Required for all first-year MB&B graduate students. T. Biederer and staff.

**[MB&B 705a/GENE 705a/MCDB 505a, Molecular Genetics of Prokaryotes.** Molecular aspects of the storage, replication, evolution, and expression of genetic material in prokaryotes. Prerequisites: previous or concurrent introductory courses in genetics and biochemistry. N. D. F. Grindley, P. Sung.]

**MB&B 710b4/C&MP 710b4, Electron Cryo-Microscopy for Protein Structure Determination.** Understanding cellular function requires structural and biochemical studies at an ever-increasing level of complexity. The course is an introduction to the concepts and applications of high-resolution electron cryo-microscopy. This rapidly emerging new technique is the only method that allows biological macromolecules to be studied at all levels of resolution from cellular organization to near atomic detail. F. Sigworth, V. Unger.

**MB&B 720a, Macromolecular Structure and Biophysical Analysis.** An in-depth analysis of macromolecular structure 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: physical chemistry (may be taken concurrently) and biochemistry. A. Miranker, J. M. Cabral, A. Pyle.

**MB&B 721b, Macromolecular Interactions and Dynamic Properties.** This course examines dynamic properties of macromolecules, their interactions, catalytic activities, and methods for analyzing their behavior. Topics include macromolecular folding, binding interfaces, ligand interactions, and the properties of membrane proteins, enzymes, ribozymes, and molecular motors. These areas are presented together with modern methods for analysis of macromolecular associations and dynamic properties. Prerequisites: biochemistry, physical chemistry, and MB&B 720a or permission of the instructor. A. Pyle, E. Rhoades, Y. Xiong.

**MB&B 730a, Methods and Logic in Molecular Biology.** This course examines fundamental concepts in molecular biology through intense critical analysis of the primary literature. The objective is to develop primary literature reading and critical thinking skills. Required of and open only to first-year graduate students in MB&B. M. Solomon, A. Koleske, L. Regan.

**MB&B 743b/GENE 743b/MCDB 743b, Advanced Eukaryotic Molecular Biology.** Selected topics in transcriptional control, regulation of chromatin structure, mRNA processing, mRNA stability, RNA interference, translation, protein degradation, DNA replication, DNA repair, site-specific DNA recombination, somatic hypermutation. Prerequisite: biochemistry or permission of the instructor. M. Hochstrasser, A. Koleske, P. Sung.

**MB&B 749a/GENE 749a, Medical Impact of Basic Science.** 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. Emphasis is placed on the fundamental principles on which these advances rely. Reading is from the primary scientific and medical literature, with emphasis on developing the ability to read this literature critically. Aimed primarily at undergraduates. Prerequisite: biochemistry or permission of the instructor. J. Steitz, M. Hochstrasser, A. Miranker, P. Sung, T. Steitz.

**MB&B 750a2, Biological Membranes.** Biological membranes and their resident proteins are essential for cellular function; yet comparatively little is known about their structure and dynamics. This class provides an introduction to the biochemistry and biophysics of lipids, lipid bilayers, and lipid-derived second messengers. In addition, structural as well as functional aspects of the different classes of membrane proteins are discussed along with an

outline of experimental approaches used to achieve an understanding of membrane protein structure and function at a molecular level. Prerequisite: biochemistry. T. Biederer, D. Engelman, J. Cabral.

**MB&B 752b/CB&B 752b/CPSC 752b/MCDB 752b, Genomics and Bioinformatics.** Genomics describes the determination of the nucleotide sequence and many further analyses to discover functional and structural information on all the genes of an organism. Topics include the methods and results of functional and structural gene analysis on a genome-wide scale as well as a discussion of the implications of this research. Bioinformatics describes the computational analysis of genomes and macromolecular structures on a large scale. Topics include sequence alignment, biological database design, comparative genomics, geometric analysis of protein structure, and macromolecular simulation. Prerequisites: EEB 122b and Math 115, or permission of the instructor. M. Gerstein, D. Söll, M. Snyder.

**MB&B 760b3, Principles of Macromolecular Crystallography.** Rigorous introduction to the principles of macromolecular crystallography, aimed at students who are planning to carry out structural studies involving X-ray crystallography or who want to obtain in-depth knowledge for critical analysis of published crystal structures. Prerequisites: physical chemistry and biochemistry. T. Steitz.

**MB&B 761b4, X-Ray Crystallography Workshop.** This laboratory course provides hands-on training in the practical aspects of macromolecular structure determination by X-ray crystallography. Topics include data collection, data reduction, phasing by multiwavelength anomalous diffraction and molecular replacement, solvent flattening, non-crystallographic symmetry averaging, electron density interpretation, model building, structure refinement, and structure validation. The course includes training in the use of computer programs used to perform these calculations. Prerequisites: MB&B 760b3 and a working exposure to the Unix operating system. Y. Xiong, Y. Modis, and staff.

**MB&B 765b, Enzyme Mechanisms.** An advanced course on the structure, function, and reaction mechanisms of protein and nucleic acid enzymes. The course covers the 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 have provided a molecular understanding of the catalytic strategy of enzymes. Topics include mechanisms of the classic metabolic enzymes; molecular motors, polymerases, and machines; electron transfer, redox enzymes, and their higher-order complexes; ribozymes and DNA enzymes; and the design and selection of novel enzymes. Prerequisites: physical chemistry and biochemistry. E. De La Cruz, G. Brudvig, S. Strobel, and staff.

**MB&B 800a, Advanced Topics in Molecular Medicine.** This seminar course, which covers topics in the molecular mechanisms of disease, illustrates timely issues in areas such as protein chemistry and enzymology, intermediary metabolism, nucleic acid biochemistry, gene expression, and virology. Prerequisite: biochemistry (may be taken concurrently). This course accompanies the lectures in MB&B 550a. M.D. and M.D./Ph.D. students only. S. J. Baserga, W. Konigsberg, I. G. Miller, and staff.

**MB&B 900a or 901b, Reading Course in Biophysics.** Directed reading course in biophysics. Term paper required. By arrangement with faculty. Open to graduate students in MB&B. M. Solomon.

**MB&B 902a or 903b, Reading Course in Molecular Genetics.** Directed reading course in molecular genetics. Term paper required. By arrangement with faculty. Open to graduate students in MB&B. M. Solomon.

**MB&B 904a or 905b, Reading Course in Biochemistry.** Directed reading course in biochemistry. Term paper required. By arrangement with faculty. Open to graduate students in MB&B. M. Solomon.

## NEUROBIOLOGY

Office: SHM C303, 785.4323

### *Professors*

A. Arnsten, C. J. Barnstable (*Adjunct*), B. S. Bunney (*Psychiatry*), N. Daw (*Ophthalmology and Visual Science*), P. De Camilli (*Cell Biology*), N. C. Delanerolle (*Neurosurgery*), J. Gelernter (*Psychiatry*), C. A. Greer (*Neurosurgery*), T. Horvath (*Comparative Medicine*), J. D. Kocsis (*Neurology*), R. H. LaMotte (*Anesthesiology*), C. Leranth (*Obstetrics, Gynecology, and Reproductive Sciences*), P. J. Lombroso (*Child Study Center*), D. A. McCormick, M. Picciotto (*Psychiatry*), P. Rakic (*Chair*), J. Santos-Sacchi (*Surgery*), I. R. Schwartz (*Surgery*), G. M. Shepherd, S. M. Strittmatter (*Neurology*), X. Wang, S. G. Waxman (*Neurology*)

### *Associate Professors*

M. Alreja (*Psychiatry*), H. Blumenfeld (*Neurology*), C. J. Bruce, W. R. Chen, M. C. Crair, S. Diano (*Obstetrics, Gynecology, and Reproductive Sciences*), M. Gunel (*Neurosurgery*), A. J. Koleske (*Molecular Biophysics and Biochemistry*), D. Lee, M. L. Schwartz, N. Tian (*Ophthalmology and Visual Science*), F. M. Vaccarino (*Child Study Center*), C. H. van Dyck (*Psychiatry*), M. F. Yeckel

### *Assistant Professors*

S. A. Castner (*Psychiatry*), M. Laubach, J. A. Mazer, D. S. Navaratnam (*Neurology*), N. Sestan, G. V. Williams (*Psychiatry*)

### *Senior Research Scientist*

N. Carnevale

### *Research Scientist*

L. D. Selemon

### *Associate Research Scientists*

J. Chen, A. Duque, Y. Morozov, T. M. Morse, R. N. Sachdev, M. Wang, D. C. Willhite, W. Xiong, H. Xu

**NBIO 500b/NSCI 510b, Structural and Functional Organization of the Human Nervous System.** An integrative overview of the structure and function of the human brain as it pertains to major neurological and psychiatric disorders. Neuroanatomy, neurophysiology, and clinical correlations are interrelated to provide essential background in the neurosciences. Lectures in neurocytology and neuroanatomy survey neuronal organization in the human brain, with emphasis on long fiber tracts related to clinical neurology. Weekly three-hour laboratory sessions devoted to neuroanatomy in which students dissect the human brain and examine histological sections in close collaboration with faculty members. Lectures in neurophysiology cover various aspects of neural function at the cellular level, with a strong emphasis on the mammalian nervous system. Each student may participate in a weekly physiology conference with a faculty member, covering such topics as vision, sensory physiology, motor systems, simple nervous systems, or general neurophysiology. Clinical correlations consist of five sessions given by one or two faculty members representing both basic and clinical sciences. These sessions relate neurological symptoms to cellular processes in various diseases of

the brain. Variable class schedule; contact course instructor. M. Schwartz, P. Rakic, and staff of the Department of Neurobiology with participation of the departments of Anesthesiology, Neurology, Neurosurgery, Physiology, and Psychiatry.

**NBIO 501a/NSCI 501a, Principles of Neuroscience.** A lecture survey course given jointly by the faculty of the Yale Interdepartmental Graduate Program in Neuroscience as the introductory core course for this program. Each lecture attempts to elucidate a major principle of nervous system development, structure, or function. The lectures are arranged in a sequence of five sections: cellular and molecular neurobiology, neurotransmitters and neuromodulators, development, neural systems, and neural basis of behavior. Topics include molecular structure of ion channels, single channel recording and monoclonal antibodies; synaptic transmission, second-messengers and neuropeptides; synaptogenesis; functional organization of the visual, somatosensory, and olfactory systems; and the cellular basis of behavior, including learning and memory. A short paper is required in each of the five main sections. M. Picciotto, M. Yeckel.

**NBIO 502a, Structure and Function of Neocortex.** This course covers anatomical, biochemical, and physiological organization of selected sensory, motor, and association regions of cortex. Sample topics discussed include development, evolution of multiple representations, columnar organization, and plasticity of neocortex. Permission of instructor required. By arrangement with faculty of the Department of Neurobiology.

**NBIO 507b, Cellular and Molecular Mechanisms of Neurologic Disease.** Molecular and cellular neuroscience has recently developed many novel and powerful techniques for understanding nervous system function. The course focuses on how these basic science advances have been translated into breakthroughs in clinical neurology. Lectures illustrate the connection of modern laboratory studies to our understanding of pathophysiologic mechanisms, to the development of diagnostic tests, and to the use of novel treatment modalities. D. Navaratnam, S. Chandra.

**NBIO 509b/NSCI 539b, Synaptic Organization of the Nervous System.** Introduction to principles of neural circuit organization at the cellular level (morphology, physiology, and pharmacology). Emphasis is on mammalian systems and comparisons with lower vertebrates and invertebrates. Permission of instructor required. Offered again spring 2009. G. Shepherd, A. Williamson, M. Hines.

**NBIO 510a, Introduction to Methods in Cellular and Molecular Neurobiology.** Firsthand insight into various techniques and approaches used in neuroscience. Light microscopic techniques include various metallic impregnation methods, autoradiography, anterograde and retrograde axonal transport methods, hybridoma and recombinant DNA technology, deoxyglucose metabolic method, fluorescent and immunocytochemical methods. Electron microscopy encompasses transmission, electronmicroscopic autoradiography, and immunoperoxidase methodology. Choice of techniques. By arrangement with individual faculty of the Department of Neurobiology.

**[NBIO 524b/NSCI 514b, Neurodevelopment and Neuropsychiatric Disorders.** This course is intended to discuss the general mechanisms that regulate cell fate during the development of the central nervous system. It focuses on the progressive specialization of cellular function beginning with the establishment of CNS polarity, the acquisition of regional identity, and the determination of the fate of neural cells within the CNS. The interactions between evolutionary conserved genes and intercellular signaling systems are emphasized. The course meets twice a week for one hour each time. Each week covers one topic as detailed in the syllabus. On Wednesday, general concepts are reviewed in a seminar format, led by the course director, faculty participants, or invited speakers. On Fridays, one or two papers presented by students

are discussed in detail. All class members are invited to participate in the paper presentation and discussion. F. Vaccarino. Next offered spring 2009.]

**NBIO 570a/NSCI 570a, Cellular and Network Dynamics of Sensory and Motor Functions.**

This course examines the circuitry and functioning of sensorimotor systems, particularly visual and oculomotor, with emphasis on data gathered from single neuron recording and functional imaging in the primate neocortex. Cortical mechanisms of perception, memory, decision making, and motor initiation are considered. Format emphasizes informal presentation, analysis, and criticism of important and recent papers in the field. Prerequisite: Neurobiology 500b. Will be offered with sufficient enrollment. C. Bruce.

**[NBIO 590a/NSCI 590a, Sensory Neuroethology: Bats and Owls, Electric Fish and Beyond.**

In this course we review the neurophysiology of sensory processing with particular attention to animal behavior (ethology) and computation. We begin with the classic neuroethology literature and end with current work on neocortical circuits underlying sensory processing in higher vertebrates. This seminar course meets once per week to read and discuss (mostly) primary research papers selected and presented by the students. Offered in alternate years. Next offered fall 2008. J. Mazer.]

**NBIO 602, Topics in Cortical Development and Evolution.** Advanced tutorial course. P. Rakic.

**[NBIO 610b, Fundamentals in Neurophysiology.** This course is designed for students who wish to gain a theoretical and practical knowledge of modern neurophysiology. Graduate students specializing in neurophysiology and non-neurophysiology are encouraged to attend, as the course begins at a very basic level and progresses to more complicated topics. Topics include properties of ion channels, firing properties of neurons, synaptic transmission, and neurophysiology methodology. Offered in alternate years. Next offered spring 2008. V. Pieribone, F. Sigworth. ]

**NBIO 720a/MCDB 720a/NSCI 720a, Neurobiology.** Examination of the excitability of the nerve cell membrane provides a starting point for the study of molecular, cellular, and intracellular mechanisms underlying the generation and control of behavior. H. Keshishian, P. Forscher.

## NEUROLOGY

Office: LCI 708, 785.5947

### *Professors*

T. Allison (*Emeritus*), J. Booss (*Emeritus*), M. B. Bracken (*Epidemiology*), G. H. Glaser (*Emeritus*), B. Jabbari, R. D. Kerns (*Psychiatry*), J. D. Kocsis, R. H. Mattson (*Emeritus*), L. R. Ment (*Pediatrics*), G. Miller (*Pediatrics*), J. W. Prichard (*Emeritus*), P. Rakic (*Neurobiology*), G. B. Richerson, B. A. Shaywitz (*Pediatrics*), S. S. Spencer, S. M. Strittmatter, S. G. Waxman (*Chair*)

### *Associate Professors*

J. M. Baehring, H. Blumenfeld, R. B. Duckrow, J. M. Goldstein, E. Novotny (*Pediatrics*), J. W. Pan (*Neurosurgery*), H. S. Patwa, O. A. Petroff

### *Assistant Professors*

M. Carrithers, S. S. Chandra, E. J. Fertig, B. C. Hains, D. S. Navaratnam, S. Novella, J. Preiningerova, H. Tokuno

### *Instructors*

O. Avitzur, T. Z. Fischer, N. Y. Harel, E. Irizarry, G. Rao, D. Richardson

### *Senior Research Scientists*

R. H. Mattson

### *Research Scientists*

J. A. Black, S. D. Dib-Hajj

### *Associate Research Scientists*

S. K. Agulian, J. Bai, J. S. Choi, N. R. Driesen (*Psychiatry*), M. Estacion, E. C. Gunther, F. Hu, K. Lankford, M. Sasaki, A. M. Szekely (*Genetics*), X. Wang, Y. Wu, H. P. Zaveri, P. Zhao

### *Clinical Professors*

R. L. Lesser (*Ophthalmology and Visual Science*), L. L. Levy, K. Marek, F. M. Testa (*Pediatrics*)

### *Associate Clinical Professors*

R. C. Delaney, J. C. McVeety, J. C. Moench, K. N. Sena, S. J. Tepper, N. S. Werdiger

### *Assistant Clinical Professors*

S. L. Bridgers, J. B. Butler, D. J. Coskun, J. B. Guarnaccia, M. Hasbani, A. Katz, J. H. Mashman, F. K. Nahm, D. S. Russell (*Psychiatry*), M. J. Stransky, D. Z. Tkeshelashvili

### *Clinical Instructors*

A. R. Bobowick, L. J. Cretella, R. P. Einbinder, C. H. Gottschalk (*Psychiatry*), J. L. Gross, M. J. Hasbani, S. Kadimi, P. J. McAllister, A. Quan Hong, H. Sami, D. J. Shiling, K. C. Siegel, J. Yim, D. M. Zagar



*Lecturers*

L. Bangalore, J. Schindler

**Neurology 102, Clinical Neuroscience Core Clerkship.** The primary goal of this four-week clinical clerkship is to provide students with a fundamental approach to the nervous system. Specifically, this means the history, examination, diagnostic imaging, and treatment in the context of specific patients. Additionally, there is a series of lectures covering the broad range of conditions students are likely to encounter, such as trauma, stroke, infections, tumors, dementias, and seizures. Students take call with neurology residents once a week at Yale-New Haven Hospital; students assigned to neurosurgery take call with the residents on that service. After having given input on their preferences, students are placed on one of the following services for their clerkships: adult inpatient neurology, adult neurology consultation service, pediatric neurology, neurosurgery. All rotations are done at YNHH, the VA Connecticut Healthcare System, West Haven, or St. Raphael's Hospital. H. Patwa, L. Ment, C. Duncan, H. Blumenfeld.

**Neurology 103, Clinical Neurology Elective.** Assignments for the clinical neurology elective are to the YNHH neurology consultation service, a rotation consisting of all outpatient clinics; or to the YNHH Inpatient Neurology Service. Four-week blocks coinciding with clerkship dates are preferred, but scheduling of electives is somewhat flexible. Students are able to request a choice, but assignment is made to assure that there is a balanced distribution between students in the required Neuroscience Clerkship and those doing electives, in order to allow an optimal learning experience for all students. Students work directly with attending faculty, chief residents, and junior residents as well as other medical students, rotators, and support staff. In addition to in-hospital patient evaluation and care, students on a consultation service are assigned to outpatient clinics. The students participate in departmental conferences and seminars. In addition, participation in most of the activities of the required Neuroscience Clerkship (e.g., didactic lectures) is encouraged (see Neurology 102 for description of clerkship details). The department is receptive to other specially tailored programs in areas such as epilepsy, stroke, movement disorders, neuroimmunology, etc., as well as clinical neurophysiology and research methods. H. Patwa and associates.

**Neurology 104, Clinical Neurology Subinternship.** Under appropriate supervision, students directly examine, diagnose, and manage patients on the neurology services at Yale-New Haven Hospital and attend daily teaching rounds and conferences. Hours to be arranged. Four-week rotations are recommended; alternative services are possible. Limited to two students each period. H. Patwa and associates.

**Neurology 106b, Clinical Neurophysiology.** Seminars and demonstrations in clinical applications of neurophysiology: electromyography and electroencephalography. Basic electronics are taught along with standard practice of recording and interpreting neurophysiology studies. J. M. Goldstein, H. Patwa, S. P. Novella.

**Neurology 108b/NSCI 507b, Cellular and Molecular Mechanisms of Neurological Disease.** Focuses on those diseases (Alzheimer's, Parkinson's, ALS and other neurodegenerative diseases, triplet repeat induced diseases, multiple sclerosis, epilepsy, etc.) in which modern neuroscience has advanced mechanistic explanations for clinical conditions. The course highlights recent molecular, electrophysiological, and imaging experiments in parsing disease mechanisms. The application of pathophysiologic understanding to therapeutics is considered. D. Navaratnam, S. Strittmatter, S. Waxman.

**Neurology 112b, Neuro-Oncology.** Neurological complications occur in approximately 20 percent of hospitalized oncology patients. The neurological complications of systemic cancer, as well as of primary CNS tumors, are discussed in depth. Issues regarding diagnosis and management of metastatic disease involving the nervous system as well as treatment-related complications are reviewed. In addition, metabolic and vascular disturbances and infections unique to the oncology patient that involve the nervous system are discussed. Specific cases are presented and arrangements are made to see specific patients during the elective period. This course is offered every three weeks with two lectures each week and is limited to three or four students per session. J. Baehring.

**Neurology 114b, Physiology of the Mammalian Nervous System.** The overall objective of this laboratory course is to introduce the student by hands-on experience to a variety of cellular electrophysiological techniques used in the study of the mammalian nervous system. Students set up a small electrophysiology laboratory and carry out experiments with the supervision of faculty. Laboratories include sucrose gap in whole nerve, single microelectrode current and voltage clamp recording of sensory neurons, field potential studies in rat hippocampal slice, and patch clamp analysis of cultured neurons. This course is limited to six to eight students. Permission of instructor is required for enrollment, 203.937.3802. J. D. Kocsis.

## NEUROSURGERY

Office: TMP 4, 785.2805

### *Professors*

R. A. Bronen (*Diagnostic Radiology*), W. F. Collins (*Emeritus*), R. T. Constable (*Diagnostic Radiology*), N. C. Delanerolle, C. C. Duncan, C. A. Greer, H. P. Hetherington, C. C. LaMotte, J. A. Persing (*Surgery*), J. M. Piepmeier, D. E. Redmond, Jr. (*Psychiatry*), K. J. Ruskin (*Anesthesiology*), D. D. Spencer (*Chair*), S. S. Spencer (*Neurology*), A. N. Van den Pol

### *Associate Professors*

J. M. Baehring (*Neurology*), H. Blumenfeld (*Neurology*), A. Bordey, R. B. Duckrow (*Neurology*), M. Gunel, J. T. King, E. Novotny (*Pediatrics*), J. W. Pan, K. P. Vives, M. Westerveld, A. Williamson

### *Assistant Professors*

K. M. Abbed, K. R. Bulsara, I. Cavus (*Psychiatry*), V. L. Chiang, E. J. Fertig (*Neurology*), D. J. Gaal (*Anesthesiology*), A. Louvi, D. Z. Tkeshelashvili (*Neurology*), H. B. Treloar

### *Associate Research Scientists*

N. Avdievich, K. Bilguvar, L. Chen, L. Fu, P. K. Ghosh, H. Huang, Y. Li, M. N. Spann, K. Wu

### *Clinical Professor*

L. M. Davey

### *Associate Clinical Professors*

I. Goodrich, D. E. Nijensohn

### *Assistant Clinical Professors*

A. P. Amar, T. J. Arkins, G. M. Bloomgarden, P. S. Dickey, K. S. Firlik, Z. Ghogawala, J. F. Kveton (*Surgery*), J. K. Sabshin, J. G. Strugar

### *Clinical Instructors*

E. W. Akeyson, J. L. Gorelick

### *Lecturer*

E. M. Lydon

**Neurosurgery 101, Neurological Surgery.** This is an externship in which the student is involved in inpatient evaluation, outpatient visits, supervised emergency, and inpatient consultations. The student attends the operating room, follows patients, and is expected to correlate the clinical experience with basic neuroscience. K. M. Abbed, J. Baehring, K. R. Bulsara, V. Chiang, R. B. Duckrow, C. C. Duncan, M. Gunel, J. King, J. M. Piepmeier, D. D. Spencer, K. P. Vives.

**Neurosurgery 102, Investigational Neuroscience.** Typically taken during completion of the thesis requirement. Specific projects are by agreement with faculty members. Ongoing laboratory research includes the molecular neuroanatomical assessment of the epileptic focus (N. C. deLanerolle); ultrastructural assessment of organization and plasticity in local synaptic networks (C. A. Greer); the distribution and specificity of membrane-bound proteins directing neuronal growth (A. Van den Pol); glial cell function at synapses; intercellular communication promoting neurogenesis (A. Bordey); human and animal slice electrophysiology (A. Williamson, A. Bordey); human and animal intracerebral microdialysis (D. Spencer, I. Cavus); image-guided neurosurgical robotics and biophysical studies of brain imaging (D. Spencer, J. Duncan, K. Vives); stimulation of the brain for chronic neurological diseases (K. Vives, R. B. Duckrow, D. Spencer); molecular genetics of neurological disease (M. Gunel); angiogenesis and neurogenesis, skull base anatomy, bypass techniques, and endovascular technology development (K. Bulsara); characterization of ensheathing cells in promoting axonal elongation (C. A. Greer). Clinical research includes neurotrauma (V. Chiang), neuropsychological studies (M. Spann), spine disease and clinical trials (K. Abbed, Z. Ghogawala), epilepsy surgery (D. Spencer, K. Vives), pediatric neurosurgery outcomes (C. Duncan), neurooncology (J. Piepmeier, J. Baehring), basic mechanisms in CNS lymphoma (J. Baehring), and stereotactic radiosurgery (V. Chiang, K. Vives). Available throughout the year. Arrangements made with C. A. Greer.

## OBSTETRICS, GYNECOLOGY, AND REPRODUCTIVE SCIENCES

Office: FMB 331, 785.4294

### *Professors*

A. M. Arici, H. R. Behrman, M. B. Bracken (*Epidemiology*), F. R. Braveman (*Anesthesiology*), G. N. Burrow (*Medicine*), J. A. Copel, R. A. Ehrenkranz (*Pediatrics*), I. Gross (*Pediatrics*), J. P. Hayslett (*Medicine*), R. B. Hochberg, T. Horvath (*Comparative Medicine*), E. I. Kohorn (*Emeritus*), C. Leranth, C. J. Lockwood (*Chair*), M. J. Mahoney (*Genetics*), N. J. Maihle, S. M. McCarthy (*Diagnostic Radiology*), P. Patrizio, P. M. Sarrel (*Emeritus*), P. E. Schwartz, F. A. Tavassoli (*Pathology*), H. S. Taylor

### *Associate Professors*

M. Azodi, C. Bulletti (*Adjunct*), S. Diano, A. J. Duleba (*Adjunct*), C. N. Epperson (*Psychiatry*), S. J. Fortunato (*Adjunct*), E. F. Funai, F. Galerneau, S. M. Guller, J. B. Henrich (*Medicine*), M. Lee, U. Magriples, S. Mark (*Adjunct*), G. G. Mor, E. R. Norwitz, M. J. Paidas, T. J. Rutherford, D. Sakkas, N. S. Stachenfeld (*Epidemiology*), K. A. Yonkers (*Psychiatry*)

### *Assistant Professors*

V. M. Abrahams, M. O. Bahtiyar, R. S. Bercik, C. S. Buhimschi, I. Buhimschi, K. A. Connell, X. Gao, M. K. Guess, Y. Huang, J. L. Illuzzi, J. Johnson, M. D. Lalioti, H. S. Lipkind, C. Pettker, B. W. Rackow, J. L. Reiter, S. M. Richman, E. U. Seli, A. K. Sfakianaki, C. O. Stocco, S. F. Thung

### *Instructors*

S. A. Abdel-Razeq, J. G. Bromer, M. Cackovic, A. T. Dulay, E. J. Hodgson, P. H. Kodaman, S. Y. Lee, A. L. Leiser, G. Luo, J. Martin, E. Ratner, V. A. Rosenberg, D. Silasi, D. Vitiello, M. Wehrum

### *Senior Research Scientist*

G. B. Huszar

### *Research Scientists*

H. J. Kliman, G. Krikun, F. Schatz

### *Associate Research Scientists*

A. Alvero, E. Borok, G. Daftary, H. Du, T. Hajszan, S. J. Huang, U. A. Kayisli, M. Maduro, Y. Rao, E. F. Wolff

### *Clinical Professors*

M. R. Berman, J. Cron, D. Greenfeld, S. R. Laviates, V. A. Lynch, M. Minkin, J. S. Silidker, L. J. Wartel, K. P. Williams

### *Associate Clinical Professors*

R. D. Auerbach, C. M. Cassin, R. A. Cwik, T. M. Hanson, R. B. Kaump, W. A. Lieber, N. A. Ravski, H. Simon, R. J. Stiller, R. A. Vidone, L. H. Zamore

*Assistant Clinical Professors*

P. C. Brines, S. E. Casper, A. R. Chelouche, R. Chosak, I. M. Cohen, P. J. Coppola, E. A. Fine, S. M. Flaherty, S. J. Fleischman, W. P. Fleming, K. C. Fletcher, D. P. Fox, G. J. Foye, M. E. Gillette, C. L. Kandall, E. D. Karlovsky, G. E. Kleinman, J. M. Knudson, T. Kumarasamy, S. A. Laifer, P. M. Lamastra, D. M. Lima, E. Luchansky, E. S. Manske, I. Marcovici, B. McDowell, R. D. Moscarelli, L. Plisic, B. F. Rigney, S. D. Rosenman, D. M. Roth, D. J. Russell, J. A. Shaw, L. A. Starace-Colabella, A. Strong, H. I. Suesserman, E. A. Topran, O. J. Vincent, T. Zreik

*Clinical Instructors*

N. Adsuar, A. Asis, M. C. Asis, K. R. Aversa, E. A. Berry, U. Bhuvanesh, F. L. Cohn, M. Dick, M. Dube, A. Y. Edusa, J. T. Grosso, C. R. Huttler, J. C. Kaczmarek, D. R. Kopel, A. B. Landry, B. L. Maloy, J. J. McGrade, M. Mitchell, C. Negron, H. J. Nusbaum, E. Palluotto, A. T. Petruzzelli, R. Pringle, K. M. Rath, M. C. Rhee, A. M. Ross, M. L. Speranza, A. L. Tirado, D. Tonzola, M. M. Tse, M. J. Wise

*Lecturers*

K. Belanger (*Epidemiology*), F. P. Haseltine, E. Kuczynski

**Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship.** This core clerkship is a six-week rotation in which students serve as clinical clerks on the following services: obstetrics (two weeks), gynecology (one week), gynecology-oncology (one week), and outpatient (two weeks). At our affiliate site, Bridgeport Hospital, the clerk functions as part of a team that participates in both gynecologic and obstetrical care. The clinical services at Bridgeport Hospital virtually mirror the experience given at Yale-New Haven Hospital. During the first week of the six-week clerkship, all students attend an in-depth evening teaching session with the Gynecologic Teaching Associates (GTA). At this session, they are carefully taught pelvic and breast examination techniques, and practice these techniques with the GTA. These practice sessions prepare students to adeptly handle actual patient examinations, review techniques and instruments, as well as understand how to manage patient encounters. The students also attend a NOELLE Birth Simulator Session conducted by a senior teaching faculty member. NOELLE is a full-sized articulating female mannequin with an articulating birthing baby. NOELLE has a dilating cervix and a birthing mechanism that offers the ability to demonstrate a variety of obstetric techniques and complications. During the obstetrics portion of the rotation (one week Day Float and one week Night Float), the clinical clerk is assigned to the Labor and Delivery Unit and is expected to actively participate in patient care commensurate with his or her experience. Students are expected to work up and follow patients during the labor and delivery process, write notes during the intrapartum period, participate in vaginal deliveries, scrub in and assist in Cesarean deliveries, and participate in the patient's postpartum care. Students on gynecology spend one week on the general Gynecology service, where they become familiar with the common disorders encountered in gynecological practice. They scrub for surgeries both at YNHH and Temple Surgical Center. The student also spends one week on the Gynecologic Oncology service and functions as a part of that team. The rotation offers a unique opportunity for the student to learn preoperative and postoperative management of patients with complicated medical problems and to review pelvic and abdominal anatomy, and offers additional exposure to gynecologic surgery. The clerk is expected to interview, examine, participate in the surgeries, and follow the patients admitted to the Gynecologic Oncology service. The students spend two weeks at YNHH Women's Center Clinic where they actively participate in outpatient care. During these two

weeks, students are supervised by both attendings and residents as they learn to take histories, perform pelvic and breast exams, and gain experience in conducting normal obstetrical visits and routine gynecological care. The student is expected to gain experience in ambulatory care gynecological topics such as contraceptive counseling, family planning, menopause management, and other common patient complaints. The recommended text for this elective is *Obstetrics and Gynecology at a Glance* by Errol Norwitz and John Schorge. Clerkship director: J. Illuzzi.

**Obstetrics, Gynecology, and Reproductive Sciences 107, Perinatal Elective.** The Maternal Fetal Medicine Division of the Department of Obstetrics, Gynecology, and Reproductive Sciences offers a four-week High-Risk Obstetrics elective for fourth-year medical students. The student functions as a Sub-Intern and team member in the care of high-risk obstetrical patients at Yale-New Haven Hospital. In addition to inpatient duties, the student attends the outpatient clinic once a week. Students also participate in prenatal ultrasound sessions as well as labor and delivery activities. Students are expected to take overnight call each Wednesday and two Saturdays of the rotation. Numerous didactic conferences are held during the rotation. It is recommended that students use the text *Williams Obstetrics* (Cunningham) to prepare for this experience and for research during the rotation. Evaluation of the student is based on clinical performance, participation at rounds, and the student's presentation of one evidence-based case review to members of the MFM Division. Prerequisite: Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship or equivalent. Faculty coordinator: F. Galerneau.

**Obstetrics, Gynecology, and Reproductive Sciences 108, Reproductive Endocrinology and Infertility Elective.** The Reproductive Endocrine and Infertility division offers a four-week subinternship to students. In addition to gaining knowledge of human reproductive endocrine function, students are introduced to disruptions in physiology and function leading to endocrinological and infertility problems. Typical clinical scenarios include androgen excess syndromes, hyperprolactinemia, anovulatory syndromes, endometriosis, and genetic abnormalities associated with menstrual anomalies and/or infertility. Exposure to Advanced Reproductive Technologies (ART) is integrated into this elective. In addition to the outpatient clinic/surgery and the in-patient service, students have the opportunity to attend division-specific conferences. Evaluation of the student is based on clinical performance, participation at rounds, and presentation of a case-based review of the literature. Prerequisite: Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship or equivalent. It should be noted that it is necessary to travel to the Long Wharf Medical Center, 150 Sargent Drive, New Haven, for this subinternship program. There is no Yale shuttle service to this facility. There is no Night Call on this elective. Faculty coordinator: B. Rackow.

**Obstetrics, Gynecology, and Reproductive Sciences 109, GYN-Oncology Elective.** The purpose of the oncology elective is to enhance the student's knowledge of the diagnosis and management of women's gynecologic malignancies. The elective is offered to one student at a time for four weeks. The student is exposed to all modalities of treatment for gynecologic malignancies including radical gynecological surgery, chemotherapy, and radiation therapy. The student is expected to be an integral part of the team in the management of the patients admitted to the service. The student admits patients and takes part in their care throughout the elective period. The student is assigned to the operating room, especially to assist the patient whom he or she has evaluated. In addition to operating room exposure, extensive experience is gained in the postoperative management of these patients. The student attends one-day surgical procedures to observe the placement of brachytherapy and other procedures, e.g., cystoscopy, proctoscopy examination under anesthesia with biopsy. In the ambulatory setting, the student is exposed to the gestational trophoblastic disease clinic and the colposcopy clinic. On a weekly basis, students attend divisional teaching sessions as well as

the multidiscipline tumor conference. There is no Night Call on this elective. The recommended text is *Clinical Gynecologic Oncology* (DiSaia). Prerequisite: Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship or equivalent. Faculty coordinator: T. Rutherford.

**Obstetrics, Gynecology, and Reproductive Sciences 110, Gallup Indian Medical Center (New Mexico) Elective.** The general OB/GYN department of the Gallup Indian Medical Center (GIMC) in New Mexico offers a subinternship in Obstetrics and Gynecology to fourth-year Yale medical students. This center provides OB/GYN health care to a growing underserved population. There are no residents at GIMC and, therefore, the student gains first-assistant experience during this rotation. The center has 20,000 outpatient visits, 750 deliveries, and 400 surgical cases per year. Bedside rounds, hands-on teaching, formal and informal lectures, and weekly conferences (High-Risk OB, GYN M&M, C-Section review) are integrated into this extramural elective. Students also experience an immersion in the Navajo culture. Evaluation of students is based on clinical performance, participation at rounds, and a final case-based presentation. Night Call is approximately every 4–5 nights. The recommended text for this elective is *Danforth's Obstetrics & Gynecology*. Prerequisite: Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship or equivalent. Students are responsible for the cost of travel, lodging, and miscellaneous expenses. Faculty coordinator: E. Manske (on site at GIMC, New Mexico).

**Obstetrics, Gynecology, and Reproductive Sciences 111, Ambulatory Care OB/GYN Elective.** This elective is geared to students who seek a broader exposure to outpatient care in the field of Obstetrics and Gynecology. The goal of the elective is to provide a broad exposure to outpatient gynecologic issues, such as contraception, family planning, menstrual abnormalities, pelvic pain, sexually transmitted disease, infertility, disorders of urinary continence, screening for gynecologic malignancies, and management of menopausal symptoms that are commonly encountered in the ambulatory setting. The student also has the opportunity to participate in the prenatal care of pregnant women, in order to gain a deeper understanding of the changes in maternal physiology throughout gestation, prenatal diagnosis, genetic counseling, and the outpatient management of the pregnant woman and her fetus. This four-week elective gives the student opportunities to work in the Yale-New Haven Hospital Women's Center, the Yale Urogynecology practice, the Yale Gynecologic Oncology Colposcopy Clinic, the Yale Maternal-Fetal Medicine practice, and the private community office setting. The recommended text for this elective is *Obstetrics and Gynecology at a Glance* by Errol Norwitz and John Schorge. Prerequisite: Obstetrics, Gynecology, and Reproductive Sciences 103, Core Clerkship or equivalent. It should be noted that it is necessary to travel to the Long Wharf Medical Center, 150 Sargent Drive, New Haven, and other private community offices for this subinternship program. There are no Yale shuttle services to some of these off-site facilities. There is no Night Call on this elective. Faculty coordinator: J. Illuzzi.



## OPHTHALMOLOGY AND VISUAL SCIENCE

Office: BB 110, 785.2020

### *Professors*

C. J. Barnstable (*Adjunct*), M. Coca-Prados, N. Daw (*Emeritus*), C. Gonzalez (*Emeritus*), W. H. Miller (*Emeritus*), M. L. Sears (*Adjunct*), M. Shields, J. Sinard (*Pathology*), J. C. Tsai (*Chair*)

### *Associate Professors*

R. A. Adelman, C. R. Bernardino, J. J. Hoh (*Epidemiology*), L. J. Rizzolo (*Surgery*), K. M. Stoessel, N. Tian, C. J. Zeiss (*Comparative Medicine*)

### *Assistant Professors*

J. J. Huang, D. J. Salchow

### *Instructors*

A. Cohen, J. E. Kempton, R. Portela

### *Associate Research Scientists*

S. Ghosh, J. Lin, M. Liu, X. Xu

### *Clinical Professors*

I. Abrahams, A. A. Khodadoust, R. L. Lesser, P. E. Liggett, D. E. Silverstone

### *Associate Clinical Professors*

B. M. DeBroff, S. H. Forster, P. H. Haffner, A. J. Levada, M. S. Milner, J. J. Olson, D. W. Parke, A. D. Rose, G. Shafranov, C. A. Sklar, K. M. Stoessel, R. A. Wiznia

### *Assistant Clinical Professors*

D. A. Bacal, P. J. Branden, G. A. Bullwinkel, N. Chaudhry, A. J. Daccache, V. P. de Luise, L. Doctor, P. A. Ecker, J. S. Elman, P. M. Falcone, A. J. Fezza, P. Gaudio, J. Geffin, S. B. Hersh, W. I. Larrison, E. S. Lim, J. F. Martone, H. R. Mayer, A. W. Mead, A. Musto, P. C. Palmisano, A. D. Pearlstone, E. A. Petrelli, R. L. Petrelli, A. Romania, A. Shayegani, C. A. Sierra, J. Sokol, S. M. Soloway, D. Tom, J. M. Weisz, M. L. Weitzman, B. D. Zuckerman

### *Clinical Instructors*

E. J. Anderson, J. Q. Brooks, S. B. Castracane, A. H. Guerrero, P. C. Guida, M. A. Howard, Y. Kostina-O'Neil, P. E. Masi, J. J. Pasternack, M. R. Shapiro, D. P. Shore, J. E. Silbert, V. A. Tarud, S. C. Thornquist

**Ophthalmology and Visual Science 120, Elective in Clinical Ophthalmology.** This intensive two-to-four-week elective consists of twenty half-day or forty half-day sessions during which the students observe in subspecialty clinics, evaluate patients in general ophthalmology clinics, observe ophthalmic surgery, participate in department conferences, and review independent study material provided by the department. A short presentation on a specific topic provides an opportunity to explore one aspect of ophthalmology in depth. Subspecialty experiences include corneal and external eye diseases, glaucoma, neuro-ophthalmology,

oculoplastics, and retinal diseases. Each two-week elective is limited to two fourth-year students. Offered all year. S. Forster, faculty, and resident staff.

**Ophthalmology and Visual Science 126, Preceptorial in Ophthalmology.** In this elective the student has intensive exposure to one ophthalmic subspecialty under the direct supervision of one or two faculty members. Generally, the experience includes observing in a subspecialty clinic and the operating room, and may include completion of a minor research project. Prior to starting this elective, the student must have outlined a plan of study and obtained the approval of the supervising faculty members. Faculty members in corneal and external diseases, glaucoma, oculoplastics, and retina participate. A list is available from the director of medical studies. Limited to fourth-year students. One to four weeks. Offered all year. Faculty.

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## ORTHOPAEDICS AND REHABILITATION

Office: YPB 133, 785.2579

### *Professors*

R. Baron, M. R. Baumgaertner, G. E. Friedlaender (*Chair*), C. M. Gundberg, M. C. Horowitz, P. Jokl, L. D. Katz (*Diagnostic Radiology*), M. M. Panjabi (*Emeritus*), R. R. Pelker, T. S. Renshaw (*Emeritus*), W. O. Southwick (*Emeritus*)

### *Associate Professors*

J. N. Grauer, J. F. Slade, A. M. Vignery, J. J. Yue

### *Assistant Professors*

S. D. Dodds, V. P. Eswarakumar, A. H. Haims (*Diagnostic Radiology*), D. M. Lindskog, M. J. Medvecky, J. S. Reach, P. G. Whang

### *Instructors*

S. E. Adolfsen, T. J. Gillon, R. S. Lee, M. E. Oetgen, K. M. Sutton

### *Research Scientist*

W. C. Horne

### *Associate Research Scientists*

A. Bruzzaniti, P. C. Ivancic, L. Li, S. Lotinun

### *Clinical Professors*

K. J. Keggi, J. K. Lynch, U. H. Weil

### *Associate Clinical Professors*

H. B. Bradburn, R. N. Margolis, E. J. Sella

### *Assistant Clinical Professors*

M. P. Altman, J. M. Aversa, A. L. Axtmayer, R. A. Bernstein, P. A. Blume, D. S. Caminear, M. P. Connair, J. P. Daigneault, P. A. DeLuca, D. H. Gibson, G. A. Gorecki, J. F. Irving, M. Kacena, J. D. Kelley, K. M. Kramer, J. V. Lieponis, M. A. Luchini, P. P. Luchini, J. S. Marsh, R. B. Mayor, J. D. McCallum, T. Moran, M. J. Murphy, D. C. Novicki, M. M. Pressman, J. F. Raycroft, A. M. Reznik, D. S. Rosenblum, J. J. Shine, A. B. Sicklick, M. D. Silver, J. M. Sumner, C. R. Swigart, S. L. Tomak, L. D. Weis, J. Wu, R. A. Zell

### *Clinical Instructors*

D. F. Bindelglass, D. A. Brittis, M. R. Clain, R. V. Dawe, R. Diana, R. B. Feldman, P. D. Fagner, R. P. Hendrikson, H. I. Hermele, M. J. Kaplan, N. R. Kaplan, J. J. Key, J. V. Mangieri, M. A. Morrison, J. M. Perlman, A. Rice, D. P. Sakalkale, R. A. Stanton, P. B. Stovell, P. G. Whang, V. J. Williams

### *Lecturers*

L. R. Brenner, G. A. Gorecki, M. J. Parisi, B. G. Smith, R. E. Stevenson

**Orthopaedics and Rehabilitation 102, Surgical Clerkship.** Twelve weeks total. Students in the first clinical year spend six weeks on the general surgical service of one of the following: Yale-New Haven Hospital, VA Connecticut Healthcare System, West Haven, or Hospital of St. Raphael. Each student is integrated into the clinical team and assigned to specific patients. Responsibilities include taking histories and performing physical examinations on their patients, participating in the evaluation and management of these patients, following patients' progress, and participating as assistants in the surgical operations performed upon their assigned cases. In addition, the students are expected to participate in the evaluation and care of the critically ill patient in the intensive care unit and the injured patient in the emergency room. Emphasis is placed on involving students in the process of clinical problem solving with the guidance of the residents and the attending preceptors. Conferences, case study groups, and rounds are held emphasizing this problem-oriented approach. Staff.

The remaining six-week period is spent as a clinical clerk in the surgical specialties. Seven specialties are offered: cardiothoracic, otolaryngology, neurosurgery, orthopaedics, pediatric, plastic and reconstructive, and urology. Each student elects three of these specialties and spends two weeks on each. While on the specialty of choice, the student is assigned patients in rotation and carries out complete histories, physical examinations, and certain procedures on these patients. While on the orthopaedic service, the student is assigned to one of the sub-specialty teams, which include pediatric orthopaedics, spine, joint reconstruction, trauma, oncology, foot and ankle, hand, and sports medicine. The student is expected to participate, whenever possible, in the operative procedures performed on these patients and in their post-operative care. The student is also invited to attend the outpatient clinics in his or her assigned specialty. A series of one-hour lectures, rounds, or demonstrations is given each afternoon by the surgical specialties so that the student has the opportunity of gaining knowledge of the wide field of specialties even though he or she does not participate in every specialty as a clinical clerk. Directed by individual surgical specialty chiefs.

**Orthopaedics and Rehabilitation 104, Subinternship.** Limited to third- and fourth-clinical years, with prior clerkship rotation. The student is an active member of one of the orthopaedic teaching teams (pediatric orthopaedics, spine, joint reconstruction, trauma, oncology, foot and ankle, hand, and sports medicine). Inpatient, outpatient, and operating room experience is supplemented by regular conferences. Limited to four students, preferably for one-month rotations, throughout the year. Arrangements must be made with K. Umlauf.

**Orthopaedics and Rehabilitation 108, Subinternship, Adult Reconstructive and Rehabilitative Orthopaedics, VA Connecticut Healthcare System, West Haven.** The student functions as the intern on a large adult orthopaedic service. He or she attends conferences at the Veterans Affairs Connecticut Healthcare System, West Haven, and at Yale-New Haven Hospital. (YNHH conferences include an ongoing seminar on basic sciences as related to the musculoskeletal diseases.) The student is a full participant in the outpatient department and in the work of the operating room. This subinternship offers an intensive clinical experience with a variety of complex orthopaedic reconstructive problems. Rotations are usually for one month. By arrangement with K. Umlauf.

**Orthopaedics and Rehabilitation 110, Biomechanics Terminology.** Presentation and explanation of some basic biochemical terms used to describe body tissues, structures, and functions. More than one hundred basic engineering terms are introduced. The format of presentation for each term is (1) a precise definition followed by units of measurement in the new S.I. system, (2) a detailed explanation, and (3) examples of its use in the everyday experience as well as in the medical field. Mathematical formations are presented whenever necessary. Eight weeks, by arrangement. P. Ivancic.

**Orthopaedics and Rehabilitation 116, Basics of (Fracture) Diagnosis and Treatment.** A six-week seminar in the basic elements of diagnosis and treatment of a spectrum of musculoskeletal trauma. M. Baumgaertner.

**Orthopaedics and Rehabilitation 118, Musculoskeletal Anatomy.** The basics of musculoskeletal anatomy from a functional anatomic and surgical perspective. The material is presented using prosected specimens. Knowledge of Anatomy 100a or its equivalent is assumed. M. Baumgaertner.

**Orthopaedics and Rehabilitation 120, Rehabilitation Medicine at Gaylord Hospital.** A four-week elective rotation designed to provide a comprehensive view of rehabilitation. The elective is composed of didactic sessions and clinical experiences in both the inpatient and outpatient setting. Areas of primary focus include spinal cord injury, head trauma, multiple trauma, amputations, pain management, occupational rehabilitation, stroke, and other neurologic rehabilitation. Specific problems, such as gait deviation, heterotopic ossification, and spasticity are addressed. Therapeutic modalities—bracing and other durable medical equipment—are covered. The roles of allied health professionals, including physical, occupational, and speech therapies, and neuropsychology are demonstrated. Available throughout the year by arrangement with A. Sicklick and D. Rosenblum.

## **PATHOLOGY**

*Office:* LH 108, 785.2759

### *Professors*

R. Bucala (*Medicine*), J. Chen (*Therapeutic Radiology*), Y. Choi, J. Costa, S. E. Downing (*Emeritus*), G. E. Friedlaender (*Orthopaedics and Rehabilitation*), E. J. Glusac, N. J. Holbrook (*Medicine*), M. Kashgarian, J. H. Kim (*Emeritus*), D. S. Krause (*Laboratory Medicine*), P. M. Lizardi, J. A. Madri, N. J. Maible (*Obstetrics, Gynecology, and Reproductive Sciences*), V. T. Marchesi, J. M. McNiff (*Dermatology*), J. S. Morrow (*Chair*), M. Reyes-Mugica, D. L. Rimm, J. K. Rose, J. Sinard, J. L. Sklar, D. F. Stern, F. A. Tavassoli, R. Yesner (*Emeritus*)

### *Associate Professors*

J. L. Brandsma (*Comparative Medicine*), G. Haines, R. J. Homer, D. Jain, R. Lazova (*Dermatology*), W. Min, V. Parkash, M. E. Robert, G. S. Shadel

### *Assistant Professors*

C. Bifulco, V. Bossuyt, D. Braddock, S. E. Cowper (*Dermatology*), L. Hao, P. Hui, S. H. Kleinstein, C. J. Ko (*Dermatology*), D. Kowalski, M. O. Krauthammer, T. Kyriakides, M. Martel, R. Means, T. Mezzetti, K. A. Mitchell, M. M. Pinto, P. Ravichandran, A. K. Riba, M. Robek, A. Subtil (*Dermatology*), C. Theoharis, D. P. Tuck, Z. Walther, C. M. Zalles, E. V. Zambrano

### *Instructors*

A. Galan (*Dermatology*), M. Harigopal

### *Senior Research Scientists*

J. H. Kim, R. Yesner

### *Research Scientists*

C. L. Howe, D. Pradhan

### *Associate Research Scientists*

S. Agarwal, R. L. Camp, A. Chattopadhyay, H. Chen, C. D. Cianci, J. K. Czyzyk, P. Gershkovich, M. A. Gilmore-Hebert, Y. He, S. M. Kar, S. Lang, H. Li, Q. Li, D. Luo, X. Ma, N. F. Rose, M. C. Stankewich, A. Stortchevoi, Y. Wu, B. Yatsula, H. Zhang

### *Clinical Professors*

G. L. Davis, D. M. Lowell

### *Associate Clinical Professors*

P. N. Fiedler, D. F. Miller

### *Assistant Clinical Professors*

W. Carver, T. E. Ciesielski, N. A. Gelfman, G. M. Golenwsky, R. N. Kranwinkel

### *Clinical Instructors*

W. G. Frederick, A. Katsnelson, G. M. Kleinman, S. L. Wain

**Pathology 100, Pathological Basis of Human Disease.** Fundamental principles underlying the pathological alterations in function and structure that constitute the reaction of the organism to injury. Pathology of diseases involving special organs and systems. Correlation of the clinical and anatomical manifestations is emphasized. J. Madri, S. Flynn, and staff.

**Pathology 116, Autopsy Pathology.** Participation in the autopsy service with members of the house staff in pathology. Participation in autopsies and the presentation and review of the clinical and anatomical findings of postmortem examinations with senior members of the department. Opportunities exist for correlation studies with previous biopsies, and clinical investigative and cell biologic techniques in relation to necropsy material. Six weeks minimum, full time. Limited to two students. J. Sinard and staff.

**Pathology 117, Anatomic Pathology.** The department offers an elective to medical students in the third and fourth years which provides a broad experience in general diagnostic techniques. Students have opportunities to participate in surgical pathology, cytology (including fine-needle aspiration), and autopsy. A daily conference is scheduled for both residents and students. In addition to direct responsibilities in the handling of the cases, the student has the opportunity to apply the special techniques of electron microscopy, immunohistochemistry, flow cytometry, and molecular diagnostics. A minimum of four weeks is suggested for this elective. Five students are accommodated every four to six weeks. J. Costa and staff.

**Pathology 620a and b, Laboratory Rotations in Experimental Pathology.** Laboratory rotations for first-year graduate students. D. Stern.

**Pathology 630b, Biomaterial-Tissue Interactions.** An in-depth survey of the interactions between tissues and biomaterials, with an emphasis on the molecular- and cellular-level events that influence the performance and longevity of clinically relevant devices. Background in chemistry and cell biology is assumed. Open to advanced undergraduates with permission of the organizer. T. Kyriakides.

**Pathology 650b, Cellular and Molecular Biology of Cancer.** A comprehensive survey of cancer research from the cellular to the clinical level. The relation of cancer to intracellular and intercellular regulation of cell proliferation is emphasized, as are animal models for cancer research. Background in molecular genetics and cell biology is assumed. D. F. Stern and R. Means.

**Pathology 670b, Biological Mechanisms of Reaction to Injury.** 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. M. Kashgarian and staff.

**Pathology 680a, Seminar in Pharmacology and Molecular Medicine.** Readings and discussion in topics relevant to tumor biology, epithelial-mesenchymal transition, tumor angiogenesis, and metastases. The class emphasizes analysis of primary research literature and development of presentation skills. W. Min.

**Pathology 690a, Molecular Mechanisms of Disease.** This course covers aspects of the fundamental molecular and cellular mechanisms underlying various human diseases. Many of the disorders discussed represent major forms of infectious, degenerative, vascular, neoplastic, and inflammatory disease. Additionally, certain rarer diseases that illustrate good models for investigation and/or application of basic biologic principles are covered in the course. The objective is to highlight advances in experimental and molecular medicine as they relate to understanding the pathogenesis of disease and the formulation of therapies. J. Sklar and M. Robek.

## PEDIATRICS

Office: LMP 4085, 785.4638

### *Professors*

W. A. Andiman, W. R. Anyan (*Emeritus*), R. S. Baltimore, G. P. Beardsley, M. Cappello, S. Caprio, T. O. Carpenter, J. A. Copel (*Obstetrics, Gynecology, and Reproductive Sciences*), T. F. Dolan (*Emeritus*), C. C. Duncan (*Neurosurgery*), R. A. Ehrenkranz, R. L. Fisher (*Medicine*), B. W. Forsyth, A. H. Friedman, M. Genel (*Emeritus*), I. Gross, A. L. Horwich (*Genetics*), M. K. Hostetter (*Chair*), Z. Kain (*Anesthesiology*), D. M. Komp (*Emeritus*), J. F. Leckman (*Child Study Center*), J. M. Leventhal, M. J. Mahoney (*Genetics*), L. Mayes (*Child Study Center*), P. L. McCarthy, L. R. Ment, G. Miller, I. Miller, P. K. Mistry, R. Moss (*Surgery*), H. A. Pearson (*Emeritus*), S. A. Rivkees, S. A. Rooney (*Emeritus*), D. J. Schonfeld (*Adjunct*), M. R. Seashore (*Genetics*), E. D. Shapiro, B. A. Shaywitz, S. E. Shaywitz, R. N. Shiffman, N. S. Talner (*Emeritus*), W. V. Tamborlane, R. J. Touloukian (*Surgery*), F. R. Volkmar (*Child Study Center*), J. Woolston (*Child Study Center*)

### *Associate Professors*

R. J. Antaya (*Dermatology*), C. R. Baum, A. Bazy-Asaad, D. Beardsley, K. A. Bechtel, C. W. Bogue, M. Brueckner, E. R. Colson, D. F. Donnelly, M. E. Egan, J. T. Fahey, P. G. Gallagher, J. R. Gruen, M. R. Mercurio, E. Novotny, D. S. Pashankar, G. Pizzorno (*Medicine*), K. Pugh, M. Reyes-Mugica (*Pathology*), L. E. Rosenfeld (*Medicine*), S. A. Ryan, K. Santucci, T. Shinoka (*Surgery*), J. Van Hoff, S. A. Weinzimer, C. C. Weitzman, M. Westerveld (*Neurosurgery*), Y. Xia

### *Assistant Professors*

L. D. Arnold, A. G. Asnes, J. D. Asnes, K. J. Banasiak, S. Bhaduri-McIntosh, V. Bhandari, S. Bhargava, M. J. Bizzarro, C. K. Breuer (*Surgery*), T. S. Burgert, R. L. Chapman, L. Chen, K. Y. Ching, B. R. Doolittle (*Medicine*), K. B. Dorsey, A. M. Fenick, E. J. Fertig (*Neurology*), J. N. Grauer (*Orthopaedics and Rehabilitation*), M. R. Grossman, D. C. Hersh, A. L. Hsiao, S. Z. Husain, N. Kadan-Lottick, M. K. Khokha, G. Kupfer, M. Langhan, R. A. Martinello (*Medicine*), M. E. McCabe, M. A. McKee (*Surgery*), E. Michaelides (*Surgery*), F. D. Pashankar, G. A. Porter, M. Vazquez, B. P. Weeks, P. G. Weiss

### *Instructors*

K. L. Hodges, S. Iragorri, K. A. Mangold, M. C. Marcy, C. L. Patterson

### *Senior Research Scientist*

M. Genel

### *Research Scientists*

J. D. Dziura (*Medicine*), J. M. McGrath (*Comparative Medicine*), K. C. Schneider



*Associate Research Scientists*

L. Ardeshipour, A. L. Benin, E. M. Bruscia, R. D. Bungiro, E. Cengiz, C. A. Dinauer, B. Dondji, A. E. Esquibies, S. Ghatpande, J. E. Goodwin, J. S. Kahn, H. Kocinsky, I. Lazar, K. E. Marchione, P. A. McChesney, H. Meng, V. T. Mihaylova, E. Paintsil (*Pharmacology*), E. Pinter, M. S. Rosenthal, V. Schulz, K. L. Swan, C. C. Wendler, H. Z. Zhang (*Genetics*)

*Clinical Professors*

R. Angoff, P. Goldstein, H. Jacobs, T. L. Kennedy, R. G. LaCamera, B. M. McDonald, A. C. Mermann, C. Randolph, M. W. Sklaire, F. M. Testa, J. H. Zelson

*Associate Clinical Professors*

F. P. Anderson, M. Apkon, K. M. Berkwits, R. M. Biondi, H. D. Bornstein, K. A. Bradford, C. Canny, R. D. Chessin, S. J. Danoff, H. D. Fink, J. S. Fong, R. M. Freedman, M. W. Galal, G. S. Germain, C. W. Goff, F. L. Gruskay, J. H. Gundy, J. Hen, R. A. Herzlinger, S. K. Nallainathan, S. M. Peterec, R. L. Shelling, S. Z. Spiesel, E. L. Stone, S. C. Updegrove, C. C. Wood, R. S. Young

*Assistant Clinical Professors*

R. J. Anderson, A. Avni-Singer, J. W. Blanton, S. Boulware, N. B. Brown, J. Burger, C. G. Butler, J. G. Calderon, A. Cameron, D. P. Cheromcha, J. T. Combs, N. Condulis, N. Czarkowski, M. E. Dilozenzo, C. L. Dorfman, D. H. Dreyfus, A. Driggers, D. P. Durante, G. G. Dworkin, S. I. Escalera, T. Etkin, K. A. Fearn, C. A. Fischbein, M. B. Flaherty-Hewitt, M. Gaeta, B. Gardner, E. H. Gleich, A. Golioto, D. L. Griffin, J. A. Gruskay, R. B. Halperin, R. J. Hobbie, M. K. Ikeda, W. D. Irving, T. V. Jackson, D. E. Karas (*Surgery*), S. Kayani, L. K. Lasley, S. J. Lavietes, M. A. Lee, A. Liebling, D. I. Lowell, C. F. Mann, A. Meyers, J. L. Morgan, C. L. Morrison, H. J. Pierce, U. P. Puranik, M. F. Robert, O. Rose, M. A. Sanyal, M. Seli, L. Semeraro, L. B. Shader, R. J. Shea, M. Siev, B. K. Singletary (*Surgery*), E. C. Springhorn, C. P. Summers, J. Talwalkar, S. Tsalbins, A. Vaezy, G. R. Wanerka, S. A. Weiner, R. F. Whelan, E. Wiesner, R. D. Windom, J. Wynne

*Clinical Instructors*

P. M. Alvino, E. Bailey, L. Berlin, S. Bogursky, K. R. Burke, M. F. Canarie, R. E. Carroll, J. Cersonsky, B. V. Citarella, A. M. Coughlin, R. G. Dorr, B. G. Freeman, K. Y. Goldberg, A. Gork, L. E. Gray, M. E. Groth, J. E. Harwin, A. M. Hoefer, M. S. Hogan, F. C. Holmes, L. R. Jayanthi, M. L. Kim, H. Kipperman, D. A. Listman, R. Lockhart, E. A. Lomotan, A. Matczuk, C. Menzies, C. L. Miliariesis, C. Nicolosi, S. Pai, M. Pouliot, R. F. Ramos (*Medicine*), D. T. Richards, S. K. Simon, S. J. Slattey, J. H. Stein, S. M. Storeygard, D. C. Torres, L. A. Waldman, S. A. Walsh, J. L. Young, R. A. Zlotoff (*Medicine*)

*Lecturers*

C. D. Cook, J. J. Roney, S. J. Santacrose (*Nursing*)

**Pediatrics 103, Third-Year Clerkship.** The Pediatric Third Clerkship is an eight-week required rotation based on a national curriculum developed specifically for students beginning their clinical rotations. The students spend four weeks in the inpatient setting and four weeks in the outpatient setting. During the outpatient rotation, students are exposed to primary care as well as specialty care in the ambulatory setting. The inpatient portion of the rotation takes place at Yale-New Haven Hospital or Bridgeport Hospital. The objectives of the eight-week clerkship include improvement in knowledge as well as clinical skills such as history taking, physical examination skills, and problem solving. During the rotation, students are observed performing these skills by designated supervisors. They have the opportunity to supplement and complement their clinical experiences by completing computer-based cases, by working with a simulated model, and by interviewing standardized adolescent patients. Attention is paid to optimizing exposure to all pediatric age groups. The clinical experience is enhanced by a weekly interactive teaching session run by pediatric faculty members specifically for the third-year students. E. Colson, M. Bizzarro.

**Pediatrics 128, Hematology–Oncology.** A survey of the normal and abnormal hematology and the common malignancies of infancy and childhood. Students make initial rounds with the attending and the ward team at 7:30 a.m. The mornings are then spent in clinic seeing outpatients who come for therapy or follow-up. More extended bedside rounds, including time allotted for family discussions, take place in the afternoon. Students are expected to prepare a brief presentation for the team. One student, full time for two weeks, throughout the academic year. G. Kupfer and staff.

**Pediatrics 139, Pediatric Neurology.** Students participate in the pediatric neurology clinic and the learning disorders unit and see neurology patients on the pediatric wards. Up to two students, full time, for three weeks, throughout the academic year. L. R. Ment, G. Miller, E. Novotny, B. Shaywitz, S. Shaywitz.

**Pediatrics 143b/Surgery 136b, Pediatric Surgery.** A general survey of pediatric surgical problems based on illustrated case summaries and subject presentation by students, with selected readings from the literature. Limited to six students, first and last six weeks of spring term. Once weekly, time to be arranged. C. K. Breuer, R. J. Touloukian, M. A. McKee, R. L. Moss.

**Pediatrics 144, Clinical Clerkship in Pediatric Cardiology.** Developmental aspects of cardiovascular function as applied to infants and children in a clinical setting. Students are assigned to various members of the pediatric cardiology staff. Emphasis on physical diagnosis, use of noninvasive methods, and clinical physiologic correlates. Observation of catheterization and operative procedures. One student every four weeks throughout the year. J. Asnes, M. Brueckner, J. Fahey, A. H. Friedman, G. Porter, B. Weeks.

**Pediatrics 146, Clinical Pediatric Infectious Diseases.** Students participate in daily consultation rounds, Pediatric AIDS Clinic, and pediatric infectious diseases clinic. Students also participate in pediatric infectious disease rounds by presenting the case studies of one or more inpatients whom they have examined to a group of faculty and fellows. Rounds last approximately two hours (Wednesday morning). Emphasis is placed on correlation of the clinical problem and its practical management with principles of infectious disease epidemiology and clinical microbiology (bacteriology, virology, and parasitology). Limited to two students per three- to six-week period throughout the academic year. W. Andiman, R. Baltimore, M. Cappello, J. Kahn, G. Miller, G. Shapiro, M. Vazquez.

**Pediatrics 148, Pediatric Endocrinology and Metabolism.** An extensive exposure to clinical pediatric endocrinology, in particular problems of growth, sexual development, thyroid disorders, adrenal diseases, obesity, type 1 and 2 diabetes mellitus, and other disorders of carbohydrate metabolism. A full six-week elective includes daily clinics in general endocrinology,

diabetes, and hyper lipidemia/obesity, and the inpatient service, generally concentrated in the Children's Clinical Research Center. One student, full-time, six weeks, throughout the academic year. S. Boulware, T. Burgert, S. Caprio, T. Carpenter, E. Cengiz, M. Genel, M. Kim, S. Rivkees, K. Swan, W. V. Tamborlane, S. Weinzimer.

**Pediatrics 152, Subinternship.** Senior students serve as intern equivalents in order to gain experience in providing care to pediatric patients. During the subinternship, students are directly responsible for the care of their assigned patients while under the supervision of senior residents and attending physicians. Subinterns spend four weeks on service. They are assigned to either the School Age and Adolescent unit, the Infant and Toddler unit, or the Respiratory, Research, and Oncology (ROR) unit in the Department of Pediatrics at Yale-New Haven Children's Hospital. D. Hersh and staff.

**Pediatrics 153, Pediatric Gastroenterology/Hepatology.** A general survey of clinical pediatric gastroenterology and hepatology with particular emphasis on inflammatory bowel disease, malabsorption, diarrheal disorders, nutrition, and liver disease. The elective includes daily inpatient rounds including rounds with pediatric liver transplant service, three weekly GI clinics, inherited metabolic liver disease clinic, and several weekly clinicopathologic conferences, as well as observation of endoscopic procedures. One student, full-time, three or six weeks, throughout the academic year. S. Husain, P. Mistry, D. Pashankar.

**Pediatrics 154, Pediatric Respiratory Medicine.** Students participate in the daily activities of the service in both the inpatient rounds and outpatient clinics. These include the evaluation of respiratory function in a variety of diseases including asthma, cystic fibrosis, bronchopulmonary dysplasia, pneumonia, aspiration syndromes, obstructive sleep disorders, and care of technology-dependent infants and children. Emphasis is on physical diagnosis. Rotations through the pulmonary function laboratory and the Children's Sleep Center are available. Laboratory experience can be arranged. Participation in seminars and journal club are expected. One student, every two weeks, throughout the academic year. A. Bazzi-Asaad, S. Bhargava, M. Egan, A. Esquibies, P. Weiss.

**Pediatrics 155, Pediatric Emergency Medicine.** Senior students have the opportunity to evaluate and help manage a broad range of acute pediatric illnesses and injuries. Students are supervised by a Pediatric Emergency Medicine specialist. Clinical duties are scheduled by the program director. One student, full time, every four weeks throughout the year. L. D. Arnold and staff.

## PHARMACOLOGY

Office: SHM B204, 785.4372

### *Professors*

G. K. Aghajanian (*Psychiatry*), K. S. Anderson, H. R. Behrman (*Obstetrics, Gynecology, and Reproductive Sciences*), B. S. Bunney (*Psychiatry*), E. S. Canellakis (*Emeritus*), Y. Cheng, E. Chu (*Medicine*), J. R. Cooper (*Emeritus*), C. M. Crews (*Molecular, Cellular, and Developmental Biology*), P. S. Dannies, R. S. Duman (*Psychiatry*), B. E. Ehrlich, R. E. Handschumacher (*Emeritus*), J. R. Howe, D. K. Jorkasky (*Adjunct*), L. K. Kaczmarek, N. J. Maihle (*Obstetrics, Gynecology, and Reproductive Sciences*), A. C. Nairn (*Psychiatry*), M. Picciotto (*Psychiatry*), W. H. Prusoff (*Emeritus*), J. Ritchie (*Emeritus*), S. Rockwell (*Therapeutic Radiology*), R. H. Roth (*Psychiatry*), G. Rudnick, A. C. Sartorelli, J. Schlessinger (*Chair*), W. C. Sessa, S. G. Waxman (*Neurology*), D. Wu

### *Associate Professors*

A. M. Bennett, M. P. DiGiovanna (*Medicine*), Y. Ha, R. Heimer (*Epidemiology*), M. E. Hodsdon (*Laboratory Medicine*), E. Lolis, G. Pizzorno (*Medicine*)

### *Assistant Professors*

T. Boggon, D. A. Calderwood, S. Jordt, B. E. Turk

### *Senior Research Scientists*

J. R. Cooper, W. H. Prusoff

### *Associate Research Scientists*

R. P. Baumann, M. Bordonaro, V. Gazula, R. Hu, K. Ishiguro, W. Lam, I. Lax, Z. Lin, S. Lu, Q. Miao, E. Paintsil, P. G. Penketh, A. D. Pivazy, H. Qin, H. A. Seow, K. Shyam, P. Sliz, Z. Tao, C. Wang, Y. Wang, G. Yang, C. Ying, J. Yu, W. Zhang, Y. Zhang, Y. Zhu

### *Lecturer*

R. J. Levine (*Medicine*)

**PHAR 502a and b, Seminar in Pharmacology.** A seminar given by a department faculty member on his or her area of interest to teach students how to critically evaluate papers and to improve the ability of students to give oral presentations.

**PHAR 504a, Pharmacology I: Maintaining and Restoring Homeostasis.** Lectures cover drug-receptor interactions, control of messenger systems and channels, and regulation of physiological systems. P. Dannies and staff.

**PHAR 504b, Pharmacology II: Interfering Selectively.** Lectures cover antibiotics, immunotherapy, and chemotherapy. E. Lolis and staff.

**PHAR 506a and b, Methods in Pharmacological Research (Rotations).** Students work in laboratories of faculty of their choice. The period spent in each laboratory is one term. W. Sessa.

**PHAR 508b, Neuropharmacology.** An intensive examination of current understanding of the sites and mechanisms involved in drug action on single nerve cells and on the brain. Emphasis on basic functions and illustrative examples of their disturbance by drugs. J. Howe.

**PHAR 518b, Current Topics in Cancer and Viral Therapy.** This course discusses current and evolving topics in cancer and viral mechanisms of disease and potential treatments. Y. Cheng, E. Lolis.

**PSYCHIATRY**

Office: 300 George Street, Suite 901, 785.2117

*Professors*

G. K. Aghajanian, M. D. Bell, S. J. Blatt, M. B. Bowers (*Emeritus*), B. S. Bunney (*Chair*), K. M. Carroll, J. P. Comer (*Child Study Center*), R. S. Duman, M. H. Ebert, P. L. Errera (*Emeritus*), J. Ford, J. J. Frost (*Diagnostic Radiology*), J. Gelernter, E. H. Griffith, C. M. Grilo, G. Heninger (*Emeritus*), R. E. Hoffman, M. A. Hoge, S. C. Jacobs, H. G. Jarecki (*Adjunct*), P. I. Jatlow (*Laboratory Medicine*), R. D. Kerns, R. A. King (*Child Study Center*), J. H. Krystal, J. F. Leckman (*Child Study Center*), A. Martin (*Child Study Center*), J. W. Mason (*Emeritus*), C. Mazure, T. H. McGlashan, D. F. Musto (*Child Study Center*), A. C. Nairn, S. S. O'Malley, G. D. Pearlson, M. Picciotto, S. M. Powsner, D. M. Quinlan, D. E. Redmond, Jr., R. Rosenheck, R. H. Roth, B. J. Rounsaville, R. S. Schottenfeld, M. J. Sernyak, M. H. Sheard (*Emeritus*), R. Sinha, W. H. Sledge, D. L. Snow, S. M. Southwick, J. S. Strauss (*Emeritus*), C. H. van Dyck, F. R. Volkmar (*Child Study Center*), B. E. Wexler, S. W. Woods, H. V. Zonana

*Associate Professors*

M. Alreja, L. M. Anez, S. A. Ball, M. Baranoski, K. L. Behar, R. Belitsky, H. Blumberg, A. Buchanan, V. D. Calhoun (*Adjunct*), N. L. Cooney, L. Davidson, R. A. Desai, R. J. DiLeone, D. C. D'Souza, C. J. Easton, C. N. Epperson, E. L. Giller (*Adjunct*), L. S. Godleski, M. Hampson (*Diagnostic Radiology*), K. A. Hawkins, L. K. Jacobsen, M. Jean-Baptiste, J. Kaufman, J. S. Kaufman, K. A. Kiehl (*Adjunct*), P. D. Kirwin, S. Krishnan-Sarin, R. T. Malison, S. Martino, G. F. Mason (*Diagnostic Radiology*), D. H. Mathalon, S. McKee, T. J. McMahon, A. Neumeister, M. A. Norko, D. A. Oren (*Adjunct*), I. L. Petrakis, M. N. Potenza, R. M. Rohrbaugh, M. I. Rosen, G. Sanacora, M. Sofuoglu, J. K. Staley-Gottschalk, J. L. Steiner, T. H. Styron, G. D. Tamagnan (*Adjunct*), J. R. Taylor, J. K. Tebes, D. F. Tolin (*Adjunct*), K. A. Yonkers

*Assistant Professors*

D. Aikins, P. B. Allen, R. C. Andres-Hyman, M. Assaf (*Adjunct*), R. S. Astur (*Adjunct*), S. R. Axelrod, J. E. Beauvais, L. E. Bedregal, R. D. Beech, Z. Bhagwagar, M. O. Bonarrigo, D. Brunner (*Adjunct*), G. J. Bryson, S. A. Castner, I. Cavus, M. C. Chawarski, L. Chwastiak, C. Connell, K. P. Cosgrove, C. A. Crusto, M. E. Delphin, M. M. Desai, P. H. Desan, C. G. Edelen, D. C. Fehon, J. M. Fiszdon, L. M. Frantsve, H. Gunduz-Bruce, N. Hansen, I. Harpaz-Rotem, A. Kaffman, S. Kendell (*Adjunct*), A. S. Klee, S. D. Kruger, D. M. LaPaglia, C. Li, S. Lim, R. Lugo, X. Luo, P. K. Maciejewski, S. Madonick (*Adjunct*), N. Maltby (*Adjunct*), E. A. Markakis, R. Masheb, K. A. McKiernan (*Adjunct*), R. S. McWilliam (*Child Study Center*), P. T. Morgan, P. M. Morrissey (*Adjunct*), M. V. Pantaloni, M. Paris, H. L. Paxton, E. B. Perry, C. Pittenger, A. N. Ponce, M. L. Randall, A. M. Rasmusson, S. G. Resnick, P. Ridgway, C. Sanislow, S. N. Sathyanesan, D. J. Sells, A. A. Simen, G. Sirugo (*Adjunct*), P. Skudlarski (*Adjunct*), D. Small, V. H. Srihari, H. R. Steinberg, S. Steinberg (*Adjunct*), N. E.

Suchman, T. P. Sullivan, R. R. Tampi, C. Tek, E. S. Tek, B. A. Toll, P. Van Wattum (*Child Study Center*), D. Vojvoda, N. Ward, M. A. White, K. M. Wilkins, G. V. Williams, W. A. Williams, P. Zimbrian, L. D. Zimmerman (*Child Study Center*), Z. Zimolo

#### *Instructors*

L. G. Chepenik, M. Ranganathan

#### *Senior Research Scientists*

M. B. Bowers, J. D. Elsworth, G. Heninger

#### *Research Scientists*

A. Margolin, B. Morrow, J. Olausson, J. Poling, E. Ralevski

#### *Associate Research Scientists*

D. Barry, K. T. Bergquist, R. A. Black, F. Bois, D. H. Brunzell, D. A. Cavallo, T. Chaplin, J. A. Cramer, N. R. Driesen, C. H. Duman, E. H. Flanagan, H. Fox, T. C. Greig, D. J. Guarnieri, A. A. Heapy, S. M. Hyman, J. S. Jane, J. H. Kalmar, W. J. Kaspro, R. Liu, L. M. Maccarelli, R. A. Miller, M. S. Neale, E. E. O'Brien, R. S. Palmer, P. H. Rosenberger, J. R. Saksa, T. Schmutte, M. A. Silva, G. W. Valentine, J. J. Vanderploeg, F. Wang, A. H. Weinberger, M. Wu, B. Yang, H. Zhang, W. Zito, L. Zuo

#### *Clinical Professors*

D. N. Berg, D. A. Carlson, G. H. Flamm, D. G. Greenfeld, D. Laub, D. O. Lewis, E. Prelinger, C. E. Riordan, S. Ritvo (*Child Study Center*), H. L. Ruben, L. D. Siggins, J. L. Young

#### *Associate Clinical Professors*

J. Allison, V. A. Altshul, R. M. Balsam, D. S. Bialos, S. Boltax-Stern (*Child Study Center*), E. A. Brett, C. Chiles, J. J. Ciarcia, V. Coric, J. De Figueiredo, L. Deutsch (*Child Study Center*), A. Evans, L. B. Fierman, J. Geller, R. L. Goettsche, K. Grady, L. L. Harkness, O. F. Hills, R. J. Hoffnung, D. Johnson, D. Koenigsberg (*Child Study Center*), C. C. Kovel, K. Liebmann, K. M. Long, J. S. Lustman, B. McKee, D. C. Moore, C. A. Morgan, M. S. Okasha, R. B. Ostroff, H. R. Pearsall, E. A. Perlswig (*Child Study Center*), R. Peters, J. Phillips, S. H. Phillips, S. G. Possick, M. Rowe, E. R. Ryan, J. M. Schnitt, S. J. Schreiber, A. P. Siegal, E. W. Snyder, R. Stern, A. P. Thies (*Child Study Center*), E. C. Wolff (*Child Study Center*), T. Zanker (*Child Study Center*)

#### *Assistant Clinical Professors*

A. C. Adis, A. M. Almai, J. A. Amatruda, P. T. Amble, M. M. Amer, S. R. Atkins, C. B. Baker, J. Ballew, A. L. Balter, L. C. Barr, M. V. Barrios, L. A. Bayer, B. R. Becker, E. Becker-Dunn, R. S. Behrends, M. Beitel, C. D. Bellamy, C. C. Bemis, S. Bender, D. E. Bendor, E. H. Berger, R. L. Bergeron, T. Bergherr, S. Bers, S. J. Bittner, H. C. Blue, D. Boltas, K. F. Bonese, T. E. Brown, A. Brownlow, A. Buonopane, L. V. Calabrese, A. Cappiello, R. Casey, L. I. Chaikovsky, J. Charney, J. R. Check, D. E. Ciancimino, J. C. Cline, J. T. Collins (*Child Study Center*), C. Cottrol, L. W. Cross,

W. F. Dailey, C. Dike, C. Doebrick, N. Donegan (*Psychology*), D. B. Douglas, V. M. Dreisbach, M. T. Dreyfus, L. K. Driscoll, J. J. Erdos, R. D. Fallot, P. R. Falzer, D. C. Fehon, S. Feuerstein, J. F. Fickes, S. Finkelstein, D. A. Fisk, F. G. Fortunati, P. A. Fountain, P. Fox, E. R. Frazer, T. A. Freeman, D. Fried, T. Glinberg, C. T. Goldberg, L. I. Goldstein, K. Gonsai, L. R. Gonzalez, G. Gonzalez-Haddad, D. M. Gordon, C. H. Gottschalk, E. G. Grottolo, C. S. Grove, L. B. Grunebaum, J. C. Harland, D. D. Hawkins, S. R. Hill, M. Hillbrand, K. Holtzman, S. J. Houlding, J. M. Jackson, D. D. Jacobson, C. Jean, A. Kaner, M. Kang, K. G. Kennedy, S. Khan, S. Kidd, B. Klink, B. E. Knox, F. E. Koerner, R. E. Kravitz, J. Kremer, J. Kurt, M. M. Kurtz, A. Lamba, H. M. Lankenau, D. Laub, K. M. Lazzarini, B. Lee, N. E. Legow, R. C. Lewis, H. J. Lin, E. B. Littman, H. G. Lizcano, D. B. London, C. Lozano, H. Lubin, M. Mandelkern, B. F. Marcus, C. A. Markle, R. Masheb, R. W. McCleary, B. B. McConnell, B. Meandzija, A. W. Meisler, N. C. Mellos, D. M. Mender, R. M. Meyer, R. M. Milstein, S. Mohamed, B. A. Moore, V. R. Morrow, F. C. Mueller, P. V. Mulinski, J. Myer, E. D. Nasper, J. Nields, F. J. Ninivaggi (*Child Study Center*), D. O. Nudel, K. F. Nuro, N. D. Olson, C. A. Opsahl, A. G. Oren, R. M. Ownbey, N. Panza, C. W. Pearson, D. Pilkey, J. F. Poll (*Child Study Center*), M. L. Prevey, G. R. Racusin, J. Rakfeldt, I. S. Rathbone, D. R. Rau, A. Resnick, G. Richardson, J. P. Robbins, J. E. Robinson, J. L. Rosen, V. C. Rosen, B. S. Rothschild, M. P. Roy, N. Roy, R. Rubin, D. S. Russell, J. A. Sabbatino, N. Sahay, D. K. Sakheim, K. M. Salisbury, D. Salomy, C. Sanders, L. C. Sanfilippo, A. P. Sawyer, J. O. Schechter, R. R. Schreibman, J. S. Schwartz, J. L. Scott, K. Scrimenti, S. R. Segall, J. P. Seibyl (*Diagnostic Radiology*), K. A. Sevarino, J. K. Shepard, D. E. Sholomskas, M. F. Sperrazza, A. D. Spivack, S. Sreenivasan, D. A. Stayner, M. C. Stevens, W. A. Stewart, M. Stitelman, G. E. Sturges, D. C. Tate, A. N. Tessler, B. Tobin, J. L. Tondora, S. E. Tressel, L. A. Trevisan, K. Trueblood, M. Tupper, D. J. Wallington, S. D. Wayne, Jr., J. M. Wexler, R. S. White, C. V. Wiseman, C. M. Young, R. J. Yun, S. O. Zimmerman

#### *Clinical Instructors*

M. Bailey, V. V. Carvalho, V. Cogshall, D. J. Flanigan, C. Grazia, M. C. Grenough, C. M. Hunnicutt, L. C. Hyman, W. Levy, J. Nields, J. N. Rascati, S. J. Rath, S. H. Rodrigues, D. J. Suscovich, M. B. Vollmar, E. Weiss

#### *Lecturers*

J. D. Alvaro, C. Atkins, C. M. Barber, F. Begum, D. A. Berv, J. L. Callahan, R. A. Cole, C. Conrad, H. F. Crabbe, G. H. Davis, K. Degen, A. R. Demac, C. E. Desmond, P. J. Dileo, P. A. Dillon, L. K. Frisman, S. G. Goodson, J. B. Gordon, G. Greenberg, F. Grossman, M. A. Kalaczniak, A. Kalafa, B. C. Klein, R. H. Klein, J. Klugman, A. L. Labruzzo, L. Lager, R. B. Lenoci, L. M. Lothstein, S. S. Luthar, R. B. Makover, K. Marcus, J. H. Meyer, A. P. Miano, M. L. Mitchell, I. Moses, R. L. Munich, C. S. Naungayan, M. Nicholas, A. Oberkirch, M. J. Orlosky, R. T. Phillips, J. M. Pisciotta, M. K. Pruett, M. D. Rego, W. Reich, E. B. Rubin, S. L. Satel, A. J. Sholomskas, G. H. Sirkin, P. F. Thomas, R. K. Westheimer



The Department of Psychiatry teaches in both preclinical and clinical years. The pre-clinical course is a study of medical behavioral science, rather than an introduction to clinical psychiatry. Specific clinical skills, such as interviewing and the recognition and management of psychiatric syndromes, are taught later in the curriculum and especially during the required clinical clerkship in Psychiatry. Electives are available for students with special interest in selected areas. All advanced clinical electives are numbered in the 200s. The required core clinical clerkship (Psychiatry 106) is a prerequisite for enrollment in any of these advanced clinical electives; an advanced clinical elective may not be taken instead of the required core clinical clerkship. *Please note: All students signing up for a seminar elective must also register with the Medical Student Education Office, Department of Psychiatry, 785.2089 (pending approval of the instructor).*

**Psychiatry 101a, Patient-Centered Interviewing: The Patient's Story.** This segment of the Pre-Clinical Clerkship focuses on the experience of illness—how people react to and cope with illness. The various psychosocial factors and psychological defenses which impact on the experience of illness, such as age, gender, social supports, socioeconomic status, and coping style, are examined. There is an emphasis on the patient interview and techniques for eliciting the patient's story in an empathic and effective manner. The format includes lectures, demonstration interviews, and practice with standardized patients. R. Belitsky and Departments of Psychiatry and Medicine faculty.

**Psychiatry 101b, Biological Basis of Behavior.** Lectures are integrated with the Neurology course, and include principles and neural mechanisms of learning and memory; neural systems involved in fear and anxiety; neural systems involved in reward and drug addiction; neural systems involved in stress; and neural systems involved in attention. Following each lecture, a psychiatrist interviews patients diagnosed with obsessive-compulsive disorder, panic disorder, cocaine abuse, post-traumatic stress disorder, and schizophrenia. These 1.5-hour clinical presentations, which include time for questions, link psychiatric symptoms to the neural mechanisms discussed in the lecture on that day. 2.5 hours per week. Department of Psychiatry faculty.

**Psychiatry 106, Clinical Clerkship.** Skills and knowledge needed for the general practice of medicine are acquired in a clinical psychiatric setting. There is a "Patients in Crisis" component that emphasizes: conducting a competent screening interview in order to identify symptoms of a psychiatric or substance abuse disorder; performing a complete mental status examination of a patient who is emotionally disturbed or mentally ill; making a differential diagnosis, and planning for further evaluation and tests that would be useful in deciding among various diagnostic possibilities; making recommendations for biological, psychosocial, and/or social treatment interventions; assessing whether or not dangers to or from a patient exist; and understanding indications and procedures for lawful involuntary commitment of a patient to a mental hospital for treatment. There is also a "Psychiatry at the Interface with Medicine" component designed to provide students with an understanding of the presentation of psychiatric illness in patients with co-morbid medical disorders. Emphasis is placed on screening interviews, including mental status examination; identification of symptoms; and differential diagnosis and initial treatment recommendations of patients with co-morbid medical and psychiatric illness. Special emphasis is placed on evaluation of psychiatric emergencies and competency to make informed medical decisions. Additionally, students have the opportunity to learn and develop clinical skills through carefully designed outpatient experiences. R. Rohrbaugh and Department of Psychiatry faculty.

**Psychiatry 203, Subinternship in Hospital Psychiatry, Inpatient Division, Connecticut Mental Health Center.** Intensive work with inpatients who suffer from major psychiatric disorders with or without substance abuse. Emphasis is on assessment, acute treatment, and arrangement of continuing care in the community. The clerk functions as an integral member of a multidisciplinary treatment team. Clinical research participation is encouraged. Opportunities available to explore special areas of interest (e.g., forensics, psychopharmacology, administrative) with Connecticut Mental Health Center faculty. The elective is given on the inpatient service, CMHC. Scheduled throughout the year during regular clerkship rotations for a *minimum* of four weeks. Prerequisite: Psychiatry 106. Maximum registration: two students. S. Jacobs, M. Jean-Baptiste, and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 205, Subinternship in Medical Psychiatry (Consultation Psychiatry), Yale-New Haven Hospital, 2039 Clinic Building.** This is an advanced clinical elective for third- and fourth-year students who have a particular interest in the psychiatric disorders that can occur in medical-surgical patients. The staff has special interests in differential diagnosis of medical vs. psychiatric illness, in psychopharmacology, and in computer applications in psychiatry. Each student works up patients in parallel with advanced residents in inpatient and emergency department settings. Teaching occurs on daily walk rounds. Scheduled throughout the year during regular clerkship rotations (*except* July and August) for a *minimum* of four weeks. (NOTE: Fourth-year students will be given preference.) Prerequisite: Psychiatry 106. Maximum registration: one student per rotation. P. Desan, T. Stewart, W. H. Sledge, A. Papsun, and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 206, Advanced Clinical Elective in Law and Psychiatry.** This clerkship program affords opportunities for fourth-year medical students to observe and participate in "competency to stand trial" evaluations with a clinical team that makes these assessments at the New Haven Correctional Center. In addition, they may attend Law School classes with students who represent psychiatric patients, observe civil commitment procedures, attend probate court hearings, as well as the criminal proceedings in local New Haven Superior Courts. Students attend work seminars where case evaluations and write-ups are discussed and prepared, and read appropriate legal cases and psychiatric literature. Students may be able to participate in parts of evaluations of insanity defense, custody determination, and other forensic issues. They attend the Law and Psychiatry Seminar during their rotation. Scheduled throughout the year (*except* August) during regular clerkship rotations for a *minimum* of four weeks. Prerequisite: Psychiatry 106. Maximum registration: two students. H. Zonana and staff. To enroll in this advanced clinical elective, please contact R. Rohrbaugh.

**Psychiatry 208, Subinternship in Consultation-Liaison Psychiatry at the VA Connecticut Healthcare System (VACHS), West Haven, Connecticut.** The Consultation-Liaison Service at the VACHS West Haven provides consultation to acute medical and surgical units, specialized rehabilitation units, and outpatient primary care clinics. Students participate in the management of patients with close supervision from attending staff. The goals of the rotation are (1) to increase skill in conducting a psychiatric interview which maximizes the collection of pertinent clinical data; (2) to use the data collected in formulating and implementing treatment plans emphasizing the interplay of biological and psychological factors in the patients' presentation; (3) to experience the satisfaction of caring for patients with complex medical and psychiatric illness. Scheduled throughout the year for a minimum of four weeks. Open to third- and fourth-year medical students. Prerequisite: Psychiatry 106. Maximum registration: one student per rotation. C. Chiles and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 209, Substance Abuse Elective.** An elective clinical training experience in substance abuse for interested third- and fourth-year students. The primary training site is the Outpatient Service at the VA Connecticut Healthcare System (VACHS) in West Haven. The substance abuse elective is scheduled for four weeks. This experience is an intensive one in which students work closely with addicted patients with chronic mental illness. Students interested in learning about medical detoxification from alcohol and/or opiates may participate in an intensive two-week elective in the Ambulatory School of Medicine Detoxification Clinic at the VACHS. Students learn about the evaluation and treatment of alcohol withdrawal and detoxification. Patients with benzodiazepine and opiate dependence are also treated in this clinic. Prerequisite: Psychiatry 106. Maximum registration: two students. VACHS Faculty: L. Trevisan, I. Petrakis. Contact person (for VACHS): I. Petrakis, Psychiatry. To enroll in this advanced clinical elective, please contact R. Rohrbaugh.

**Psychiatry 210, Subinternship in Hospital Psychiatry, Inpatient Division, Yale-New Haven Psychiatric Hospital.** Intensive work with patients who suffer from major psychiatric disorders and range in age from college students to middle age. Emphasis is on assessment, acute treatment, and arrangement of post-discharge follow-up care in the community. The subintern is an advanced clerk functioning as a member of the multidisciplinary treatment team, taking on primary clinician and psychiatric/medical responsibilities for patients under the supervision of senior clinicians. The elective is given on the inpatient service at Y-NHPPH; clinical research and outpatient involvement may be options. This subinternship is available throughout the year, during regular clerkship rotations for a *minimum* of four weeks. Prerequisite: Psychiatry 106. Maximum registration: one student per rotation. R. M. Milstein, M. Bowers, R. Hoffman, R. Tampi, and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 211, Subinternship in Clinical Neuroscience, Clinical Neuroscience Research Unit Inpatient Division.** This clerkship offers senior medical students the opportunity to work closely with a variety of patients who are hospitalized during their participation and treatment in research protocols. The Clinical Neuroscience Research Unit (CNRU) is a thirteen-bed inpatient ward with associated outpatient clinics and basic science laboratories on the third floor of the Connecticut Mental Health Center (CMHC). Supervised implementation of novel psychopharmacology, exposure to multiple aspects of clinical and basic science research, and in-depth experience with individual and group psychotherapies are educational aspects of this elective. Patients' diagnostic categories include depression, obsessive-compulsive disorder, schizophrenia, cocaine abuse, and substance abuse. Scheduled throughout the year for a *minimum* of four weeks. Prerequisites: Psychiatry 101 and 106. Maximum registration: one student per rotation. R. Malison, G. Heninger, V. Coric, Z. Bhagwagar, and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 214, Subinternship in Psychotic Disorders at G8W and the Schizophrenia Research Clinic at the VA Connecticut Healthcare System (VACHS) in West Haven, the Clinical Neuroscience Research Unit and the Psychopharmacology Intervention Program at the Connecticut Mental Health Center, the Community Care Center in West Haven.** This subinternship is designed to provide an integrative exposure to the interface of psychopharmacology and psychosocial treatments for chronic psychotic disorders. Each individual requesting a subinternship is asked to outline his or her interest in psychotic disorders. Based on this information, a faculty mentor is assigned and a clinical program prepared that provides greater depth in the relevant areas. An effort is made to provide exposure to both hospital- and community-based treatments as well as clinical neuroscience advances. Within all treatment settings, subinterns have closely supervised direct clinical contact with patients. Subinterns are invited to attend academic conferences within the Department of Psychiatry

focused on clinical and neuroscience issues relevant to psychosis. The goals of the rotation are (1) to expose the subintern to established and experimental medication treatments for psychotic disorders, particularly schizophrenia; (2) to expose the subintern to rehabilitative approaches to schizophrenia; (3) to expose the subintern to community-based treatments for chronic mental illness. Scheduled throughout the year for a period of six to eight weeks. Prerequisite: Psychiatry 106. Maximum registration: one student per rotation. C. D'Souza, M. Bell, J. Cubells, L. Davidson, L. Harkness, S. Kruger, J. Krystal, and staff. To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 238, Subinternship in Early Psychosis: STEP Clinic.** STEP (Specialized Treatment Early in Psychosis) is a multidisciplinary team-based treatment for individuals presenting early in the course of a psychotic illness. This clinic offers unique opportunities in the assessment and treatment of a population that is difficult to access in other clinical settings. Trainees have the opportunity to observe structured research assessments and interpretation of these scales in light of careful clinical follow-up. Given the diagnostic and prognostic heterogeneity of illnesses presenting with psychosis, this experience provides the opportunity to develop clinical expertise in diagnosis and management of a range of mental health issues. The enriched treatment includes cognitive-behavioral group therapy, family psycho-education groups, and cognitive remediation in addition to vocational support with a focus on rapidly reintegrating patients back to age-appropriate social, educational, and employment goals. Students have the opportunity to observe or participate in any of these treatments. The multidisciplinary and pluralistic nature of the intervention presents a rich opportunity to participate in collaborative care with other mental health disciplines. Trainees can also participate in regular seminars sponsored by the STEP and PRIME (Prevention through Risk Identification, Management, and Education) clinics. The latter is a research clinic focused on prodromal psychosis. Positions: 1-2. Site: Connecticut Mental Health Center (CMHC).

Scholarship: STEP is designed as a service delivery model with a built-in observational cohort and experimental pragmatic randomized controlled trial. Trainees are invited to take an active role in the various domains of scholarship including community and clinician education efforts, publication, and learning about clinical research design. V. Srihari (clinic director), J. Pollard (project director and family interventions coordinator, STEP clinic), C. Tek, (program director, Psychosis Team), L. Hyman (team leader, Psychosis Team), S. Woods (director, PRIME Clinic), J. Saksa (CBT coordinator, STEP Clinic), B. Walsh (clinical coordinator, PRIME Clinic). To enroll in this subinternship, please contact R. Rohrbaugh.

**Psychiatry 325/CHLD 325, Child Psychiatry Elective, Yale Child Study Center.** The aim of this elective is to provide the student with an intensive experience in infant, child, and adolescent psychiatry. The curriculum includes assessments of normal development and psychopathology in childhood, treatment methods, and research in major disorders of childhood. The elective takes advantage of the wide range of ongoing seminars, conferences, and clinical services in place at the Child Study Center. Teaching methods include seminars, conferences, field observations, ward rounds, and School of Medicine practica selected by the student following consultation with the director of medical studies, Child Study Center. Open to fourth-year students throughout the year. A. Martin, D. Stubbe, J. Woolston, and staff. To enroll in this advanced clinical elective, please contact A. Martin directly at 688.6016 or 785.3370.

## SURGERY

Office: FMB 102, 785.2697

### *Professors*

J. J. Abrahams (*Diagnostic Radiology*), L. M. Bartoshuk (*Emeritus*), M. Centrella, F. C. Detterbeck, G. D'Onofrio, S. J. Dudrick, J. A. Elefteriades, S. H. Emre, H. E. Foster, J. P. Geibel, B. G. Green, R. J. Gusberg, G. L. Hammond (*Emeritus*), B. Kinder (*Emeritus*), J. A. Kirchner (*Emeritus*), G. S. Kopf, D. R. Lannin, G. L. Larkin, S. B. Leder, D. J. Leffell (*Dermatology*), A. Lofqvist (*Adjunct*), W. E. Longo, B. Lytton (*Emeritus*), L. M. Manuelidis, I. M. Modlin, R. Moss, J. A. Persing, S. M. Powsner (*Psychiatry*), S. H. Rosenbaum (*Anesthesiology*), W. Rosenblatt (*Anesthesiology*), A. T. Rosenfield (*Diagnostic Radiology*), D. A. Ross, P. E. Rubin (*Adjunct*), R. R. Salem, J. Santos-Sacchi, C. T. Sasaki, I. R. Schwartz, J. H. Seashore (*Emeritus*), Y. H. Son (*Therapeutic Radiology*), B. Sumpio, R. J. Touloukian, R. Udelsman (*Chair*), R. M. Weiss

### *Associate Professors*

J. E. Aruny (*Diagnostic Radiology*), M. S. Bogucki, J. W. Colberg, D. C. Cone, D. C. Cronin, K. A. Davis, L. C. Degutis, R. N. Formica (*Medicine*), B. J. Grube, S. Hashim, M. H. Johnson (*Diagnostic Radiology*), L. J. Kaplan, W. K. Kelly (*Medicine*), T. L. McCarthy, D. Narayan, J. Pollak (*Diagnostic Radiology*), L. J. Rizzolo, R. A. Rosenthal, J. H. Shin, T. Shinoka, W. B. Stewart, G. Tellides, J. G. Thomson

### *Assistant Professors*

A. Arvelakis, R. L. Bell, D. M. Black, D. J. Boffa, L. Bontempo, D. M. Botta, C. K. Breuer, C. H. Cha, A. Dardik, H. A. Deshpande (*Medicine*), D. Duffey, A. Duffy, L. V. Evans, A. R. French, A. Geirsson, J. M. Hammel, K. J. Jubanyik, R. W. Kim, D. Kowalski (*Pathology*), P. E. Krochmal, R. Kulkarni, S. Kulkarni, S. M. Luczycki (*Anesthesiology*), F. Y. Lui, L. L. Maerz, M. Matthew, M. A. McKee, E. Michaelides, E. P. Monico, C. Moore, H. C. Moscovitz, B. E. Muhs, M. R. Osborne, V. Parwani, M. F. Perkal, K. E. Roberts, S. A. Roman, B. Safdar, J. E. Sather, K. M. Schuster, I. Schwartz, D. Singh, J. A. Sosa, H. E. Tantawy (*Anesthesiology*), A. F. Tarabar, A. Tomassoni, E. M. Uchio, C. M. Van Gelder, C. N. Walker, C. R. Wira, N. Young

### *Instructors*

A. J. Carter, J. C. Escalon, M. W. Katigbak

### *Senior Research Scientists*

G. L. Hammond, J. Latifpour

### *Associate Research Scientists*

S. Bian, W. Gao, M. S. Kidd, L. Song

### *Clinical Professors*

S. Ariyan, M. Arons, J. E. Fenn, J. F. Kveton, S. B. Nuland, R. S. Stahl, E. Yanagisawa

*Associate Clinical Professors*

N. A. Atweh, M. S. Beinfeld, Z. N. Chicarilli, J. M. Dowaliby, R. C. Fazio, A. J. Graham, H. L. Horton, R. K. Houlihan, K. Koral, K. Lee, R. Lena, R. A. Lowlicht, W. B. McCullough, N. M. Passarelli, J. T. Schultz, J. M. Serling, L. W. Skope, S. A. Stein, B. S. Weisbart

*Assistant Clinical Professors*

D. I. Astrachan, P. A. Barcewicz, H. Cedarbaum, B. Y. Cha, P. F. Corso, R. J. Dean, R. H. Delfini, R. W. DeNatale, M. L. Dewar, A. T. Dioguardi, T. G. Duplinsky, J. Federico, P. E. Fidler, S. V. Flagg, S. I. Friedman, S. Fusi, R. Garvey, A. R. Goldstein, R. T. Golia, R. D. Grossman, J. Henley, R. H. Hirokawa, G. E. Horblitt, N. R. Horowitz, R. B. Kaplan, D. E. Karas, D. B. Keck, J. C. Kirchner, S. B. Levine, J. Maisel, M. Margolies, D. M. Mello, S. Mitra, D. J. Muller, M. K. O'Brien, G. Opín, P. M. Opín, M. M. Perez, M. F. Perkal, G. J. Price, C. Rambus, D. D. Roberts, J. C. Salomon, R. F. Schlessel, M. J. Schpero, S. Shah, R. K. Shaw, B. K. Singletary, R. E. Steller, T. F. Sweeney, J. L. Tanenbaum, A. F. Tarabar, S. C. Thornton, R. Tross, D. Wasson, M. H. Weinstein, M. J. Werdmann, A. E. Wilk, K. Yanagisawa, K. Zuckerman

*Clinical Instructors*

J. A. Arons, S. Baker, P. W. Barrett, C. B. Beckman, M. S. Bianchi, W. R. Butler, K. A. Carmody, S. A. Chekijian, B. S. Chervin, W. Cholewczynski, E. M. Cozzi, P. Demir, T. Fabian, L. J. Fliegelman, P. L. Fortgang, N. A. Gordon, T. A. Kelly, B. M. Kirrane, J. R. Klenoff, T. H. Lesnik, W. Manson, A. A. McKelvey, V. Parwani, D. Passaretti, H. F. Reilly, J. F. Schmidt, J. J. Tagliarini, E. M. Vining, E. S. Weinstein, D. Wohl

*Lecturers*

L. Acton, L. M. Bow, H. C. Briggs, E. Browne, K. J. Burns, S. C. Carroll, N. Collins, G. M. Faherty, B. C. Fichandler, J. Freund, S. Ghofrany, R. C. Haug, G. M. Hayner, T. M. Herbert, R. Iassogna, S. Jolie, S. E. Kapadia, H. M. Keiser-Pedersen, T. Kimberly, E. B. Larned, H. L. Lisitano, D. S. MacMillan, P. R. Martinez, A. Meiman, J. Mendes, T. G. Michalewski, J. D. Midgley, T. A. Morris, D. B. Nelson, M. C. Persinger, P. P. Possenti, C. Powell, E. A. Roessler, A. M. Ruskowski, T. E. Sanford, P. G. Sasaki, M. T. Strong, K. S. Sylvester, D. E. Tichy, C. D. Walker, J. O. Williams

**Surgery 103, Surgical Clerkship.** This is a twelve-week block that includes a four-week core experience on one of the general surgery services at either Yale-New Haven Hospital or the West Haven VA Hospital (Gastroenterology, Oncology, Trauma, and VAMC), a four-week rotation that is divided into two weeks on Anesthesia and two weeks on Emergency Medicine, and an additional four-week subspecialty rotation on which students may select two 2-week subspecialty services, which are completed at Yale-New Haven Hospital (Cardiac, Endocrine, Orthopedics, Otolaryngology, Pediatrics, Peripheral Vascular, Plastic Surgery, Thoracic, Transplant, and Urology).

During all of the rotations on the Surgery services, the students can expect to be integrated into the clinical teams, working up patients to which they are assigned and participating in the evaluation and management of these patients (in both the inpatient and outpatient settings). In addition to knowledge acquisition, emphasis is placed on the development of basic clinical skills as well surgical problem-solving skills.

Throughout the twelve-week block, each student is assigned to a surgical mentor, who is responsible for monitoring progress, reinforcing core concepts, and facilitating skill development. In addition, there is a core curriculum, including a series of problem-oriented, interactive sessions focused on fundamental surgical problems, a twelve-week simulation course designed to facilitate clinical skill development, and a weekly case-based seminar, focused on decision making and doctor/patient interactions.

At the outset of the clerkship, the students receive an outline of learning objectives (for both knowledge and skills) and take a self-assessment examination. At the conclusion of the clerkship there is an exit interview and a final self-assessment examination.

**Surgery 122, Subinternship, Plastic Surgery.** Clinical experience as an intern on a large clinical ward. The student has experience in the management of craniofacial anomalies, burns, trauma, hand surgery, head and neck surgery, reconstructive surgery of the head and neck and extremities, microsurgery, as well as surgery of the congenital anomalies and cosmetic surgery. Limited to one fourth-year student per month with a minimum of one-month rotations. Arrangements must be made with J. A. Persing.

**Surgery 123b, Biochemical and Metabolic Foundations of Plastic and Reconstructive Surgery.** A course designed to provide in-depth understanding of the molecular events underlying the diverse clinical phenomena encountered in plastic surgery. Topics include fluid electrolyte metabolism in the burn patient, biochemistry and metabolism of collagen and its relation to scarring and connective tissue disorders, normal wound healing, and disorders of the same. Offered for four weeks during the spring term, two hours per week by arrangement. Limited to two fourth-year students. J. A. Persing.

**Surgery 129, Cardiopulmonary Transplantation.** Intensive exposure to laboratory and clinical aspects of cardiac, cardiopulmonary, and pulmonary transplantation. Special emphasis on the relation between ongoing laboratory studies and clinical practice in this field. Clinical involvement in preoperative assessment of prospective transplant candidates, donor procurement, intraoperative management, and postoperative immunosuppression. Limited to one student by arrangement with J. Elefteriades.

**Surgery 130, Subinternship, Cardiothoracic.** Intensive exposure to preoperative and postoperative management of adult and pediatric cardiothoracic surgical patients and to intraoperative conduct of surgical procedures, with active participation in the operating room and in regular conferences. Students attend regular seminars covering major areas of cardiothoracic surgery with members of the faculty, and may be required to present a seminar on a subject in cardiothoracic surgery to faculty and resident staff. Limited to two students in the second clinical year. Three or six weeks by arrangement with J. Elefteriades.

**Surgery 131, Subinternship, General Thoracic.** Intensive exposure to preoperative and postoperative management of general thoracic surgical patients and to the intraoperative conduct of surgical procedures involving the lung, the chest wall, the thymus, and the esophagus. Included is an organized lecture series covering the entire field of general thoracic surgery. Students are expected to present a seminar at the conclusion of the subinternship, focusing on a specialized topic in general thoracic surgery. Six weeks by arrangement with J. Elefteriades.

**Surgery 141, Outpatient Otolaryngology.** This is an opportunity for those students who have not had exposure in otolaryngology to spend time with a full-time attending otolaryngologist seeing outpatients in an office setting. Timing is quite flexible and a student may spend one to three mornings or afternoons each week for one to four weeks. By arrangement with C. T. Sasaki and the full-time otolaryngology staff.

**Surgery 142, Emergency Medicine.** The student participates in the evaluation and treatment of adult emergency patients, learning appropriate work-up and therapy. Students are expected to attend morning conferences four mornings per week and to work four twelve-hour shifts that may include nights and weekends. Prerequisite: Surgery 103.

**Surgery 143, Care of the Intensive Care Unit Patient.** Didactic and clinical sessions in the Yale-New Haven Hospital SICU prepare the student to provide treatment for the critically ill patient. Topics include cardiopulmonary resuscitation, airway and ventilator management, assessment of the multiple trauma patient, and management of sepsis. Prerequisite: Surgery 103. Three to four weeks, by arrangement. K. Davis, L. Kaplan.

**Surgery 144, Trauma Surgery.** The student functions as an extern and participates actively in trauma service rounds, teaching conferences, trauma resuscitation, and operative management of trauma cases. Students are expected to attend conferences and take inhouse call with the chief resident of the trauma service. Prerequisite: Surgery 103. K. Davis.

**Surgery 150, Plastic and Reconstructive Surgery.** Evaluation and reconstructive surgery of deformities of congenital, traumatic, and neoplastic origin. Includes inpatient, outpatient, and operating room experience, supplemented by regular conferences. Limited to two students; available throughout the year. J. A. Persing.

**Surgery 151, Subinternship, General Surgery.** (Four weeks). Offered throughout the academic year at both Yale-New Haven Hospital and VA Connecticut Healthcare System, West Haven. Limited to second clinical year, one or two students per month. Arrangements must be made with W. Longo.

**Surgery 152, Advanced Senior Seminar, General Surgery.** This is a weekly evening seminar series covering advanced and controversial topics in general surgery. Three one-hour sessions include dinner at faculty homes and run from October through February. Reprints of pertinent articles provided prior to each seminar. Staff.

**Surgery 153, Subinternship, Otolaryngology.** This clinical experience is independent of the third-year Surgery/Otolaryngology rotation, and takes place on an individual basis. It includes operating room experience, ward responsibilities, and involvement in outpatient ENT. Yale-New Haven Hospital, the Hospital of St. Raphael, and the VA Connecticut Healthcare System, West Haven, are available for the rotation. Minimum rotation of four weeks; limited to one student. J. F. Kveton, C. T. Sasaki.

**Surgery 158, Surgery at Waterbury Hospital.** A well-supervised fourth-year clerkship including teaching rounds, operating room experience, outpatient clinical experience, and conferences in radiology, pathology, oncology, vascular surgery, and general surgery. Daily ICU rounds are conducted with an attending physician. Six weeks, for one or two students, with room and meals provided. E. Kwasnik and staff.

**Surgery 159, Subinternship, Urology.** Varied clinical studies, in-depth experience in all forms of urology. Limited to clinical years. One student per month, for three to four weeks. R. Weiss and staff.

**Surgery 160, Surgery at St. Mary's Hospital, Waterbury.** Six-week subinternship in an affiliated community hospital of 400 beds, consisting of ward and operative experience, teaching rounds, and conferences. An independent general surgical residency exists at St. Mary's. S. Dudrick and staff.

**Surgery 165, Surgery at Bridgeport Hospital.** For a student contemplating a career in clinical surgery, an opportunity to function as a team member with residents and attending staff in a large community hospital. General surgery with fundamental pre- and postoperative



care, appropriate operating room activity, basic bedside diagnostic and therapeutic hands-on experience, emphasis on intensive care unit, trauma, and burns. Each student is expected to present a twenty-minute research or clinical topic of choice at completion of the course. Room and board available on duty. Limited to one or two students for six- to eight-week rotations in the fourth year. Staff.

**Surgery 171, Subinternship, Peripheral Vascular Surgery.** A practical experience in the diagnosis and management of vascular disease, including pre- and postoperative care. The scope of the experience includes orientation to the noninvasive vascular diagnostic laboratory, outpatient care in the Yale Vascular Center, and inpatient management (including patients in the OR, ICU, and the vascular surgery unit). Four weeks, by arrangement with B. Sumpio and staff.

**Surgery 172, Subinternship, Transplantation Surgery.** This intensive clinical experience emphasizes the preoperative assessment, intraoperative care, and postoperative management of patients suffering end-stage organ system failure who are cared for by transplantation. Emphasis also includes the management of immunosuppressive medication regimens and the care of post-transplant problems. Available throughout the year, one or two students, for one month. Arrangements with S. Emre and staff.

**Surgery 173, Experimental Transplantation Surgery and Immunobiology.** Clinical and laboratory studies into problems relevant to the field of organ transplantation. Students work under the tutelage of a member of the faculty in the Division of Organ Transplantation. Original projects must be mutually agreed upon, and may include studies into the immunology of allograft rejection, the mechanism of immunosuppressive drug action, immunological monitoring of patients following transplantation, or biochemical markers to potentially identify early rejection of renal, hepatic, pancreatic, or small bowel allografts. Available throughout the year, one or two students, time commitment by arrangement. S. Emre and staff.

**Surgery 174, Subinternship in Surgical Oncology.** Intensive exposure to surgical aspects of the treatment of cancer in clinic, hospital, and operating room. The interaction between surgery, medical oncology, and radiation therapy is experienced by following patients receiving multiple forms of therapy. Available throughout the year, one or two students, preferably for one-month rotations. Arrangements with R. R. Salem.

**Surgery 175, Pediatric Cardiac Surgery.** Intensive exposure to pediatric cardiac surgery with emphasis on preoperative evaluation and postoperative management. The student observes the changes in pre- and postoperative physiology and spends much of the time following postoperative patients. The student is exposed to the use of ventilators in the pediatric patient, inotropic and vaso-dilating agents, evaluation and treatment of low cardiac output state, and the use of pacemakers. Weekly conferences include surgical conferences, preoperative conferences, catheterization conference, pre- and postoperative clinics, as well as weekly sessions with the attending staff. Some technical experience and instruction are provided in the operating room according to the student's interest. Limited to two students per month. T. Shinoka, G. S. Kopf, and R. Kim. Arrangements to be made with the pediatric cardiac surgery office.

**Surgery 176, Subinternship in Pediatric Surgery.** In-depth exposure to the broad spectrum of pediatric surgical problems of the abdomen, chest, head and neck, and pelvis. The student obtains experience with correction of congenital anomalies, management of trauma, care of the critically ill child, and management of solid tumors. The subintern is an integral part of the pediatric surgical team and is expected to take in-house night call every third night. Contact L. Moss.

## THERAPEUTIC RADIOLOGY

Office: HRT 140, 785.2956

### *Professors*

S. J. Baserga (*Molecular Biophysics and Biochemistry*), D. E. Brash, J. Chen, D. C. DiMaio (*Genetics*), J. J. Fischer, P. M. Glazer (*Chair*), B. G. Haffty (*Adjunct*), R. Nath, R. E. Peschel, S. Rockwell, W. Rupp, R. J. Schulz (*Emeritus*), Y. H. Son, W. C. Summers, P. Sung (*Molecular Biophysics and Biochemistry*), J. B. Sweasy, L. D. Wilson

### *Professor of Research*

K. Low

### *Associate Professors*

Z. Chen, J. Deng, S. A. Higgins, J. P. Knisely, K. B. Roberts

### *Assistant Professors*

R. Decker, A. M. Khan, Y. S. Liu, S. Mani, M. S. Moran, J. B. Weidhaas, Z. Yun

### *Associate Research Scientists*

A. K. Chikova, S. Dalal, J. Kim, K. Kim, Q. Lin, F. A. Rogers

### *Associate Clinical Professor*

P. M. Pathare

### *Assistant Clinical Professors*

M. Ahmad, J. E. Bond, A. Chu, Y. Fan

### *Lecturer*

R. Vera

**Therapeutic Radiology 101, Clinical Clerkship in Radiation Therapy.** A flexible program designed to introduce the medical student to radiation therapy. The biological and physical bases of radiation therapy, together with clinical practice and ongoing research. Clinical exposure to patients with malignant disease, with between seventy and one hundred treated daily in the department. The student takes part in departmental conferences, clinics, lectures, and individual teaching sessions. Limited to two students at any time. L. D. Wilson and staff.

**Therapeutic Radiology 102, Clinical Radiobiology.** This course is designed to provide residents in radiation oncology with a comprehensive review of clinical radiobiology as it applies to the practice of radiation therapy. The course is open to residents and fellows in other disciplines interested in radiobiology as it applies to clinical oncology. The course participant attends approximately twenty lectures in clinical radiobiology, which are delivered throughout the academic year between September and June. Scheduling by arrangement with L. D. Wilson.

**Therapeutic Radiology 201b, A Survey of Radiobiology.** A review of the interaction of radiation on living organisms, progressing from DNA damage to complex mammalian systems. Modern concepts in molecular biology and cell kinetics are emphasized in understanding the sequelae of this interaction and the mechanism by which the organism responds to the injury produced. Fourteen sessions. By arrangement with Radiobiology staff.

**Therapeutic Radiology 305, Principles and Methods of Radiation Dosimetry.** A graduate-level course for physics students or medical students with a strong physics background who want to learn about radiation dosimetry as it applies to medical practice. Topics include X-ray spectra, ionization chambers, X-ray exposure and the roentgen, mass energy-absorption coefficients, the Bragg-Gray principle, stopping power and linear energy transfer, chemical dosimeters, instrumentation, and physical aspects of radiology. Approximately twenty hours of tutorial sessions. Scheduling by arrangement with instructor. R. Nath.

**Therapeutic Radiology 306, Laboratory Projects in Radiation Dosimetry.** Students are given problems that relate to and supplement long-term, ongoing radiation dosimetry projects within the department. Prerequisite: Therapeutic Radiology 305, or its equivalent. Scheduling by arrangement with instructor. R. Nath.

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# Yale Cancer Center

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Office: WWW 205, 785.4095

## Director

R. L. Edelson (*Dermatology*)

## MEMBERSHIP

### Professors

K. S. Anderson (*Pharmacology*), P. W. Askenase (*Internal Medicine*), R. E. Baron (*Orthopaedics and Rehabilitation*), L. M. Bartoshuk (*Surgery*), G. P. Beardsley (*Pediatrics*), J. R. Bender (*Internal Medicine*), N. Berliner (*Internal Medicine*), J. L. Bologna (*Dermatology*), W. F. Boron (*Cellular and Molecular Physiology*), A. L. M. Bothwell (*Immunobiology*), H. K. Bottomly (*Immunobiology*), D. E. Brash (*Therapeutic Radiology*), I. M. Braverman (*Dermatology*), R. R. Breaker (*Molecular, Cellular, and Developmental Biology*), A. E. Broadus (*Internal Medicine*), M. J. Caplan (*Cellular and Molecular Physiology*), M. Cappello (*Pediatrics*), Y.-C. Cheng (*Pharmacology*), E. Chu (*Internal Medicine; Pharmacology*), L. Cooley (*Genetics*), D. L. Cooper (*Internal Medicine*), J. Costa (*Pathology*), J. E. Craft (*Internal Medicine*), P. Cresswell (*Immunobiology*), M. R. Cullen (*Internal Medicine*), A. M. Curtis (*Diagnostic Radiology*), P. De Camilli (*Cell Biology*), V. T. DeVita, Jr. (*Internal Medicine*), D. C. DiMaio (*Genetics*), T. P. Duffy (*Internal Medicine*), C. C. Duncan (*Neurosurgery*), J. S. Duncan (*Diagnostic Radiology*), R. L. Edelson (*Dermatology*), J. A. Elias (*Internal Medicine*), S. S. Ferro-Novick (*Cell Biology*), J. J. Fischer (*Therapeutic Radiology*), R. A. Flavell (*Immunobiology*), S. D. Flynn (*Pathology*), B. G. Forget (*Internal Medicine*), F. Foss (*Dermatology*), G. E. Friedlaender (*Orthopaedics and Rehabilitation*), J. E. Galán (*Microbial Pathogenesis*), A. Garen (*Molecular Biophysics and Biochemistry*), S. Ghosh (*Immunobiology*), P. M. Glazer (*Therapeutic Radiology*), E. J. Glusac (*Pathology*), B. G. Haffty (*Therapeutic Radiology; Adjunct*), A. D. Hamilton (*Chemistry*), G. L. Hammond (*Surgery*), P. W. Heald (*Dermatology*), R. B. Hochberg (*Obstetrics, Gynecology, and Reproductive Sciences*), N. J. Holbrook (*Internal Medicine; Adjunct*), T. R. Holford (*Epidemiology and Public Health*), M. C. Horowitz (*Orthopaedics and Rehabilitation*), K. L. Insogna (*Internal Medicine*), S. C. Jacobs (*Psychiatry*), J. D. Jamieson (*Cell Biology*), M. Kashgarian (*Pathology*), S. V. Kasl (*Epidemiology and Public Health*), P. B. Kavathas (*Laboratory Medicine*), W. H. Konigsberg (*Molecular Biophysics and Biochemistry*), D. R. Lannin (*Surgery*), D. J. Leffell (*Dermatology*), P. Lengyel (*Molecular Biophysics and Biochemistry; Emeritus*), P. M. Lizardi (*Pathology*), K. B. Low (*Therapeutic Radiology; Adjunct*), J. A. Madri (*Pathology*), N. J. Maihle (*Obstetrics, Gynecology, and Reproductive Sciences*), V. T. Marchesi (*Pathology*), S. T. Mayne (*Epidemiology and Public Health*), S. M. McCarthy (*Diagnostic Radiology*), R. McCorkle (*School of Nursing*), P. McPhedran (*Laboratory Medicine; Emeritus*), R. Medzhitov (*Immunobiology*), I. S. Mellman (*Cell Biology*), I. G. Miller (*Pediatrics*), L. M. Milstone (*Dermatology*), I. M.

Modlin (*Surgery*), M. S. Mooseker (*Molecular, Cellular, and Developmental Biology*), J. S. Morrow (*Pathology*), R. Nath (*Therapeutic Radiology*), P. J. Novick (*Cell Biology*), S. O'Malley (*Psychiatry*), H. A. Pearson (*Pediatrics; Emeritus*), J. A. Persing (*Surgery*), R. E. Peschel (*Therapeutic Radiology*), J. M. Piepmeier (*Neurosurgery*), J. S. Pober (*Pathology*), W. H. Prusoff (*Pharmacology; Emeritus*), A. M. Pyle (*Molecular Biophysics and Biochemistry*), C. A. Redlich (*Internal Medicine*), L. Regan (*Molecular Biophysics and Biochemistry*), H. A. Risch (*Epidemiology and Public Health*), S. C. Rockwell (*Therapeutic Radiology*), J. K. Rose (*Pathology*), A. T. Rosenfield (*Diagnostic Radiology*), F. H. Ruddle (*Molecular, Cellular, and Developmental Biology*), N. H. Ruddle (*Epidemiology and Public Health*), W. D. Rupp, Jr. (*Therapeutic Radiology*), R. R. Salem (*Surgery*), P. Salovey (*Psychology*), W. M. Saltzman (*Biomedical Engineering*), A. C. Sartorelli (*Pharmacology*), C. T. Sasaki (*Surgery*), D. G. Schatz (*Immunobiology*), J. Schlessinger (*Pharmacology*), P. E. Schwartz (*Obstetrics, Gynecology, and Reproductive Sciences*), W. C. Sessa (*Pharmacology*), M. J. Shlomchik (*Laboratory Medicine*), J. Sklar (*Pathology*), C. L. Slayman (*Cellular and Molecular Physiology*), B. R. Smith (*Laboratory Medicine*), E. L. Snyder (*Vice Chair; Laboratory Medicine*), M. Snyder (*Molecular, Cellular, and Developmental Biology*), S. Somlo (*Internal Medicine*), Y. H. Son (*Therapeutic Radiology*), J. A. Steitz (*Molecular Biophysics and Biochemistry*), D. F. Stern (*Pathology*), M. Strazzabosco (*Internal Medicine*), P. Sung (*Molecular Biophysics and Biochemistry*), P. J. Tattersall (*Laboratory Medicine*), F. A. Tavassoli (*Pathology*), R. E. Tigelaar (*Dermatology*), I. Tocino (*Diagnostic Radiology*), R. J. Touloukian (*Surgery*), R. Udelsman (*Surgery*), A. N. van den Pol (*Neurosurgery*), R. M. Weiss (*Surgery*), S. M. Weissman (*Genetics*), K. R. Williams (*Molecular Biophysics and Biochemistry; Adjunct*), J. L. Wood (*Chemistry*), T. Xu (*Genetics*), D. Zelterman (*Epidemiology and Public Health*), T. Zheng (*Epidemiology and Public Health*)

#### *Associate Professors*

A. E. Bale (*Genetics*), S. J. Baserga (*Molecular Biophysics and Biochemistry*), D. J. S. Beardsley (*Pediatrics*), A. M. Bennett (*Pharmacology*), E. H. Bradley (*Epidemiology and Public Health*), J. L. Brandsma (*Comparative Medicine*), L. Cantley (*Internal Medicine*), E. B. Claus (*Epidemiology and Public Health*), J. W. Colberg (*Surgery*), J. P. Concato (*Internal Medicine*), C. M. Crews (*Molecular, Cellular, and Developmental Biology*), A. C. de Lotbinière (*Neurosurgery*), M. P. DiGiovanna (*Internal Medicine*), H. E. Foster, Jr. (*Surgery*), P. G. Gallagher (*Pediatrics*), F. J. Giordano (*Internal Medicine*), M. Girardi (*Dermatology*), C. P. Gross (*Internal Medicine*), J. R. Gruen (*Pediatrics*), L. N. Harris (*Internal Medicine*), C. Hashimoto (*Cell Biology*), S. A. Higgins (*Therapeutic Radiology*), B. A. Jones (*Epidemiology and Public Health*), W. K. Kelly (*Urology*), J. P. Knisely (*Therapeutic Radiology*), M. K. Knobf (*School of Nursing*), A. J. Koleske (*Molecular Biophysics and Biochemistry*), D. S. Krause (*Laboratory Medicine*), J. Lacy (*Internal Medicine*), R. Lazova (*Dermatology*), H. Lin (*Epidemiology and Public Health*), E. Lolis (*Pharmacology*), M. J. Mamula (*Internal Medicine*), J. M. McNiff (*Dermatology*), G. Miesenböck (*Cell Biology*), G. G. Mor (*Obstetrics, Gynecology, and Reproductive Sciences*), A. S. Perkins (*Pathology*), W. M. Philbrick (*Internal Medicine*), L. E. Philpotts (*Diagnostic*

*Radiology*), J. S. Pollak (*Diagnostic Radiology*), J. D. Reuter (*Comparative Medicine*), D. L. Rimm (*Pathology*), H. M. Rinder (*Laboratory Medicine*), K. B. Roberts (*Therapeutic Radiology*), D. A. Ross (*Surgery*), D. M. Rothstein (*Internal Medicine*), T. J. Rutherford (*Obstetrics, Gynecology, and Reproductive Sciences*), P. M. Schwartz (*Dermatology; Visiting*), M. W. Saif (*Internal Medicine*), S. E. Seropian (*Internal Medicine*), W. D. Shlomchik (*Internal Medicine*), M. J. Solomon (*Molecular Biophysics and Biochemistry*), M. J. Stern (*Genetics*), H. Sun (*Genetics*), J. B. Sweasy (*Therapeutic Radiology*), M. Sznol (*Internal Medicine*), H. S. Taylor (*Obstetrics, Gynecology, and Reproductive Sciences*), J. G. Thomson (*Surgery*), J. Van Hoff (*Pediatrics*), A. M. Vignery (*Orthopaedics and Rehabilitation*), L. D. Wilson (*Therapeutic Radiology*), S. L. Wolin (*Cell Biology*), J. J. Wysolmerski (*Internal Medicine*), H. Yu (*Epidemiology and Public Health*), H. Zhang (*Genetics*), H. Zhao (*Epidemiology and Public Health*), W. Zheng (*Pathology*), W. Zhong (*Molecular, Cellular, and Developmental Biology*)

#### *Assistant Professors*

M. Abu-Khalaf (*Internal Medicine*), L. Alexander (*Epidemiology and Public Health*), J. Baehring (*Neurology*), E. Bahceci (*Internal Medicine*), C. Bifulco (*Pathology*), T. Boggon (*Pharmacology*), A. Bordey (*Neurosurgery*), D. Braddock (*Pathology*), D. A. Calderwood (*Pharmacology*), G. Chung (*Internal Medicine*), J. Colasanto (*Therapeutic Radiology*), H. A. Deshpande (*Internal Medicine*), S. Gettinger (*Internal Medicine*), M. J. Harding (*Comparative Medicine*), M. Hodson (*Laboratory Medicine*), L. J. Horvath (*Diagnostic Radiology*), J. G. Howe (*Laboratory Medicine*), K. S. Hudmon (*Epidemiology and Public Health*), P. Hui (*Pathology*), M. L. Irwin (*Epidemiology and Public Health*), A. Iwasaki (*Immunobiology*), N. Kadan-Lottick (*Pediatrics*), S. M. Kaech (*Immunobiology*), D. H. Kaplan (*Dermatology*), H. Kluger (*Internal Medicine*), X. Ma (*Epidemiology and Public Health*), S. Mani (*Therapeutic Radiology*), R. E. Means (*Pathology*), K. D. Miller (*Internal Medicine*), M. S. Moran (*Therapeutic Radiology*), W. H. Mothes (*Microbial Pathogenesis*), D. Narayan (*Surgery*), M. F. Perkal (*Surgery*), D. Psyrri (*Internal Medicine*), J. L. Reiter (*Obstetrics, Gynecology, and Reproductive Sciences*), M. Robek (*Pathology*), S. J. Santacroce (*School of Nursing*), F. J. Slack (*Molecular, Cellular, and Developmental Biology*), B. J. Sleight (*Pediatrics*), J. A. Sosa (*Surgery*), E. Stein (*Molecular, Cellular, and Developmental Biology*), D. K. Toomre (*Cell Biology*), D. P. Tuck (*Pathology*), B. Turk (*Pharmacology*), K. G. Vanasse (*Internal Medicine*), J. B. Weidhaas (*Therapeutic Radiology*), D. G. Wells (*Molecular, Cellular, and Developmental Biology*), Y. Wu (*Laboratory Medicine*), Z. Yin (*Internal Medicine*), Z. Yun (*Therapeutic Radiology*), Y. Zhang (*Epidemiology and Public Health*), Y. Zhu (*Epidemiology and Public Health*)

#### *Senior Research Scientists*

P. J. Flory (*Genetics*), R. Halaban (*Dermatology*), W. M. Phillbrick (*Internal Medicine*)

#### *Research Scientists*

T. Ashley (*Genetics*), C. L. Berger (*Dermatology*), B. Cartmel (*Epidemiology and Public Health*), D. B. Fischer (*Therapeutic Radiology*), Z. Hu (*Molecular Biophysics and Bio-*

chemistry), A. Khanna-Gupta (*Internal Medicine*), J. M. McGrath (*Comparative Medicine*), W. J. McMurray (*Laboratory Medicine*), D. Pradhan (*Pathology*), N. Wei (*Molecular, Cellular, and Developmental Biology*)

*Associate Research Scientists*

S. Agarwal (*Internal Medicine*), R. L. Camp (*Pathology*), B. A. Davis (*Cellular and Molecular Physiology*), H. G. Foellmer (*Internal Medicine*), R. L. Fuleihan (*Pediatrics*), D. J. Hanlon (*Dermatology*), M. S. Kluger (*Dermatology*), E. T. Matloff (*Genetics*), D. Ostapenko (*Molecular Biophysics and Biochemistry*), D. J. Schulman-Green (*School of Nursing*), M. Ullickas Yood (*Epidemiology and Public Health*), J. Yang (*Surgery*)

*Research Affiliate*

J. M. Pawelek (*Dermatology*)

*Clinical Professors*

S. Ariyan (*Surgery*), T. N. Byrne (*Neurology*), L. R. Farber (*Internal Medicine*), D. S. Fischer (*Internal Medicine*), R. S. Stahl (*Surgery*)

*Associate Clinical Professors*

S. N. Bobrow (*Internal Medicine*), C. T. Donovan (*School of Nursing*), R. Dubrow (*Epidemiology and Public Health*), A. J. Graham (*Surgery*), S. Imaeda (*Dermatology*), S. A. Stein (*Surgery*)

*Assistant Clinical Professors*

P. A. Barcewicz (*Surgery*), K. A. Haedicke (*Internal Medicine*), M. E. Katz (*Internal Medicine*), J. F. Kveton (*Surgery*), R. A. Lowlicht (*Surgery*), J. P. O'Connell (*Internal Medicine*), J. C. Salomon (*Surgery*), R. F. Schlessel (*Surgery*)

*Lecturers*

I. Black (*Chemistry*), I. A. Dawson (*Molecular, Cellular, and Developmental Biology*)

The center supports a \$100 million research base to promote translational research through collaborations between and within eight basic, epidemiological, and clinical research programs. Basic research programs in Signal Transduction, Gene Regulation and Functional Genomics, Cancer Genetics, Molecular Virology, and Developmental Therapeutics are integrated with clinical research programs in Immunology and Immunotherapy and Radiobiology and Therapy Research, and one epidemiological program, Cancer Prevention and Control. The center also supports eleven shared facilities that are available for oncological research: Flow Cytometry, Cesium Irradiator, Rapid Case Ascertainment, Animal Genomics, Clinical Research Services, Biostatistics, Proteomics, Cancer Genetic Counseling, Immune Monitoring, Microarray, Critical Technologies for Tissue Services, and Biomedical Informatics. Information regarding patient care, research, and cancer prevention and control may be obtained by telephoning 203.785.4095.

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## School of Nursing

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The following courses in the School of Nursing are offered to interested medical students. For more information, contact faculty of record.

**NURS 625b, Children with Chronic Conditions/Disabilities and Their Families.** This course provides students with a forum to discuss theoretical concepts of illness in relation to a family-centered model of care for children and adolescents with a chronic condition/disability and their families. Relevant issues and such topics as service delivery, financing of care, and legislative and health policy issues are explored. Emphasis is placed on the role of advanced practice nursing in the provision of health care for children and adolescents with a chronic condition. Open with permission of the instructor. One and one-half hours per week. S. Santacroce.

**NURS 633a, Health Promotion in Children.** This lecture/seminar course is designed to introduce the student to the primary care of children from infancy through preadolescence. Concepts and theories related to well-child care are explored. Clinical applications of the theories and principles of preventive and optimal health care are emphasized. Open with permission of the instructor. One and one-half hours per week. P. Jackson Allen.

**NURS 637a, Child Development.** This course is designed to give an overview of social-emotional, cognitive, physical, moral, and language development in children from infancy through adolescence. Emphasis is placed upon understanding development in individual, familial, sociocultural, and environmental contexts. Issues of particular significance to the health care provider are stressed. Required for all pediatric nurse practitioner, family nurse practitioner, and child psychiatric-mental health students in the first year of specialization. Open to others with permission of the instructor. One and one-half hours per week. L. Sadler.

**NURS 723a/HPA 592a, Concepts and Principles of Aging.** This elective course is designed as a multidisciplinary course that introduces students to the major concepts and principles of gerontology and to a variety of biopsychosocial theories on aging. Delivery systems of care for the elderly are explored along with the current social policy initiatives as they relate to the elderly. Research initiatives are discussed, and students are urged to explore issues of eldercare in their own specialty/discipline as well as in related disciplines. One and one-half hours per week. M. Wallace.

**NURS 733b, Living with Dying.** Advances in treatment and technology have transformed the clinical course of many terminal illnesses. A growing number of people with terminal illness are living longer than ever before. Home care, shorter length of stay, and restrictions on admissions because of managed care have become a health-care delivery reality for individuals with even the most serious illnesses. Health-care providers need a comprehensive understanding of the individual and family experiences across an illness trajectory as clients adapt to living with disease and the possibility of death. This course develops practitioners' cultural and gender awareness, understanding, and competencies in creating environments to relieve suffering for individuals and their families across settings. Emphasis is on nonpharmacologic interventions to relieve suffering, including spiritual, interpersonal, and sociocultural. The course is structured with the premise that relief from suffering, meaning, and transcendence at the end of life are best achieved and understood through the interpersonal use of narrative techniques, like storytelling, to facilitate communication. One and one-half hours per week. R. McCorkle.



**NURS 769a, Advanced Concepts and Principles of Diabetes Care.** This seminar focuses on the concepts and principles of diabetes managed care based on the American Diabetes Association Standards of Care (2003). It includes principles of primary care (screening, early detection, intervention, patient education), secondary care principles related to diabetes management, tertiary care related to complications, various treatment modalities, patient education, and self-care. These concepts and principles of care are presented relative to type of diabetes (insulin dependent, noninsulin dependent, gestational and pregnancy, and secondary), age, developmental stage, duration of disease, and ethnicity. A multidisciplinary approach to care issues is emphasized, incorporating the contributions of other disciplines in the collaborative management of diabetes. Important aspects of living with a chronic illness such as the psychological, social, occupational, and economic are also emphasized. Open with permission of the instructor. Two hours per week. G. Melkus.

**NURS 849b, Family Patterns and Systems Relevant to Health Care.** This course provides theoretical perspectives on family patterns and structure, family development, family stress and coping, and contextual variables that influence the health of the family and individual. Application of these perspectives is explored in terms of the management of health care and illness in children and families. Techniques in assessment of family functioning, vulnerabilities, and strengths are presented from clinical and research perspectives. Selected family problems are analyzed within theoretical, clinical, and policy perspectives. Open with permission of the instructors. One and one-half hours per week. A. Crowley.

**NURS 961a, Contemporary Issues in Health Policy and Politics.** This course is based on the assumption that clinicians and researchers bring important data to health policy deliberations, but need to be politically savvy in disseminating such data and linking them to contemporary policy deliberations. It examines how health policy at national, state, and local levels of government influences access to, and cost and quality of, health care. Other structural variables, such as delivery systems, populations at risk, and the environment, are also covered. Comparative health policy is included. Required for all doctoral students. Open to others with permission of the instructor. Three hours per week. S. Cohen.

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## Postgraduate Study

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Graduate medical education in clinical departments is based upon the residency training programs of the Yale-New Haven Medical Center. Initial appointments are offered in Anesthesiology, Dermatology, Diagnostic Imaging, Emergency Medicine, Internal Medicine Primary Care, Internal Medicine, Neurology, Neurosurgery, Obstetrics and Gynecology, Ophthalmology, Orthopaedics and Rehabilitation, Otolaryngology, Pathology, Pediatrics, Plastic Surgery, Psychiatry, Surgery, Therapeutic Radiology, and Urology; appointments are made through the National Resident Matching Program or the appropriate specialty matching program (Neurology, Neurosurgery, Ophthalmology, Otolaryngology, Urology). Residencies are also offered in Dentistry and Pediatric Dentistry. Subspecialty residency programs are offered in the following specialties:

Anesthesiology	Nuclear Medicine
Cardiothoracic Surgery	Obstetrics and Gynecology
Child Psychiatry	Pathology and Laboratory Medicine (AP/CP)
Dermatology	Pediatric Surgery
Diagnostic Radiology	Pediatrics
Emergency Medicine	Psychiatry
Internal Medicine	Transplant Surgery
Neurology	Vascular Surgery
Neurosurgery	

The School and the hospital are joined in the establishment and management of an Office of Graduate Medical Education of Yale-New Haven Medical Center. Residents at the Yale-New Haven Hospital and the VA Connecticut Healthcare System, West Haven, are enrolled as postgraduate students in the School of Medicine in addition to their hospital appointments. In most of the clinical departments, a limited number of fellowships for research or clinical training are also available.

Detailed information concerning residency programs may be obtained from the chair of the appropriate department. Applicants must be graduates of an approved medical school in the United States or Canada or have successfully completed the requirements of the ECFMG and have a valid ECFMG certificate. General information may be obtained by visiting the Yale-New Haven Medical Center Graduate Medical Education Web site ([www.ynhh.org/med\\_prof/grad\\_med.html](http://www.ynhh.org/med_prof/grad_med.html)) or the Yale University School of Medicine site (<http://info.med.yale.edu/ysm/departments>) and visiting the appropriate department.

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## Continuing Education

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Yale School of Medicine is accredited by the Accreditation Council for Continuing Medical Education as a provider of continuing medical education (CME). Under the auspices of the Yale Medical Group, the educational programs sponsored by Yale CME include primary care, specialty, and subspecialty topics in the field of medicine. The scope of these activities involves the body of knowledge and skills generally recognized and accepted by the profession as within the basic medical sciences, the discipline of clinical medicine, and the provision of health care to the public.

Yale CME provides content and material tailored to complement the participant's needs and schedule through the following educational activities: conferences and workshops; home study courses; enduring materials; and distance education by personal computer and other innovative formats. The offerings are intended to enhance physician and other health professionals' professional development and influence their behavior for the purpose of improving health outcomes and patient care.

Courses offered include (a) review courses and symposia designed to present advances in the diagnosis and management of selected disorders of general interest; (b) courses of interest to physicians in a particular specialty; and (c) courses dealing with matters of public health and its administration, developed by the faculty of the Department of Epidemiology and Public Health.

Most regularly scheduled educational conferences (Grand Rounds) of the Yale-New Haven Medical Center are also open to all physicians for CME credit. The School of Medicine also facilitates the presentation of continuing education programs for allied health personnel.

Also available for physicians and certain other health care workers are the *Online Learning Program*, which includes Medical Center Grand Rounds videos, and *The Diabetes Newsletter CME Program*. Based on the contents of well-known and widely circulated medical publications, the examination program is developed, edited, and supervised within the Center for Continuing Medical Education.

The Yale CME Web site and the Yale-New Haven Medical Center *Weekly Schedule of Events* contain the most timely and detailed listing of all these events. They may be accessed at <http://cme.yale.edu> or <http://info.med.yale.edu/calendar>. Inquiries should be addressed to the Center for Continuing Medical Education, PO Box 208052, New Haven CT 06520-8052; telephone, 203.785.4578; e-mail, [cme@yale.edu](mailto:cme@yale.edu).

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## Doctors of Medicine

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### CLASS OF 2007

- Eric Ackah, B.S., Delaware State University; PH.D., Yale University. *The Role of Akt/Protein Kinase B in Postnatal Angiogenesis: Insights from Akt Knockout Mice*. Internal Medicine. Massachusetts General Hospital, Boston, Mass.
- Jason Randolph Andrews, B.A., Yale University. *Clinical Predictors of Drug Resistance and Mortality Among Tuberculosis Patients in a Rural South African Hospital: A Case-Control Study*. Internal Medicine/Primary. University of California–San Francisco, San Francisco, Calif.
- Karen Archabald, B.A., Dartmouth College; M.S., University of Wisconsin–Madison. *The Impact of Prenatal Discussion of Breastfeeding by Health Care Providers on Feeding Choice*. Obstetrics and Gynecology. Brown University/Women & Infants Hospital, Providence, R.I.
- Nana Akua Agyeiwaa Asafu-Agyei, B.S., M.P.H., Yale University. *Stigma Perceived by Persons with Human Immunodeficiency Virus Attending the Infectious Diseases Clinic of Centre Hospitalier Universitaire De Fann in Dakar, Senegal*. Pediatrics. Children's Hospital of Philadelphia, Philadelphia, Pa.
- Aaron J. Berger, B.A., M.S., University of Pennsylvania; PH.D., Yale University. *Molecular Classification and Prediction of Metastatic Potential in Early Malignant Melanoma: Improvement of Prognostic Accuracy by Quantitative in situ Proteomic Analysis*. Plastic Surgery. Stanford University Programs, Stanford, Calif.
- Ranjit Singh Bindra, B.S., Yale University; PH.D., Yale University. *DNA Repair Gene Expression and Genetic Instability in the Tumor Microenvironment*. Transitional. Memorial Sloan-Kettering Cancer Center, New York, N.Y. Radiation Oncology. Memorial Sloan-Kettering Cancer Center, New York, N.Y.
- Omar Rehman Chaudhary, B.S., Duke University. *The Monocular Trial: Does Response to Glaucoma Therapy in One Eye Predict Response in the Fellow Eye?* Medicine-Preliminary. Medical College of Georgia, Augusta, Ga. Ophthalmology. Yale-New Haven Hospital, New Haven, Conn.
- Sean Ryan Christensen. B.S., University of California–Santa Barbara; PH.D., Yale University. *B Cells at the Interface of Innate and Adaptive Immunity in Systemic Lupus Erythematosus*. Medicine-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Dermatology. Yale-New Haven Hospital, New Haven, Conn.
- Bridget F. Collins, B.A., Hamilton College. *Vaccination with Her2/Neu Peptides Elicits an Endogenous Anti-Her2/Neu Antibody Response in Mice*. Internal Medicine. Brigham and Women's Hospital, Boston, Mass.
- Jana Alexandra Colton, B.A., Harvard University. *Sex and the Elderly: What Physicians Should Know about Their Older Patients*. Psychiatry. New York Presbyterian Hospital–Cornell, New York, N.Y.

- Bidhan Das, B.A., Rice University. *The "Power Mix" Tolerizing Regimen: Novel Tolerizing Regimens to be Applied in the Cynomolgus Model*. General Surgery. Beth Israel Deaconess Medical Center, Boston, Mass.
- Farrah Mikhail Datko, B.A., Princeton University. *Efficacy of Neoadjuvant Chemotherapy Regimens Prior to Resection of Colorectal Liver Metastases*. Internal Medicine. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Shekar L. Davarya, B.A., Johns Hopkins University. *Inflammatory and Thrombotic Responses to Microbial Products in Fetal Vessels are Mediated Through Divergent Toll-Like Receptor Signaling Pathways: Implications in Fetal Inflammatory Response Syndrome*. Obstetrics and Gynecology. University of Pittsburgh Medical Center, Pittsburgh, Pa.
- Masha Rand Diede, B.A., M.A., University of Chicago. *Mitral Cell Dendritic Development in the Mouse Main Olfactory Bulb*. Emergency Medicine. North Shore University Hospital/NYU School of Medicine, Manhasset, N.Y.
- Mary A. Dombrowski, B.S., Georgetown University. *Sciatic Nerve Remyelination and Nodal Formation Following Olfactory Ensheathing Cell Transplantation*. Medicine/Primary-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Neurology. Yale-New Haven Hospital, New Haven, Conn.
- Matthew C. Egalka, B.A., Dartmouth College. *Bone Marrow Contribution to Renal Repair Following Ischemic Injury*. Pediatrics. Yale-New Haven Hospital, New Haven, Conn.
- Gretchen Melaine Graff, B.S., University of Notre Dame. *Cadherin-Based Adhesion Molecules for Classification of Melanoma with AQUA Technology*. Medicine/Primary-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Dermatology. Yale-New Haven Hospital, New Haven, Conn.
- Rebecca Stephanie Hunter, B.A., Princeton University. *Inhibition of ERBB2 and Thymidylate Synthase by a Multi-Targeted Small-Interfering RNA in Human Breast Cancer Cell Lines*. Medicine-Preliminary. Brigham and Women's Hospital, Boston, Mass. Ophthalmology. Massachusetts Eye and Ear Infirmary, Boston, Mass.
- Hassana Aisha Ibrahim, B.S., Allegheny College. *Interactions Between fMRI BOLD-Activation During Reading Tasks and MRS-Measured Metabolite Levels*. Transitional. Harbor-UCLA Medical Center, Torrance, Calif. Diagnostic Radiology. UCLA Medical Center, Los Angeles, Calif.
- Brendan R. G. Jackson, B.S., University of Georgia. *No Observed Adverse Effects: Developing Neurons, Organophosphate Insecticides, and the 1996 Food Quality Protection Act*. Internal Medicine/Primary. Yale-New Haven Hospital, New Haven, Conn.
- Christopher Michael Janson, B.A., Princeton University. *Marriage and Divorce in Survivors of Childhood Cancer: A Report from the Childhood Cancer Survivor Study*. Pediatrics. Children's Hospital of Boston, Boston, Mass.
- David Jay-Pei Jeng, B.A., Harvard University. *Optic Disc Changes after Pan-Retinal Photocoagulation for Proliferative Diabetic Retinopathy*. Medicine/Primary-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Ophthalmology. University of Southern California, Los Angeles, Conn.

- Emlyn Starr Jones, B.A., Vassar College; M.P.H., Emory University; M.H.S., Yale University. *Cost Analysis of Clinic and Office-Based Treatment of Opioid Dependence*. Family Medicine. Ventura County Medical Center Program, Ventura, Calif.
- Viral Virendra Juthani, B.A., University of Pennsylvania. *The Epidemiology and Incidence of Visual Deficits Following Ocular Trauma in Pediatric Patients*. Transitional Year. Memorial Sloan-Kettering Cancer Center, New York, N.Y. Ophthalmology. New York University School of Medicine, New York, N.Y.
- Kristopher Thomas Kahle, B.A., University of Chicago; PH.D., Yale University. *WNK Kinases, A Novel Pathway Controlling Blood Pressure and Electrolyte Homeostasis in Humans*. Surgery-Preliminary. Massachusetts General Hospital, Boston, Mass. Neurosurgery. Harvard University / Massachusetts General Hospital, Boston, Mass.
- Hristos Z. Kaimakliotis, B.A., Wesleyan University. *Effects of the New Histone Deacetylase Inhibitor, PXD101, in Bladder Cancer*. Surgery-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Urology. Yale-New Haven Hospital, New Haven, Conn.
- Lucy Emily Goddard Kalanithi, B.A., Dartmouth College. *Placental Localization and Perinatal Outcome*. Internal Medicine/Primary. University of California-San Francisco, San Francisco, Calif.
- Paul S. A. Kalanithi, B.A., M.A., Stanford University; M.A., Cambridge University. *Altered Parvalbumin-Positive Neuron Distribution in Basal Ganglia of Individuals with Tourette Syndrome*. Neurosurgery. Stanford University Programs, Stanford, Calif.
- Jennifer Melissa Kalish, B.A., Harvard University; PH.D., Yale University. *Gene Modification with Triplex-Forming Oligonucleotides*. Pediatrics. Children's Hospital of Philadelphia, Philadelphia, Pa.
- Deborah E. Kaplan, B.A., Bowdoin College. *The Infant and Effects of Parental Presence in the Operating Room During Induction of Anesthesia*. Physical Medicine and Rehabilitation. University of Cincinnati College of Medicine Program, Cincinnati, Ohio.
- Ryan P. Kelly, B.A., Dartmouth College. *The Use and Safety of Vascular Occlusion Techniques: A Survey of Practicing Surgeons*. Biological Sciences (Teaching & Research).
- Rebecca Kershner, B.S., Yale University; M.S., New York University. *Adolescent Medicine: Attitudes, Training and Experience of Pediatric, Family Medicine and Obstetric-Gynecology Residents*. Family Medicine. Contra Costa Regional Medical Center, Martinez, Calif.
- Jessica Kirk, B.S., Stanford University. *CT Scan Findings of the Thoracic Aorta Following Surgical Repair*. Transitional Year. Albert Einstein Medical Center, Philadelphia, Pa. Dermatology. Roger Williams Medical Center Program, Providence, R.I.
- Phoebe Este Koch, B.A., Brown University. *Educating Adolescents about Acne Vulgaris: A Comparison of Written Handouts with Audio-Visual Computerized Presentations*. Medicine-Preliminary. Hospital of Saint Raphael, New Haven, Conn. Dermatology. University of Minnesota Program, Minneapolis, Minn.

- Brian Koh, B.A., Harvard University. *Mutational Analysis of Ikb Kinase b to Elucidate its Interaction with the Sesquiterpene Lactone Parthenolide*. Internal Medicine/Research. Mayo Clinic College of Medicine, Rochester, Minn.
- Lauren Kendall Krause, B.A., Northwestern University. *Gene Expression Patterns in Patients with High-Altitude Pulmonary Edema: A Gene Microarray Analysis*. Emergency Medicine. Brigham and Women's Hospital, Boston, Mass.
- Sheila Kumar, B.A., Johns Hopkins University. *The Relationship Between Direct to Consumer Marketing and the Self-Perception of GERD Symptoms in the Young Adult Population*. Internal Medicine. New York. Presbyterian Hospital-Columbia, New York, N.Y.
- Victoria Kuohung, B.A., University of Michigan-Ann Arbor; J.D., Harvard University. *Penile and Scrotal Human Papillomavirus Infection in HIV-Positive and HIV-Negative Men who have Sex with Men: Relationship with Anal Human Papillomavirus Infection*. Medicine-Preliminary. Beth Israel Deaconess Medical Center, Boston, Mass. Dermatology. Boston University Medical Center, Boston, Mass.
- Aida E. Kuri, B.A., University of South Florida. *Secondary Prevention of HIV: An Assessment of Safer-Sex Counseling Practices in an Urban HIV Clinic*. Internal Medicine/Primary. Massachusetts General Hospital, Boston, Mass.
- Aram J. Lee, B.A., Yale University. *Understanding the Role of the Epithelial-Mesenchymal Transition in Prostate Cancer*. Medicine-Preliminary. Cedars-Sinai Medical Center, Los Angeles, Calif. Diagnostic Radiology. UCLA Medical Center, Los Angeles, Calif.
- April Robyn Levin, B.S., Brown University. *Early Seizure Blockade: Preventing Long-Term Epileptic Activity in Wag/Rij Rats*. Pediatrics. Children's Hospital of Boston, Boston, Mass. Pediatric Neurology. Harvard/Children's Hospital /Beth Israel Deaconess, Boston, Mass.
- Peter Charlie Lin, B.S., Cornell University. *Mechanical Properties of Aneurysms of the Descending Human Aorta*. Transitional Year. Hospital of Saint Raphael, New Haven, Conn. Anesthesiology. Johns Hopkins Hospital, Baltimore, Md.
- Douglas Lyssy, B.S., University of Texas at San Antonio; M.B.A., Yale University. *The M.D./M.B.A. Effect: A Study of How Residency Directors Perceive Applicants with an M.B.A.* Investment Banking. Merrill Lynch's Global Healthcare Group, New York, N.Y.
- Stefan Vazrick Mansourian, B.A., Harvard University. *Interactions Between the GLUT4 Glucose Transporter and its Regulator, TUG*. Medicine/Primary-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Neurology. New York Presbyterian Hospital-Columbia, New York, N.Y.
- Alison Michelle Maresh, B.S., Stanford University. *Cellular and Synaptic Organization of the Human Olfactory Bulb*. Otolaryngology. New York Presbyterian Hospital-Columbia, New York, N.Y.
- Maya Maxym, B.A., Yale University; PH.D. Emory University. *Hypnosis for Relief of Pain and Anxiety in Children Receiving Intravenous Lines in the Pediatric Emergency Department*. Pediatrics. University of Washington Affiliated Hospitals, Seattle, Wash.

- Maria Mazzeo, B.S., Cornell University. *The Role of Bone Marrow Derived Cells in a Model of Hepatic Regeneration*. Anesthesiology. New York Presbyterian Hospital–Cornell, New York, N.Y.
- Robert H. McGlynn, B.S., State University of New York at Albany. *Efficacy of 180 Versus 360 Degrees of Selective Laser Trabeculoplasty on Lowering Intraocular Pressure*. Medicine–Preliminary. Hospital of Saint Raphael, New Haven, Conn. Ophthalmology. New York Eye and Ear Infirmary, New York, N.Y.
- Rebecca A. McNutt, B.S., United States Air Force Academy; M.S., George Washington University. *Nicotine Replacement Therapy and Brief Motivational Interview for Emergency Department Smokers with Asthma*. Emergency Medicine. University of Pittsburgh Medical Center, Pittsburgh, Pa.
- Kyeen Mesesan, B.S., Brown University; PH.D., Yale University. *Implementing Partially Effective HIV Prevention Programs: Changes in Sexual Risk Behavior and Epidemic Impact in Sub-Saharan Africa*. International Health Research & Policy.
- Ahou Meydani, B.A., Brown University. *Social Support and Reproductive Health in 15 to 24 Year Old Immigrant Latinas in the San Francisco Bay Area*. Medicine–Preliminary. Beth Israel Deaconess Medical Center, Boston, Mass. Dermatology. UMDNJ–New Jersey Medical School Program, Newark, N.J.
- Karen Sarena Morris–Priester, B.A., York College of Pennsylvania. *The Founding of the National Medical Association*. Transitional Year. Lehigh Valley Hospital, Allentown, Pa. Anesthesiology. Brigham and Women’s Hospital, Boston, Mass.
- Arnab Mukherjee, B.A., George Washington University; M.B.A., Yale University. *The Impact of Briefings on Sentinel Events and Unexpected Delays in the Operating Room*. Medicine–Preliminary. Beth Israel Medical Center, New York, N.Y. Anesthesiology. Johns Hopkins Hospital, Baltimore, Md.
- Anthony B. Ndu, B.A., B.S., Union College; M.B.A., Yale University. *Dynamic Mechanical Properties of Intact Human Cervical Spine Ligaments*. Orthopaedic Surgery. Yale–New Haven Hospital, New Haven, Conn.
- Bernice Yu Jing Ng, B.A., University of California–Berkeley. *Chronic Inflammation–Driven Tumor Promotion Associated with CD8+ T Cells*. Medicine/Primary–Preliminary. Yale–New Haven Hospital, New Haven, Conn. Dermatology. Stanford University Programs, Stanford, Calif.
- Alexander Nissen, B.A., University of California–Berkeley. *The Acute Effects of Elevated Blood Lipid Levels on Endothelial Function*. Norwegian Residency Training Program. Norway.
- Chukwuemeka Chinedu Nwanze, B.A., Harvard University; M.B.A., Yale University. *Use of a Help–Wanted Index to Assess Marketplace Demand for Ophthalmologists*. Medicine–Preliminary. Massachusetts General Hospital, Boston, Mass. Ophthalmology. Boston University, Boston, Mass.
- Kikelomo Olorunrinu, B.S., University of Texas at Arlington. *Nigerian Women Living in the United States are more Hirsute than those Living in Nigeria*. Anesthesiology. Cleveland Clinic Foundation, Cleveland, Ohio.



- Oyere Kalu Onuma, B.S., Harvard University. *Serum Proteomic Profiles in Inflammatory and Non-Inflammatory Cardiomyopathies*. Internal Medicine. Massachusetts General Hospital, Boston, Mass.
- Cameron S. Page, B.A., Georgetown University. *Correlation of Helminth Burden and Species with CD4 Count in HIV-1 Infected Adults in Nairobi, Kenya and Surrounding Area*. Internal Medicine/Primary/Social. Albert Einstein College/Montefiore Medical Center, Bronx, N.Y.
- Victoria Kathryn Potterton, B.A., Dartmouth College; M.B.A., Yale University. *Factors Influencing Diagnostic Radiology as a Specialty Choice Among Women*. Medicine-Preliminary. New York University School of Medicine, New York, N.Y. Consultant. The Boston Consulting Group, New York, N.Y.
- Alain Ramirez, B.S., University of Miami; M.H.S., Yale University. *Surrogate Markers of Success in the Bariatric Surgery Population*. General Surgery. New York University School of Medicine, New York, N.Y.
- Rajesh Chalamalasetty Rao, B.S., University of Wisconsin. *Platelet-Derived Growth Factor Enables Direct Derivation of Oligodendrocyte Progenitors from CNS Stem Cells*. Transitional Year. McGaw Medical Center of Northwestern University, Evanston, Ill. Ophthalmology. Massachusetts Eye and Ear Infirmary, Boston, Mass.
- Sally Dunne Romano, B.A., Harvard University; PH.D., Yale University. *The Dark Side of the Sun: Skin Cancer, Sunscreen, and Risk in Twentieth-Century America*. Psychiatry. Yale-New Haven Hospital, New Haven, Conn.
- Oren S. Rosenberg, B.A., Vassar College; PH.D., Yale University. *On the Structure and Function of Calcium/Calmodulin Activated Protein Kinase II*. Internal Medicine. Brigham and Women's Hospital, Boston, Mass.
- Russell James Hubbard Ryan, B.A., Amherst College. *Mammalian DCN-1-like Proteins Enhance Neddylation of CUL3, and Vary in Localization and Tissue-Specific Expression*. Pathology. Massachusetts General Hospital, Boston, Mass.
- James Robert Alan Schafer, B.S., Brown University; M.S., University of Edinburgh; PH.D., Yale University. *The Application of Functional Magnetic Resonance Imaging to the Study of Odor Coding in the Rodent Olfactory Bulb*. Transitional. St. Vincent's Medical Center, Bridgeport, Conn. Diagnostic Radiology. University of Michigan Hospitals—Ann Arbor, Ann Arbor, Mich.
- Brent Earl Schultz, B.S., University of California—Davis; M.H.S., Yale University. *Epi-Genetic Abnormalities of Infantile Hemangiomas: Regulation of the IGF2/H19 Locus*. Plastic Surgery. University of Washington Affiliated Hospitals, Seattle, Wash.
- Roshan Pradip Shah, B.A., Dartmouth College; J.D., Stanford University. *A Comparison of Cyclic Valgus Loading on Reconstructed Ulnar Collateral Ligament of the Elbow*. Orthopaedic Surgery/Research. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Aditya Sharma, B.A., B.S., University of Delaware. *Cost-Effectiveness of Hepatitis A and Hepatitis B Vaccination for Jail Inmates*. Emergency Medicine. New York Presbyterian Hospital—Cornell, New York, N.Y.

- Priya B. Shete, B.A., Johns Hopkins University. *The Immunoepidemiology of Hookworm Infection in the Peruvian Amazon*. Internal Medicine. University of California–San Francisco, San Francisco, Calif.
- Stephen L. Shiao, B.S., Yale University; PH.D., Yale University. *Memory T Cells and the Endothelium*. Medicine-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Radiation Oncology. University of California–San Francisco, San Francisco, Calif.
- Joshua Dean Shofner, B.S., University of Kentucky. *Improved Generation of Anti-Tumor Immunity by Antigen Dose Limitation*. Medicine-Preliminary. Brigham and Women's Hospital, Boston, Mass. Dermatology. Massachusetts General Hospital, Boston, Mass.
- Caryn M. St. Clair, B.S., University of Connecticut. *Neonatal Respiratory Distress Syndrome as a Function of Gestational Age and the Lecithin/Sphingomyelin Ratio*. Obstetrics and Gynecology. New York Presbyterian Hospital–Columbia, New York, N.Y.
- Ramnath Subbaraman, B.A., University of Chicago. *Anemia Among HIV-Infected Individuals in South India*. Internal Medicine. University of California–San Francisco, San Francisco, Calif.
- Kristen Tomiko Sueoka, B.A., Harvard University. *Depression Treatment in HIV-Infected and Uninfected Veterans: Do Treatment Rates Vary by HIV Status?* Internal Medicine/Primary. University of California–San Francisco, San Francisco, Calif.
- Lara Kim Suh, B.S., Massachusetts Institute of Technology. *Time Interval to Diagnosis of Bladder Cancer and its Associated Outcomes*. Surgery-Preliminary. New York Presbyterian Hospital–Columbia, New York, N.Y. Urology. New York Presbyterian Hospital–Columbia, New York, N.Y.
- Linus Da-Shih Sun, B.S., University of California–Berkeley; PH.D., Massachusetts Institute of Technology. *Impaired and Enhanced Spatial Representations of the PSD-95 Knockout Mouse*. Medicine-Preliminary. Yale-New Haven Hospital, New Haven, Conn. Neurology. New York Presbyterian Hospital–Columbia, New York, N.Y.
- Edward Teng, B.S., Yale University; M.H.S., Yale University. *Biomechanical Testing of Charité Disc Replacements versus Fusion Using Hybrid Testing Protocol and Follower Load*. Plastic Surgery. Yale-New Haven Hospital, New Haven, Conn.
- Nataliya V. Uboha, B.S., Washington University; PH.D., Yale University. *Identifying Interacting Partners of CaMKI Alpha via a Yeast Two-Hybrid Approach*. Internal Medicine. Yale-New Haven Hospital, New Haven, Conn.
- Silas Lancelot Wang, B.S., Harvard University. *Clinical Characteristics and Treatment Response to Radiotherapy of Optic Nerve Sheath Meningiomas*. Medicine-Preliminary. Greenwich Hospital, Greenwich, Conn. Ophthalmology. New York University School of Medicine, New York, N.Y.
- Anika Nina Watson, B.S., Tulane University of Louisiana. *Significance of the "Atypia" Found on Needle Biopsy of the Breast: Correlation with Surgical Outcome*. Transitional. Santa Clara Valley Medical Center, San Jose, Calif. Diagnostic Radiology. University of Mississippi Medical Center Program, Jackson, Miss.

- Marlynn Wei, B.S., J.D., Yale University. *University Policy and Procedural Responses to Students at Risk of Suicide*. Psychiatry. Massachusetts General Hospital, Boston, Mass.
- William Lamont Worden, B.A., Brigham Young University. *Response of Choroid and Forehead Blood Flow to Systemic Phenylephrine Infusion*. Medicine-Preliminary. Hospital of Saint Raphael, New Haven, Conn. Anesthesiology. Brigham and Women's Hospital, Boston, Mass.
- Charlotte Audris Wu, B.A., Stanford University. *Qualitative Assessment of Adherence to Antiretroviral Therapy Among Chinese Intravenous Drug Users*. Internal Medicine. Beth Israel Deaconess Medical Center, Boston, Mass.
- Brian Richard Yablon, B.S., University of Wisconsin-Madison. *Determinants of Student Preferences for Teaching Behaviors in the Ambulatory Setting*. Medicine/Pediatrics. University of Minnesota Program, Minneapolis, Minn.
- Peter Chih-chi Yang, B.A., Harvard University. *Why Do Patients Seek Emergency Psychiatric Care? Their Reasons and Characteristics*. Internal Medicine. UCLA Medical Center, Los Angeles, Calif.

#### STUDENTS RECEIVING THE M.D. AND PH.D. DEGREES

Eric Ackah  
 Aaron Berger  
 Ranjit Bindra  
 Sean Christensen  
 Kristopher Kahle  
 Jennifer Kalish  
 Kyeen Mesesan  
 Sally Romano  
 Oren Rosenberg  
 James Schafer  
 Stephen Shiao  
 Nataliya Uboha

#### STUDENTS RECEIVING THE M.D. AND J.D. DEGREES

Roshan Shah  
 Marlynn Wei

#### STUDENTS RECEIVING THE M.D. AND M.B.A. DEGREES

Douglas Lyssy  
 Arnab Mukherjee  
 Anthony Ndu  
 Chukwuemeka Nwanze  
 Victoria Potterton

**STUDENTS RECEIVING THE M.D. AND M.H.S. DEGREES**

Emlyn Jones  
Alain Ramirez  
Brent Schultz  
Edward Teng

**STUDENT RECEIVING THE M.D. AND M.P.H. DEGREES**

Nana Akua Asafu-Agyei

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# Enrollment for 2007–2008

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## POSTGRADUATE STUDENTS

Members of the resident staff at Yale-New Haven Hospital and the VA Connecticut Healthcare System's West Haven campus are enrolled as postgraduate students in the School of Medicine. Information on postgraduate students is available from the Office of Postgraduate Medical Education.

## REGISTERED FOR THE DEGREE OF DOCTOR OF MEDICINE

### *Fourth-Year Class*

Anne Lenore Ackerman (B.S. Yale Univ. 1998; PH.D. Yale Univ. 2003), Somerset, N.J.

Ayal Aaron Aizer (B.S. Brown Univ. 2004), Kingston, N.Y.

Allison Arwady (B.A. Harvard Univ. 1998, M.P.H. Columbia Univ. 2003), Kalamazoo, Mich.

Eric Rolando Arzubi (B.S. Georgetown Univ. 1991), Westport, Conn.

Soledad Tarka Ayres (B.A. Smith Coll. 2003), Palo Alto, Calif.

Jessica Hoffmann Beard (B.A. Columbia Univ. 2003), Houston, Tex.

Louvonia Rose Boone (B.S. Yale Univ. 2001), Calhoun, Ga.

Benjamin Douglas Bowling (B.S. Univ. California [Los Angeles] 2001), Palo Alto, Calif.

Mohamad Bydon (B.A. Dartmouth Coll. 2002), Dearborn, Mich.

Argyro Pericles Caminis (B.A. Yale Univ. 2000), Rowayton, Conn.

Erik James Carlson (B.A. Dartmouth Coll. 2003), Atlanta, Ga.

Claudia Patricia Castiblanco (B.S. Iona Coll. 2002), White Plains, N.Y.

Cynthia Marie Correll (B.S. Univ. Pittsburgh 2003), Reading, Pa.

Tina Dasgupta (B.S. Univ. Alberta 2001), Alberta, Canada.

Douglas Jackson Davis (B.A., B.S. St. Mary's Univ. 1999), Selma, Tex.

Alexander Phillip Diaz De Villalvilla (B.S. Georgetown Univ. 2001), New York, N.Y.

Lu Anne Velayo Dinglasan (B.S. Univ. California [Los Angeles] 2003), Pomona, Calif.

Jennifer Dominguez (B.A. Duke Univ. 1999), Ridgefield, Conn.

Peter David Fabricant (B.A. Univ. Rochester 2004), Madison, Conn.

Candace Hillary Feldman (B.A. Yale Univ. 2003), Forest Hills, N.Y.

Sarah Elisabeth Frasure (B.A. Wellesley Coll. 2001), Alexandria, Va.

Rachel Summer Claire Friedman (B.A. Harvard Univ. 2001), Dingmans Ferry, Pa.

Sanaz Ghazal (B.A. Harvard Univ. 2001), Temecula, Calif.

Sharmin Ghaznavi (B.S. Massachusetts Inst. of Technology 2000), Ann Arbor, Mich.

Jennifer Margaret Giltneane (B.S. Univ. Tennessee [Knoxville] 1999), Athens, Tenn.

Keith Eric Gipson (B.S. Univ. Alabama [Birmingham] 1998), Birmingham, Ala.

Roger Alan Goldberg (B.A. Yale Univ. 2000), Newton, Mass.

Liza Elenia Goldman Huertas (B.S. Brown Univ. 1997), Orange, Conn.

Carolyn Page Graeber (B.S. Yale Univ. 2003), Morgantown, W.Va.  
Jason Wells Griffith (B.A. Vanderbilt Univ. 1999), Dallas, Tex.  
Ephat Hadas Harel (B.S. Yale Univ. 2004), Barrington, R.I.  
Mary Stillwell Hatcher (B.A. Harvard Univ. 1998), Atlanta, Ga.  
Ryan Matthew Hebert (B.A. Univ. Colorado [Boulder] 2001), Crown Point, La.  
Abby Lifter Hochberg (B.A. Univ. Pennsylvania 2002; M.S. Pace Univ. [New York] 2004), Wellesley, Mass.  
Kristin Elizabeth Hoffmann (B.A. Wellesley Coll. 2002), Madison, Wis.  
Lily Ming-Sha Horng (B.S. Stanford Univ. 2002), Monterey Park, Calif.  
Elizabeth Houle (B.A. Swarthmore Coll. 1998), Danville, Vt.  
Ellen Margaret House (B.S. Yale Univ. 2004), Greensboro, N.C.  
Rasika Priya Jayasekera (B.A. Yale Univ. 1999), Lexington, Ky.  
Jenelle Asha Jindal (B.S. Stanford Univ. 2004), Lafayette, La.  
Kimberly Lauren Johung (B.A. Yale Univ. 1999), Burlingame, Calif.  
Ryan Karl Kaple (B.S. Univ. of Notre Dame 2003), Youngstown, Ohio.  
Scott Thomas Olco Kennedy (B.A. Stanford Univ. 2002), Moon Township, Pa.  
Rasha Saman Khoury (B.S. Georgetown Univ. 2004), Kenilworth, Ill.  
Misaki Mikki Kiguchi (B.S. Yale Univ. 2003), Austin, Tex.  
Yunie Kim (B.S. Univ. Washington 2003), Lynnwood, Wash.  
Rachel Esther Laff (B.A. Smith Coll. 1999), Evanston, Ill.  
Karl Robert Laskowski (B.A. Yale Univ. 2003), Centerville, Del.  
Kelvin Cheukhang Lau (B.A. Univ. Pennsylvania 2003), Newton, Mass.  
Tamara Lazic (B.S. Univ. California [Los Angeles] 2004), Belgrade, Yugoslavia.  
Corinna G. Levine (B.A. Cornell Univ. 2003), Pomfret Center, Conn.  
Kiera Surelle Levine (B.A. Yale Univ. 1996), Los Angeles, Calif.  
Sophia Liu (B.A. Stanford Univ. 2002), Great Neck, N.Y.  
Natalya Lopushnyan (B.S. Univ. Massachusetts [Boston] 2003), Everett, Mass.  
Kurtland Ma (B.A. Yale Univ. 2002), Scottsdale, Ariz.  
Al Hasan Makkouk (B.S. Univ. Texas [Austin] 2003), Austin, Tex.  
Julia Anne Marsh (B.A. Harvard Univ. 2004), Annandale, Va.  
Michael Joel Martinez (B.A. Princeton Univ. 2002), Edinburg, Tex.  
Sean Matthew McBride (B.S. Yale Univ. 2003), Wilmington, Del.  
Lindsay Kellogg McGuire (B.A. Stanford Univ. 2003), Palo Alto, Calif.  
Mark Hippolyte J. McRae (B.A. Cornell Univ. 2003), Toronto, Ontario, Canada.  
Tamara Porter Miller (B.A. Harvard Univ. 2004), Brookline, Mass.  
Nandakumar Narayanan (B.A. Stanford Univ. 2000), Kenmore, Wash.  
Ashley Elizabeth Neal (B.S. Clemson Univ. 2004), Galax, Va.  
Gregory Neville Nelson (B.S. Massachusetts Inst. of Technology 2002), Cambridge, Mass.  
Alison Holt Norris (B.A. Yale Univ. 1994), Norwell, Mass.  
David Ryan Peaper (B.A. DePauw Univ. 1999), Carmel, Ind.  
Zofia Piotrowska (B.A. Brown Univ. 2002), Minneapolis, Minn.  
Mila Noelle Rainof (B.A., B.S. Stanford Univ. 2003), Santa Monica, Calif.

Jason David Roh (B.A. Amherst Coll. 2001), Freeport, Ill.  
 Jeannine Alberts Ruby (B.S. Yale Univ. 2003), Pewaukee, Wis.  
 Louis Frank Salamone (B.A. Harvard Univ. 2002), Waltham, Mass.  
 Margaret Emily Samuels-Kalow (B.S. Univ. Chicago 2004), New York, N.Y.  
 Amanda Rae Sandoval (B.A. Univ. Denver 2000), Thornton, Colo.  
 Kimberly Anne Schinnerer (B.A. Yale Univ. 2004), Gaithersburg, Md.  
 Maulik Pradeep Shah (B.A., B.S. Stanford Univ. 2003), Las Flores, Calif.  
 Karen Heather Shoebbotham (B.A. Case Western Reserve Univ. 2002), Albuquerque,  
 N.Mex.  
 Andrew Kyle Simpson (B.S. Univ. Florida 2003), Bradenton, Fla.  
 Danielle Leigh Smith (Univ. Maryland [Baltimore County]), Silver Spring, Md.  
 Duncan M. Smith-Rohrberg (B.A. Harvard Univ. 2002), West Falmouth, Mass.  
 Krishan V. Soni (B.S. Yale Univ. 2001), Dix Hills, N.Y.  
 Lori Ann Spoozak (B.A. State Univ. New York [Albany] 2001), Honolulu, Hawaii.  
 Timothy Brian Sullivan (B.A. Univ. of Notre Dame 1993), Sterling, Ill.  
 Michael Harrison Swetye (B.A. Princeton Univ. 2002), McLean, Va.  
 James Adam Troy (B.S. Univ. Washington 2003), Seattle, Wash.  
 Pavithra Venkat (B.A. Stanford Univ. 2003), San Jose, Calif.  
 Elizabeth Rachel Wahl (B.S. Yale Univ. 1999), Chapel Hill, N.C.  
 Paul Charles Walker (B.A. Univ. Utah 2003), Kirtland, N. Mex.  
 Barbara Allison Wexelman (B.A. Yale Univ. 2003), Brooklyn, N.Y.  
 Gabriel Antonio Widi (B.S. Univ. Miami 2003), Miami, Fla.  
 Indy McFall Wilkinson (B.A. Wake Forest Univ. 2004), Oak Ridge, Tenn.  
 Jeffrey Craig Winer (B.A., M.A. Harvard Univ. 2004), Westborough, Mass.  
 Christopher John Winterbottom (B.A. Dartmouth Coll. 2002), West Hartford, Conn.  
 Melissa Ann Wollan (B.S. Pacific Lutheran Univ. 2002), Spokane Valley, Wash.  
 Hannah Jean Yu (B.A. Dartmouth Coll. 2002), Louisville, Ky.  
 Kristina Frances Vic Zdanys (B.A. Yale Univ. 2004), North Haven, Conn.

*Total, 96*

### *Third-Year Class*

Steven David Abramowitz (B.S. Yale Univ. 2005), Glenview, Ill.  
 Aaron Weldon Aday (B.S. Vanderbilt Univ. 2005), Bristol, Tenn.  
 Melissa Suen Arief (B.A. Vassar Coll. 2005), Gillette, N.J.  
 Eloise Davis Austin (B.A. Harvard Univ. 2002), San Antonio, Tex.  
 Mary Ann Badon (B.A. Clark Univ. 2005), Farmington, Conn.  
 Hasani Kigos Baharanyi (B.A. Harvard Univ. 2004), Auburn, Ala.  
 Jessica Rosalind Berwick (B.A. Harvard Univ. 2004), Newton, Mass.  
 Sundeep Ram Bhat (B.A. Stanford Univ. 2004), Toledo, Ohio.  
 Crina Maria Boeras (B.S. Univ. Massachusetts [Amherst] 2005), Andover, Mass.  
 Joseph Isadha Boonsiri (B.S. Yale Univ. 2005), Grosse Ile, Mich.  
 Rebecca Elaine Bruccoleri (B.A. Dartmouth Coll. 2005), Glastonbury, Conn.

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Philip Johannes Butler (B.S. Massachusetts Inst. of Technology 2004), Lubbock, Tex.  
Jonathan Ari Cabin (B.A. Univ. Pennsylvania 2001), Woodbridge, Conn.  
Justin Albert Chen (B.S. Yale Univ. 2003), McLean, Va.  
Wendy Anne Ciovacco (B.A. Harvard Univ. 2003), Hingham, Mass.  
Justin Brent Cohen (B.A. Princeton Univ. 2005), Armonk, N.Y.  
Michelle Suzanne Collins (B.S. Univ. California [San Diego] 2004), Pasadena, Calif.  
Zachary Andrew Corbin (B.S. Yale Univ. 2004), Roanoke, Va.  
Sara Eve Cramer (B.A. McGill Univ. 2005), Denver, Colo.  
Neil Bipinchandr Desai (B.A. Dartmouth Coll. 2005), Northridge, Colo.  
Michael William Destefano (B.S. Georgetown Univ. 2005), Radnor, Pa.  
Martin Hoeller Dominguez (B.S. Yale Univ. 2005), Indianapolis, Ind.  
Kathleen-Jo Flores Elayda (B.A. Loyola Univ. of Chicago 2005), Houston, Tex.  
Caroline Wagner Engel (B.A. Dartmouth Coll. 2005), New York, N.Y.  
Benjamin Peter Erickson (B.A. Harvard Univ. 2004), Williamstown, Mass.  
Merritt McLean Evans (B.A. Wellesley Coll. 2003), Phoenixville, Pa.  
Temidayo Ayodele Fadelu (B.S. Baylor Univ. 2005), Lagos, Nigeria.  
Samer Fadl (B.A. Yale Univ. 2004), New Haven, Conn.  
Tanaz Rivka Farzan (B.S. Univ. Southern California 2005), Beverly Hills, Calif.  
Corey Scott Frucht (B.S., M.S. Brandeis Univ. 2004), Bullville, N.Y.  
Andrew Taylor Georgi (B.A. Weber State Univ. 2004), North Ogden, Utah.  
Kimberly Beth Gold (B.A. Columbia Univ. 2002), Gainesville, Fla.  
Carolyn Graham Goldberg (B.S. Brown Univ. 2005), Westport, Conn.  
Stephen Elliot Gordon (B.A. Harvard Univ. 1998; M.B.A. Univ. Pennsylvania 2005),  
Pacific Palisades, Calif.  
Amanda Nicole Graff-Baker (B.S. Stanford Univ. 2004), Lafayette, Calif.  
Johanna Kate Halfon (B.S. Yale Univ. 2004), Midlothian, Va.  
Philip Scorza Hall (B.A. Princeton Univ. 2005), Milford, Ohio  
Kylene Elizabeth Halloran (B.S. Loyola Coll. 2003), West Hartford, Conn.  
Luz Evelyn Jimenez (B.A. Columbia Univ. 2003), Brooklyn, N.Y.  
Yoshio Arturo Kaneko (B.A. Harvard Univ. 2002), Guilford, Conn.  
Caleb Bosler Korngold (B.A. Stanford Univ. 2001), Davis, Calif.  
Maya Evelyn Kotas (B.S. Yale Univ. 2005), Ithaca, N.Y.  
Elizabeth Jean Kvach (B.A. Univ. Oklahoma [Norman] 2004), Sand Springs, Okla.  
Gifty Kwakye (B.S. Yale Univ. 2005), Rockville, Md.  
Simon Erik Laganieri (B.S. McGill Univ. 2003), Ile Cadieux, Quebec, Canada.  
Jennifer Ching-Yi Lee (B.S. Yale Univ. 2005), Whitestone, N.Y.  
Justin Michael Lemieux (B.S. Univ. California [Davis] 2003), El Macero, Calif.  
Robert David Leone (B.A. Harvard Univ. 1989), East Quogue, N.Y.  
Adam Martin Licurse (B.A. Yale Univ. 2005), Fayetteville, N.Y.  
Anthony Thomas Marfeo (B.S. Northeastern Univ. 2004), North Scituate, R.I.  
Yousra Marjoua (B.S. Univ. California [Berkeley] 2004), Sherman Oaks, Calif.  
Susan Mathai (B.A. Harvard Univ. 2005), Dallas, Tex.  
Sean David McEvoy (B.S. Univ. Iowa 2004), Ryan, Iowa.



- Leah Jennifer McNally (B.S. Duke Univ. 2005), Fort Lauderdale, Fla.  
 Fabienne Christine Meier-Abt (B.A. Cambridge Univ. 2005), Gockhausen, Switzerland.  
 Anne Kathryn Merritt (B.A. Dartmouth Coll. 2005), Darien, Conn.  
 Christopher Perry Miller (B.A. Univ. Pennsylvania 2005), Hamden, Conn.  
 Erica Rose Menkel Mintzer (B.A. Dartmouth Coll. 2002), Newton, Mass.  
 Yasha Satish Modi (B.A. New York Univ. 2005), Newburgh, N.Y.  
 Kemunto Mokaya (B.S. Yale Univ. 2005), Nairobi, Kenya.  
 Janelle Katie Moulder (B.S. Northeastern Univ. 2005), Cooper City, Fla.  
 Shanthi Kommi Naidu (B.A. Harvard Univ. 2002), Jonesboro, Ga.  
 Nikhil Ravindra Nayak (B.A. Georgetown Univ. 2003), Flanders, N.J.  
 Abby Lynne Nerlinger (B.S. Univ. Notre Dame 2005), Wilmington, Del.  
 Esi Wusiwa Nkyekyer (B.A. Bryn Mawr Coll. 2003), Accra, Ghana.  
 Titilope Oduyebo (B.S. Univ. Maryland [College Park] 2005), Upper Marlboro, Md.  
 Christopher Joseph Painter (B.A. Case Western Reserve Univ. 2005), Pittsburgh, Pa.  
 Swapna Reddy (B.A. Univ. Pennsylvania 2004), Princeton, N.J.  
 Mariangela Rivera (B.S. State Univ. New York [Stony Brook] 2004), Selden, N.Y.  
 Aviva Jill Romm (B.S. Lesley Coll. 1998), Cheshire, Conn.  
 Rachel Kushner Rosenstein (B.A. Princeton Univ. 2005), Far Hills, N.J.  
 Oliver Quinlan Rothschild (B.A. Univ. Chicago 2002), New York, N.Y.  
 Jennifer Marie Sabino (B.S. United States Military Academy 2005), New Fairfield, Conn.  
 Mina Gamal Safain (B.S. Univ. Massachusetts [Amherst] 2005), Holliston, Mass.  
 Joanna Chandra Salmon (B.A. Univ. Virginia 2003), Gainesville, Va.  
 Sudipa Sarkar (B.A. Vanderbilt Univ. 2005), Memphis, Tenn.  
 Rajendra Fernando Sawh-Martinez (B.S. New York Univ. 2005), Lakeland, Fla.  
 Joanna Bradshaw Schatz (B.A. Mount Holyoke Coll. 2003), S. Kingstown, R.I.  
 Mark David Schlangel (B.A. Brandeis Univ. 2005), New Rochelle, N.Y.  
 Husham Sharifi (B.A. Univ. California [San Diego] 1996; M.S. Massachusetts Inst. of Technology 1999), Hemet, Calif.  
 Christina Lorraine Shenvi (B.A. Princeton Univ. 2001; PH.D. Univ. California [Berkeley] 2005), Berkeley, Calif.  
 David Charles Shield (B.A. Brown Univ. 2003), Seekonk, Mass.  
 Kamila Janetta Sikora (B.S. Univ. Southern California 2005), Centennial, Colo.  
 Amanda Mondonedo Silverio (B.A. Stanford Univ. 2003), Chino Hills, Calif.  
 Rachel Ann Solomon (B.A. New School for Social Research 1999), North Haven, Conn.  
 Shreya Sood (B.A. Cornell Univ. Endowed Colleges 2005), Woodbridge, Conn.  
 Heather Korkosz Speller (B.A. Boston Coll. 2005), Belmont, Mass.  
 Joshua William Trufant (B.A. Brown Univ. 1999), Brookline, Mass.  
 Aimee Marie Two (B.S. Brown Univ. 2005), Tempe, Ariz.  
 Katherine Elizabeth Uyhazi (B.S. Coll. of New Jersey 2005), Lawrenceville, N.J.  
 Neil Vasan (B.A., M.A. Harvard Univ. 2005), Viennadage, W.Va.

Matthew Lepore Vestal (B.A. Johns Hopkins Univ. 2004), Thornwood, N.J.  
 Ellen Marie Vollmers (B.S. Tulane Univ. 2004), Old Town, Me.  
 Heather Wachtel (B.A. Harvard Univ. 2003), New York, N.Y.  
 Frederick Diing-Jye Wang (B.S. Massachusetts Inst. of Technology 2005), Parker, Tex.  
 Ying Wang (B.S. Indiana Univ. [Bloomington] 2001), Bennington, Vt.  
 Joshua Isaac Weiner (B.A. Harvard Univ. 2003), Scarsdale, N.Y.  
 Rachel Scott Weston (B.A. Brown Univ. 2003), Arlington, Va.  
 Jacqueline Deanna Wilson (B.A. Swarthmore Coll. 2004), West Grove, Pa.  
 Rachel Harriet Wolfson (B.A. Rice Univ. 2005), Edina, Minn.  
 Julie Mae Xanthopoulos (B.S. Lafayette Coll. 2004), Lewistown, Pa.  
 Qi Zheng (B.A. Grinnell Coll. 2004), Shanghai, China.

*Total, 102*

### *Second-Year Class*

Johannes Adomako-Mensah (B.A. Middlebury Coll. 2004), Accra, Ghana  
 Akua Adu-Boahene (B.S. Massachusetts Inst. of Technology 2006), Decatur, Ga.  
 Sungeeta Agrawal (B.A. Northwestern Univ. 2006), Concord, Mass.  
 Sumayya Ahmad (B.A., B.S. Univ. Southern California 2006), Martinsburg, W.Va.  
 Feras Akbik (B.S. Emory Univ. 2005), Atlanta, Ga.  
 Westin Michael Amberge (B.S. Univ. Georgia 2006), Blairsville, Ga.  
 Lisa Mee-Hyun An (B.S. Massachusetts Inst. of Technology 2005), Springfield, Va.  
 Abigail Hart Baird (B.A. Wellesley Coll. 2006), Gloucester, Mass.  
 Emma Longley Barber (B.S. Yale Univ. 2006), Chicago, Ill.  
 Jonathan Philip Belman (B.S. Pennsylvania State Univ. 2004), Pine Brook, N.J.  
 Marie Suzy Bewley (B.S. Yale Univ. 2004), Guilford, Conn.  
 Adriana Blakaj (B.S. Yale Univ. 2004), Hamden, Conn.  
 Gregory Michael Blanton (B.A. Yale Univ. 1996), Sikeston, Mo.  
 Olatunde Ibukunoluwa Bosu (B.A. Univ. Southern California 2006), Anaheim, Calif.  
 Jacob Wade Brubacher (B.S. Texas Christian Univ. 2005), North Newton, Kans.  
 Edmund John Burke (B.S. Yale Univ. 2004), Yonkers, N.Y.  
 Nicole Christine Cabbad (B.S. Univ. Texas [Dallas] 2006), New Haven, Conn.  
 Allison Marie Campbell (B.A. Amherst Coll. 2005), Salt Lake City, Utah  
 Noah Alexander Capurso (B.A. Williams Coll. 2005), Hastings-on-Hudson, N.Y.  
 Juliana Chen (B.A. Univ. Rochester 1994), Newton, Mass.  
 Laura G. H. Cooney (B.S. Johns Hopkins Univ. 2006), Oakland, Md.  
 Jessica Lynn Crawford (B.A. Duke Univ. 2003), Oceanport, N.J.  
 Eyiymisi Cynthia Damisah (B.S. Biola Univ. 2005), Brea, Calif.  
 Dylan Frances Davey (B.S. Yale Univ. 2005), Bethesda, Md.  
 Amanda Vict Zeta De La Paz (B.A. Wesleyan Univ. 2004), Marikina City, Philippines.  
 Tyler John Dodds (B.S. Haverford Coll. 2006), Wilton, Conn.  
 Tyler Seth Durazzo (B.S. Yale Univ. 2005), Hamden, Conn.  
 Benjamin Paul Falit (B.A. Brandeis Univ. 2003; J.D. Harvard Univ. 2006), Cheshire, Conn.

- Louis E. Fazen (B.A. Brown Univ. 2002), Southboro, Mass.  
 Kathryn Anne Giblin (B.A. Harvard Univ. 2006), Grosse Pointe, Mich.  
 Robert Udell Glazier (B.S. Utah Valley State Coll. 2005), Orem, Utah  
 Ava Golchin (B.A. Washington Univ. 2004), Ames, Iowa  
 Kseniya Golubets (B.A. CUNY Queens Coll. 2005), Richmond Hill, N.Y.  
 Maria Ann Han (B.A. Miami Univ. [Oxford] 2006), Iron River, Mich.  
 Jamie Keiko Nicol Harrington (B.A. Univ. California [Berkeley] 2005), Longview, Tex.  
 Brady John Heward (B.S. Brigham Young Univ. 2005), Orem, Utah.  
 Brandon Paul Hirsch (B.S. Emory Univ. 2006), Commack, N.Y.  
 Barbara Ann Hirschman (B.A. Macalester Coll. 2006), Winterset, Iowa.  
 Sze Chun Wi Ho (B.S. Yale Univ. 2006), Hong Kong, China.  
 Bryan Kun Hong (B.S. Yale Univ. 2006), Montebello, Calif.  
 Matthew Alan Hornick (B.A. Univ. California [Berkeley] 2006), Yorktown Heights, N.Y.  
 Scott Ronald Hunter (B.A. Columbia Univ. 2003), San Diego, Calif.  
 Terri Quan Huynh (B.A. Univ. California [Berkeley] 2006), Dublin, Calif.  
 Kolawole Tony Jegede (B.S. SUNY [Albany] 2006), Brooklyn, N.Y.  
 Zahir Kanjee (B.A. Princeton Univ. 2006), Oakville, Ontario, Canada.  
 Elias Noah Kassiss (B.S. Bates Coll. 2002), Amherst, Mass.  
 Ravi Raja Kavasery (B.S. Johns Hopkins Univ. 2003), Coram, N.Y.  
 Florence Kathleen Keane (B.A. Univ. Virginia 2004), McLean, Va.  
 Stephen Patrick Kelleher (B.A. Williams Coll. 2005), Waterville, Maine.  
 Konstantin Kreplin (B.A. Harvard Univ. 2006), Brooklyn, N.Y.  
 Tracy L. MacIntosh (B.S. Univ. Toronto 2003; M.S., M.P.H. Tufts Univ. 2006), Cambridge, Ontario, Canada.  
 Patrick Maloney (B.A. Pomona Coll. 2004), Gulf Breeze, Fla.  
 Peter Kaveh Mansuripur (B.S. Cornell Univ. 2006), Tucson, Ariz.  
 James Seiken Martenson (B.A. Northwestern Univ. 2006), Rochester, Minn.  
 Lionel Sennacherib McIntosh (B.A. Johns Hopkins Univ. 2005), Freeport, Grand Bahamas, Bahamas.  
 Dane Kieran Mejias (B.A. Yale Univ. 2006), St James, Trinidad and Tobago.  
 Monica Clare Mix (B.S. Yale Univ. 2006), Hudson, Ohio.  
 Thomas Bitzer Morland (B.S. Brown Univ. 2004), Arlington, Va.  
 Katherine Marie Mullen (B.A. Harvard Univ. 2003), Cortlandt Manor, N.Y.  
 Alexander Gharib Nazem (B.S. Yale Univ. 2004), New York, N.Y.  
 Stephanie Ngoc Tu Nguyen (B.A. Stanford Univ. 2006), Katonah, N.Y.  
 Onyinye Diane Offor (B.A. Harvard Univ. 2005), Dix Hills, N.Y.  
 Audrey Margaret Provenzano (B.A. Wellesley Coll. 2002), West Hartford, Conn.  
 Sonja Krensky Rakowski (B.A. Barnard Coll. 2004), Newton, Mass.  
 Ann Caroline Raldow (B.A. Princeton Univ. 2005), Princeton, N.J.  
 Veena Shiva Rao (B.S. Univ. North Carolina 2005; M.S. Univ. Oxford 2006), Murphy, N.C.  
 Elliot James Rapp (B.A., B.S. Duke Univ. 2000), Bellingham, Wash.

Magdalena Maria Reyes (B.A. Univ. Pennsylvania 2005), Furlong, Pa.  
 Margaret Forbes Reynolds (B.A. Stanford Univ. 2004), Portland, Ore.  
 Joseph Robert L. Rojas (B.S. Univ. Arizona 2005), Peoria, Ariz.  
 Frederick William Romberg (B.S. Virginia Polytechnic Univ. 1995; M.S. California Inst. of Technology 2000), La Canada, Calif.  
 Katherine Day Rose (B.A. Harvard Univ. 2002), Lexington, Mass.  
 Matthew Steven Rosenberg (B.A. Harvard Univ. 2002), New York, N.Y.  
 Jill Carol Rubinstein (B.A. Yale Univ. 1999; M.S. Stockholm Univ. 2004; M.S. Yale Univ. 2006), Buffalo, N.Y.  
 Martina Trinese Sanders-Spight (B.A. Emory Univ. 2005), Detroit, Mich.  
 Amy Akella Sarma (B.A. Yale Univ. 2006), Farmington, Conn.  
 Benjamin Andrew Savitch (B.S. Arizona State Univ. 2005), Snohomish, Wash.  
 Ryan Karl Schwarz (B.A. Bard Coll. 2005), Waynesburg, Pa.  
 Vikram Sengupta (B.A. Cornell Univ. 2003), Bloomfield Hills, Mich.  
 Sachin Jatin Shah (B.S. Brown Univ. 2005), Edison, N.J.  
 Debra Anne Smith (B.S. Cornell Univ. 2003), Ithaca, N.Y.  
 Daniel Aran Solomon (B.A. Brown Univ. 2006), Weston, Conn.  
 Natalie Spicyn (B.S. Yale Univ. 2005), Brooklyn, N.Y.  
 Juliana Tolles (B.A. Harvard Univ. 2005), Edina, Minn.  
 Whitney Lynn Tolpinrud (B.A. Univ. San Diego 2005), Salt Lake City, Utah.  
 Laura Kate Tom (B.S. Lehigh Univ. 2006), Yakima, Wash.  
 Charles Thompson Tuggle (B.S. Univ. Georgia 2005), Memphis, Tenn.  
 Amanda Erin Velazquez (B.A., B.S. Southern Methodist Univ. 2005), Houston, Tex.  
 Nicholas Roger Villalon (B.A. Pomona Coll. 2004), Corrales, N.Mex.  
 David Anthony Wacker (B.S. Univ. Minnesota 2001; M.S. Cornell Univ. 2004; PH.D. Cornell Univ. 2006), St. Paul, Minn.  
 Zachary Doyle Walton (B.A. Harvard Univ. 1996; PH.D. Boston Univ. 2004), Palmer, Mass.  
 Ernest John Wright (B.S. Univ. California [Irvine] 2006), San Jose, Calif.  
 Qing Yang (B.S. Yale Univ. 2006), Pittsburgh, Pa.  
 Tzu-I Jonathan Yang (B.S. Univ. North Carolina 2003), Kaohsiung City, Taiwan.  
 Hiromi Yoshida (B.S. Yale Univ. 2006), La Jolla, Calif.  
 Benjamin Zabar (B.A. Dartmouth Coll. 2004), New York, N.Y.  
 Igor Sergeevich Zavarine (PH.D. Purdue Univ. 1998; M.S. Univ. New Haven 2006), Rybinsk, Russia.

*Total, 97*

### *First-Year Class*

Bibhav Acharya (B.S. Haverford Coll. 2006), Elm Hurst, N.Y.  
 Nancy Christine Allen (B.S. Univ. California [Los Angeles] 2005), San Francisco, Calif.  
 Kofi-Buaku Atsina (B.S. Yale Univ. 2006), Saint Peters, Mo.  
 Kwame Bodor-Tsia Atsina (B.S. Lehigh Univ. 2007), Saint Peters, Mo.

- Elie Rashid Balesh (B.A. Harvard Univ. 2007), El Paso, Tex.  
 Oliver Mullin Barry (B.A. Princeton Univ. 2005), New York, N.Y.  
 Christopher Bartley (B.S. Yale Univ. 2004), Brighton, Colo.  
 Ali Batouli (B.S. Stanford Univ. 2007), Falls Church, Va.  
 Carl Thomas Berdahl (B.A. Univ. California [Los Angeles] 2007), Walnut Creek, Calif.  
 Daniel John Blizzard (B.S. Univ. Washington 2007), Spokane Valley, Wash.  
 Ryan William Blum (B.A. Harvard Univ. 2004), New York, N.Y.  
 Jessica Dara Bod (B.A. CUNY Brooklyn Coll. 2006), Holliswood, N.Y.  
 Marko Boskovski (B.A. Washington Univ. in St. Louis 2007), Saint Louis, Mo.  
 Kristel Lynn Carrington (B.S. Columbia Univ. 2007), Brooklyn, N.Y.  
 Tamara Yanique Carroll (B.A. Wesleyan Univ. 2007), West Haven, Conn.  
 Kesi Chen (B.A. Yale Univ. 2007), Pittsburgh, Pa.  
 Janet Ming-Shih Chiang (B.S., M.A., Univ. California [Los Angeles] 2004), Los Angeles, Calif.  
 Larissa Catherine Chiulli (B.A. Clark Univ. 2006), Cranston, R.I.  
 Panos George Christakis (B.S. Yale Univ. 2007), Toronto, Ont.  
 Anne Colleen Cooper (B.A. Univ. Notre Dame 2001; M.A. Univ. Essex 2004), Columbus, Ohio  
 Catherine Molina Dailey (B.A. Columbia Univ. 2006), Guilford, Conn.  
 Michael Christopher Dewan (B.S. Univ. Notre Dame 2007), Austin, Tex.  
 Daniel Rowe Duncan (B.S. Stanford Univ. 2007), New Haven, Conn.  
 Lilangi Suhadini Ediriwickrema (B.A., M.S., Univ. Pennsylvania 2006), Cary, N.C.  
 Leonard Ufumwen Edokpolo (B.S. Univ. Notre Dame 2007), Lansing, Mich.  
 Fayola Abebi Edwards (B.A. Harvard Univ. 2005), Central Islip, N.Y.  
 Mei Assem Elansary (B.A. Univ. Pennsylvania 2004; M.Phil. Univ. Oxford 2007), Dunn Loring, Va.  
 Maxwell Dominic Elia (B.A., M.S., Univ. Pennsylvania 2007), Phoenix, Ariz.  
 Hani M. Elwafi (B.A. Duke Univ. 1999), New Haven, Conn.  
 Macdale John Elwin (B.S. Rutgers Univ. [New Brunswick] 2007), New Haven, Conn.  
 Anna Kristine Engberg (B.A. Northwestern Univ. 2005), Fort Lauderdale, Fla.  
 Chikezie Ikechukwu Eseonu (B.A. Harvard Univ. 2007), Midlothian, Va.  
 Ogechukwu Pearl Eze (B.S. Adelphi Univ. 2006; M.S. Adelphi Univ. 2007), Garden City, N.Y.  
 Devon Marc Fagel (B.A. Univ. California [Los Angeles] 1999; J.D. Southwestern Univ. School of Law 2001), West Redding, Conn.  
 Olatokunbo Musili Famakinwa (B.A. Princeton Univ. 2005), West Babylon, N.Y.  
 Aaron Joshua Feinstein (B.A. Univ. Southern California 2006), Los Angeles, Calif.  
 Nupur Garg (B.S. Massachusetts Inst. of Technology 2007), Pace, Fla.  
 Peter Mina Gayed (B.S. Univ. Illinois [Urbana-Champaign] 2006), Arlington Heights, Ill.  
 John Webster Gilbert (B.S. Duke Univ. 2007), Lexington, Ky.  
 Benjamin Goldberg (B.A. Johns Hopkins Univ. 2002; M.A. CUNY John Jay Coll. 2005), Wayne, N.J.

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Jose Luis Gonzalez (B.A. Johns Hopkins Univ. 2006), Miami, Fla.  
Lauren Kathleen Graber (B.A. Wesleyan Univ. 2004), Minneapolis, Minn.  
Jennifer Na Guo (B.A., M.S., Johns Hopkins Univ. 2007), Forsyth, Ill.  
Lauren Allyson Hackney (B.A. Yale Univ. 2007), Orange, Conn.  
Qingqing Han (B.S. Peking Univ. 2001; M.S. Yale Univ. 2005; PH.D. Yale Univ. 2007), Beijing, China.  
Maya Anika Hasan (B.S. Massachusetts Inst. of Technology 2006; M.Eng. Massachusetts Inst. of Technology 2007), Larkspur, Calif.  
Ronald George Hauser (B.S. Univ. Michigan [Ann Arbor] 2007), Ann Arbor, Mich.  
Don Hoang (B.S. Stanford Univ. 2007), Northridge, Calif.  
Bridget Leann Hopewell (B.S. Kansas State Univ. 2007), Topeka, Ks.  
Omer Ibrahim (B.A., B.S., Univ. Cincinnati-Cincinnati 2007), Cincinnati, Ohio.  
Aliya Zul Jiwani (B.A. Harvard Univ. 2005), Houston, Tex.  
Melanie Elizabeth Johncilla (B.A. Swarthmore Coll. 2005), Petit Valley, Trinidad and Tobago.  
Tiffanie Kae Jones (B.A. Harvard Univ. 2007), North Port, Fla.  
Guson Kang (B.S. Stanford Univ. 2006), Palo Alto, Calif.  
Adam Craig Kaufman (B.A. Columbia Univ. In The City of New York 2007), Jericho, N.Y.  
Hadiza Shu'Aib Kazaure (B.S. Temple Univ. 2007), Vienna, Va.  
Derek Brian Kennedy (B.A. Duke Univ. 2005; M.A. Loyola Marymount Univ. 2007), Fayetteville, N.Y.  
Narae Ko (B.A. Amherst Coll. 2006), Seoul, Korea  
Andrew Joshua Kobets (B.A. Johns Hopkins Univ. 2006), Fresh Meadows, N.Y.  
Caitlin Eileen Koerber (B.A. Swarthmore Coll. 2007), New Orleans, La.  
Matthew Reid Kruse (B.A. Carleton Coll. 2005), Fitchburg, Wis.  
Matthew Scott Lidstrom (B.S. Univ. Washington 2007), Issaquah, Wash.  
Lewei Lin (B.S. Massachusetts Inst. of Technology 2005), Somerville, Mass.  
William Michael Lin (B.A., M.A., Harvard Univ. 2006), East Amherst, N.Y.  
Michael Hong-Tak Ma (B.S. Univ. California [Los Angeles] 2006), Newton, Mass.  
Yehoda Marteki Martei (B.A. Harvard Univ. 2005), Osu, Accra, Mass.  
Badri Gunvant Modi (B.A., B.S., Emory Univ. 2007), El Dorado, Ariz.  
Adrian Jose Mora (B.S. United States Naval Academy 2007), Lakeland, Fla.  
Michelle Morales (B.S. California State Univ.-Los Angeles 2007), Alhambra, Calif.  
Joshua Ethan Motelow (B.A. Yale Univ. 2006), New York, N.Y.  
Kim Thuy Nguyen (B.A. Harvard Univ. 2006), Fremont, Calif.  
Nina Ni (B.A. Harvard Univ. 2005), Livingston, N.J.  
Kiavash Nikkhou (B.S. Univ. California [Los Angeles] 2006), Encino, Calif.  
Manish Suresh Noticewala (B.S. New York Univ. 2007), Brooklyn, N.Y.  
Steven Changsuk Oh (B.S. Yale Univ. 2006), Portland, Ore.  
Daniel Andrew Okin (B.S. Columbia Univ. 2007), New York, N.Y.  
Michael David Otremba (B.A. Univ. Minnesota [Twin Cities] 2006), Savage, Minn.  
Henry Soo-Min Park (B.A., B.S., Yale Univ. 2007), Warren, N.J.

Patricia Rose Peter (B.A. Columbia Univ. 2007), Freehold, N.J.  
 Can Qian (B.S. Stanford Univ. 2007), Alpharetta, Ga.  
 Odayme Quesada (B.S. Univ. Florida 2007), Miami, Fla.  
 Jocelyn Carmen Ronda (B.A. Columbia Univ. 2006), Accord, N.Y.  
 Lara Elise Rosenbaum (B.S. Massachusetts Inst. of Technology 2007), Midlothian, Va.  
 Robert James Ross (B.S. Univ. Florida 2005), Rockledge, Fla.  
 Marie Ann Rymut (B.A. Ohio Wesleyan Univ. 2007), Broadview Hts, Ohio  
 Mona Sadeghpour (B.A. Univ. Texas [Dallas] 2006), Plano, Tex.  
 Jonathan Hale Season (B.S. Yale Univ. 2006), Cos Cob, Conn.  
 Lin Shen (B.A. Stanford Univ. 2005), Palo Alto, Calif.  
 Noreen Singh (B.S. Univ. California [Los Angeles] 2007), Fremont, Calif.  
 Matthew Justin Singleton (B.S. Univ. Maryland [College Park] 2005; B.A., B.S., Univ. Maryland [College Park] 2006), Woodbine, Md.  
 Alla Vickery Les Smith (B.A. Bowdoin Coll. 2006), Annapolis, Md.  
 Prathap Sooriyakumaran (B.A. Univ. California [Berkeley] 2004), San Jose, Calif.  
 Michael Carlton Soule (B.A. Brown Univ. 2006), Evanston, Ill.  
 Chantae Sharee Sullivan (B.A. Amherst Coll. 2007), Montego Bay, N.Y.  
 John Michael Thomas (B.A., B.S., Univ. Dayton 2007), Oregonia, Ohio  
 Sonya Thomas (B.A. Columbia Univ. 2007), Woodbridge, Conn.  
 Chen Wang (B.A. Univ. Colorado [Boulder] 2007), Edmond, Okla.  
 Ruth Wangechi Wang'ondou (B.A. Wellesley Coll. 2007), New Haven, Conn.  
 Grace Waruchu Wanjiku (B.A. Wellesley Coll. 2006), Thika, Kenya  
 Kathryn Emily Wynne (B.A. Cornell Univ. 2007), Easton, Conn.

*Total, 100*

### *Extended Study*

Janet Jalal Abou (B.S. San Diego State Univ. 2004), El Cajon, Calif.  
 Mary Elizabeth Air (B.A. Rice Univ. 2004), Houston, Tex.  
 Jacob Stuart Appelbaum (B.A. Amherst Coll. 2003), Seattle, Wash.  
 Carolyn Sears Avery (B.S. Yale Univ. 2003), Chestnut Hill, Mass.  
 Palav Ashok Babaria (B.A. Harvard Univ. 2003), Moorestown, N.J.  
 Daniel Michael Balkin (B.A. Northwestern Univ. 2004), Madison, Wis.  
 Sanjay Basu (B.S. Massachusetts Inst. of Technology 2002), Lisle, Ill.  
 Margaret Ann Baumbusch (B.A. Columbia Univ. 1999), San Francisco, Calif.  
 Naseem Neon Beauchman (B.S. Univ. California [Davis] 2003), San Jose, Calif.  
 Isaac Benowitz (B.S. Columbia University 2001), Newton, MA  
 Johnathan Alexander Bernard (B.S. U.S. Naval Academy 2004), Shorewood, Wis.  
 Wenya Linda Bi (B.A., M.A. Harvard Univ. 2002), Gaithersburg, Md.  
 Jesse Emory Bible (B.S. Univ. Virginia 2004), Chuckey, Tenn.  
 Debdut Biswas (B.A. Cornell Univ. 2004), Medina, Ohio.  
 Leon Dimitrios Boudourakis (B.A., B.S. Michigan State Univ. 2003), Fraser, Mich.  
 Allison Fitzgerald Carey (B.S. Pennsylvania State Univ. 2002), Pittsburgh, Pa.

Jonathan Howard Chen (B.S. Univ. Chicago 2003), Barrington, Ill.  
Joanna Yee King Chin (B.A. Harvard Univ. 1999), Brooklyn, N.Y.  
Brittany Gareth Craiglow (B.A. Yale Univ. 2004), Keene, N.H.  
Rashele Patrice Cross (B.S. Howard Univ. 2004), Cumberland, R.I.  
Paul Daniel Di Capua (B.A. Harvard Univ. 2002), North Miami Beach, Fla.  
Laura Elisabeth Dichtel (B.A. Harvard Univ. 2003), Roanoke, Va.  
Dario Joseph Englot (B.S. Univ. Scranton 2003), Swoyersville, Pa.  
Damien Jon Ellens (B.A. Hamilton Coll. 2003), Grand Rapids, Mich.  
Simmie Lorene Foster (B.A. Univ. California [Berkeley] 2000), Berkeley, Calif.  
Jason Elihu Frangos (B.A. Columbia Univ. 1992), New York, N.Y.  
Adam Scott Frost (B.S. Brigham Young Univ. 2000), Provo, Utah.  
Nicholas Joseph Galante (B.S. SUNY [Stony Brook] 2004), Selden, N.Y.  
Christopher James Gibson (B.A. Univ. Georgia 2003), Atlanta, Ga.  
David Adam Gimbel (B.S. Yale Univ. 2003), Plantation, Fla.  
Thomas John Gniadek (B.S. Yale Univ. 2002), Cheshire, Conn.  
Joel R. Green (B.A. Univ. Pennsylvania 2000), Silver Spring, Md.  
Lars J. Grimm (B.S. Stanford Univ. 2004), Naples, Fla.  
Danielle Helen Guez (B.S. Massachusetts Inst. of Technology 2003), Penn Valley, Pa.  
Matthew Spiller Hayden (B.A. Oberlin Coll. 1998), Pittsford, Vt.  
Eric Alan Huebner (B.S. Univ. Washington 2003), Bellevue, Wash.  
Maya Meltzer Kasowski (B.A. University of Pennsylvania 1999; M.M.P. University of Pennsylvania 2004), West Chester, Pa.  
Adam Harris Kaye (B.A. Univ. Pennsylvania 2004), Westport, Conn.  
Eyal Yaacov Kimchi (B.A. Harvard Univ. 2000), Beverly Hills, Calif.  
Srdan Kobsa (B.S. Drake Univ. 2003), Zagreb, Croatia.  
Luis Enrique Kolb (B.S. Johns Hopkins Univ. 2002), Gurabo, Puerto Rico.  
Ninani Emang Kombo (B.A. Mount Holyoke Coll. 2002), Kanye, Botswana.  
Yaa Ohenewaa Larbi (B.A. Smith Coll. 2001), Kumasi, Ghana.  
Alicia Veleen Lee (B.A. Harvard Univ. 2002), New Haven, Conn.  
James C. Lee (B.A. Univ. Washington 2003), Honolulu, Hawaii.  
Sarah Angeline Lee (B.S. Yale Univ. 2004), Calgary, Alberta, Canada.  
Alicia Joan Little (B.A. Amherst Coll. 2004), Kingston, R.I.  
Gene-Fu Feng Liu (B.S. Univ. Southern California 2004), San Marino, Calif.  
Yuen-Jong Liu (B.A. Harvard Univ. 2004), Lexington, Mass.  
Shane Lloyd (B.S. Brigham Young Univ. 2004), London, Utah.  
Sheng-Fu Larry Lo (B.A. Macalester Coll. 2004), Tokyo, Japan.  
Jonathan Chun Ting Lu (B.A. Dartmouth Coll. 2002), Mississauga, Ontario, Canada.  
Dania Bize Magri (B.A. Univ. California [Berkeley] 1995), Watertown, Mass.  
Cheryl Lynn Maier (B.A., B.S. Univ. Georgia 2004), Athens, Ga.  
Benjamin Reuben Marks (B.A. Univ. Illinois 2001), Skokie, Ill.  
Sheela Hansraj Maru (B.A. Harvard University 2003), Brookfield, Conn.  
Arjun Vijay Masurkar (B.S. Massachusetts Inst. of Technology 2001), Chelmsford, Mass.



- Heather Jane McCrea (B.S. Brown Univ. 2002), Wilton, Conn.
- Heather Michelle McGee (B.A. Univ. California [Berkeley] 2002; M.PHIL. Univ. of Cambridge 2003), Davis, Calif.
- Matthew Christian McRae (B.A. Cornell Univ. 2003), Toronto, Ontario, Canada.
- Amy Lynn Meadows (B.S. Massachusetts Inst. of Technology 2003), Lexington, Ky.
- Mallika Lakshmi Mendu (B.S. Brown Univ. 2004), Barrington, R.I.
- David Michael Merrick (B.S. Johns Hopkins Univ. 2003), Beaverton, Ore.
- Sarah Allison Milgrom (B.A. Princeton Univ. 2003), Englewood, Colo.
- Matthew Mark Miller (B.S. Univ. Utah 2002), Farmington, Utah.
- Alexandra Michelle Miller (B.A. Yale Univ. 2002), New York, N.Y.
- Tejaswini Kundalika More (B.S. Stanford Univ. 2004), Denver, Colo.
- Kudakwashe Kuda Mutyambizi (B.A. Williams Coll. 2003), Harare, Zimbabwe.
- David Eric Myles (B.S. Morehouse Coll. 2002), Peachtree City, Ga.
- Brandon O. Ogbunugafor (B.S. Howard Univ. 2002), Yonkers, N.Y.
- Charisse Marie Orme (B.S. Univ. California [Davis] 2001), Huntington Beach, Calif.
- Keri Ochs Oxley (B.A. Univ. of Notre Dame 2004), Fremont, Ohio.
- Sotiria Palioura (B.S., M.S. Yale Univ. 2003), Lamia, Greece.
- Ami Mahendra Parekh (B.A. Williams Coll. 2001), North Andover, Mass.
- Alexander Jungho Park (B.A. Johns Hopkins Univ. 2004), Federal Way, Wash.
- James Park (B.A. Harvard Univ. 2000), Jackson Heights, N.Y.
- Anup Patel (B.S. Univ. Florida 2004), Altomonte Springs, Fla.
- Rajeshvari Mahesh Patel (B.S. Yale Univ. 2003), Katonah, N.Y.
- Craig Daniel Platt (B.A. Univ. Pennsylvania 2002), Wyckoff, N.J.
- Seth Rakoff-Nahoum (B.A. Brown Univ. 1998), New York, N.Y.
- Deepak Angara Rao (B.A. Harvard Univ. 2001), Lafayette Hill, Pa.
- Saif Shafique Rathore (B.A. Cornell Univ. 1996, M.P.H. Univ. North Carolina 2000), Ontario, Canada.
- Aaron Kyle Remenschneider (B.A., B.S. Indiana Univ. [Bloomington] 2004), Indianapolis, Ind.
- Maya Roberts (B.A. Wesleyan Univ. 2003), Paxton, Mass.
- Jonathan Conrad Romanyshyn (B.A. Yale Univ. 2004), Houston, Tex.
- Rachel Lena Rutishauser (B.A. Harvard Univ. 2003), Lexington, Mass.
- Kathleen Jessica Samuels (B.A. Univ. Pennsylvania 2004), Mars Hill, N.C.
- David Alaistair Scales (B.A. Univ. Pennsylvania 2001), Atlanta, Ga.
- Natalie Renee Simmons (B.S. Stanford Univ. 2004), Brownwood, Tex.
- Caroline Lauren Sokol (B.A., M.S. Univ. Pennsylvania 2001), Marlton, N.J.
- Christopher Ryan Spock (B.A. Princeton Univ. 2003), Canton, Conn.
- Robert Raul Stavert (B.A. Harvard Univ. 2003), Wilton, Conn.
- Vinita Takiar (B.A. Johns Hopkins Univ. 2003), Timonium, Md.
- Carrie Fran Thiessen (B.A. Yale Univ. 1998), Paramus, N.J.
- Dimitrios Tsirigotis (B.S. McGill Univ. 2001), Montreal, Quebec, Canada.
- Jennifer Renee Voorhees (B.A. Yale Univ. 2004), Towaco, N.J.
- Rachel Lynn Wattier (B.S. Univ. Kentucky 2004), Paducah, Ky.

Judah David Weathers (B.S. Northeastern Univ. 2004), Haverhill, Mass.  
Sara Whetstone (B.A. Brown Univ. 2002), Palo Alto, Calif.  
Mary Catherine Whitman (B.A. Harvard Univ. 2001), Rockville, Md.  
Cicely Ann Williams (B.A. Univ. Virginia 2001), Knoxville, Tenn.  
Tracy Marshall Wright (B.A. Harvard Univ. 2002), Bethesda, Md.  
Yvonne Sue Yang (B.A. Yale Univ. 2000), Fresno, Calif.  
Mihae Eunice Yun (B.S. Yale Univ. 1998), Lebanon, Pa.

*Total, 104*

## REGISTERED FOR THE COMBINED M.D.-PH.D. DEGREE

Anne Lenore Ackerman (B.S. Yale Univ. 1998), Somerset, N.J.  
Feras Akbik (B.S. Emory Univ. 2005), Atlanta, Ga.  
Nancy Christine Allen (B.S. Univ. Of California-Los Angeles 2005), San Francisco, Calif.  
Jacob Stuart Applebaum (B.A. Amherst Coll. 2003), Seattle, Wash.  
Daniel Michael Balkin (B.A. Northwestern Univ. 2004), Madison, Wis.  
Christopher Bartley (B.S. Yale Univ. 2004), Brighton, Colo.  
Sanjay Basu (B.S. Massachusetts Inst. of Technology 2002), Lisle, Ill.  
Jonathan Philip Belman (B.S. Pennsylvania State Univ. 2004), Pine Brook, N.J.  
Wenya Linda Bi (B.A., M.A. Harvard Univ. 2002), Gaithersburg, Md.  
Adriana Blakaj (B.S. Yale Univ. 2004), Hamden, Conn.  
Allison Marie Campbell (B.A. Amherst Coll. 2005), Salt Lake City, Utah  
Allison Fitzgerald Carey (B.S. Pennsylvania State Univ. 2002), Pittsburgh, Pa.  
Jonathan Howard Chen (B.S. Univ. Chicago 2003), Barrington, Ill.  
Joanna Yee King Chin (B.A. Harvard Univ. 1999), Brooklyn, N.Y.  
Sara Eve Crager (B.A. McGill Univ. 2005), Denver, Colo.  
Rashele Patrice Cross (B.S. Howard Univ. 2004), Cumberland, R.I.  
Tina Dasgupta (B.S. Univ. Alberta 2001), Alberta, Canada.  
Dylan Frances Davey (B.S. Yale Univ. 2005), Bethesda, Md.  
Douglas Jackson Davis (B.A., B.S. St. Mary's Univ. 1999), Selma, Tex.  
Martin Hoeller Dominguez (B.S. Yale Univ. 2005), Indianapolis, Ind.  
Fayola Abebi Edwards (B.A. Harvard Univ. 2005), Central Islip, N.Y.  
Maxwell Dominic Elia (B.A., M.S., Univ. Of Pennsylvania 2007), Phoenix, Ariz.  
Dario Joseph Englot (B.S. Univ. Scranton 2003), Swoyersville, Pa.  
Louis E. Fazen (B.A. Brown Univ. 2002), Southboro, Mass.  
Simmie Lorene Foster (B.A. Univ. California [Berkeley] 2000), Berkeley, Calif.  
Adam Scott Frost (B.S. Brigham Young Univ. 2000), Provo, Utah.  
Corey Scott Frucht (B.S. Brandeis Univ. 2004; M.S. Brandeis Univ. 2004), Bullville, N.Y.  
Sharmin Ghaznavi (B.S. Massachusetts Inst. of Technology 2000), Ann Arbor, Mich.  
John Webster Gilbert (B.S. Duke Univ. 2007), Lexington, Ky.  
Jennifer Margaret Giltane (B.S. Univ. Tennessee [Knoxville] 1999), Athens, Tenn.

- Keith Eric Gipson (B.S. Univ. Alabama [Birmingham] 1998), Birmingham, Ala.  
 Thomas John Gniadek (B.S. Yale Univ. 2002), Cheshire, Conn.  
 Jason Wells Griffith (B.A. Vanderbilt Univ. 1999), Dallas, Tex.  
 Danielle Helen Guez (B.S. Massachusetts Inst. of Technology 2003), Penn Valley, Pa.  
 Jennifer Na Guo (B.A., M.S., Johns Hopkins Univ. 2007), Forsyth, Ill.  
 Matthew Spiller Hayden (B.A. Oberlin Coll. 1998), Pittsford, Vt.  
 Barbara Ann Hirschman (B.A. Macalester Coll. 2006), Winterset, Iowa  
 Eric Alan Huebner (B.S. Univ. Washington 2003), Bellevue, Wash.  
 Kimberly Lauren Johung (B.A. Yale Univ. 1999), Burlingame, Calif.  
 Eyal Yaacov Kimchi (B.A. Harvard Univ. 2000), Beverly Hills, Calif.  
 Srdan Kobsa (B.S. Drake Univ. 2003), Zagreb, Croatia.  
 Maya Evelyn Kotas (B.S. Yale Univ. 2005), Ithaca, N.Y.  
 Alicia Joan Little (B.A. Amherst Coll. 2004), Kingston, R.I.  
 Cheryl Lynn Maier (B.A., B.S. Univ. Georgia 2004), Athens, Ga.  
 Benjamin Reuben Marks (B.A. Univ. Illinois 2001), Skokie, Ill.  
 Arjun Vijay Masurkar (B.S. Massachusetts Inst. of Technology 2001), Chelmsford, Mass.  
 Heather Jane McCrea (B.S. Brown Univ. 2002), Wilton, Conn.  
 Heather Michelle McGee (B.A. Univ. California [Berkeley] 2002; M.PHIL. Univ. of Cambridge 2003), Davis, Calif.  
 David Michael Merrick (B.S. Johns Hopkins Univ. 2003), Beaverton, Ore.  
 Alexandra Michelle Miller (B.A. Yale Univ. 2002), New York, N.Y.  
 Matthew Mark Miller (B.S. Univ. Utah 2002), Farmington, Utah.  
 Joshua Ethan Motelow (B.A. Yale Univ. 2006), New York, N.Y.  
 David Eric Myles (B.S. Morehouse Coll. 2002), Peachtree City, Ga.  
 Nandakumar Narayanan (B.A. Stanford Univ. 2000), Kenmore, Wash.  
 Alison Holt Norris (B.A. Yale Univ. 1994), Norwell, Mass.  
 Brandon O. Ogbunugafor (B.S. Howard Univ. 2002), Yonkers, N.Y.  
 Daniel Andrew Okin (B.S. Columbia Univ. 2007), New York, N.Y.  
 Charisse Marie Orme (B.S. Univ. California [Davis] 2001), Huntington Beach, Calif.  
 Sotiria Palioura (B.S., M.S. Yale Univ. 2003), Lamia, Greece.  
 James Park (B.A. Harvard Univ. 2000), Jackson Heights, N.Y.  
 David Ryan Peaper (B.A. DePauw Univ. 1999), Carmel, Ind.  
 Craig Daniel Platt (B.A. Univ. Pennsylvania 2002), Wyckoff, N.J.  
 Seth Rakoff-Nahoum (B.A. Brown Univ. 1998), New York, N.Y.  
 Deepak Angara Rao (B.A. Harvard Univ. 2001), Lafayette Hill, Pa.  
 Saif Shafique Rathore (B.A. Cornell Univ. 1996; M.O. Univ. North Carolina 2000), Ontario, Canada.  
 Rachel Kushner Rosenstein (B.A. Princeton Univ. 2005), Far Hills, N.J.  
 Robert James Ross (B.S. Univ. Florida 2005), Rockledge, Fla.  
 Jill Carol Rubinstein (B.A. Yale Univ. 1999; M.S. Stockholm Univ. 2004; M.S. Yale Univ. 2006), Buffalo, N.Y.  
 Rachel Lena Rutishauser (B.A. Harvard Univ. 2003), Lexington, Mass.

David Alaistair Scales (B.A. Univ. Pennsylvania 2001), Atlanta, Ga.  
 Danielle Leigh Smith (Univ. Maryland [Baltimore County]), Silver Spring, Md.  
 Duncan M. Smith-Rohrberg (B.A. Harvard Univ. 2002), West Falmouth, Mass.  
 Caroline Lauren Sokol (B.A., M.S. Univ. Pennsylvania 2001), Marlton, N.J.  
 Vinita Takiar (B.A. Johns Hopkins Univ. 2003), Timonium, Md.  
 Carrie Fran Thiessen (B.A. Yale Univ. 1998), Paramus, N.J.  
 Dimitrios Tsirigotis (B.S. McGill Univ. 2001), Montreal, Quebec, Canada.  
 Katherine Elizabeth Uyhazi (B.S. Coll. of New Jersey 2005), Lawrenceville, N.J.  
 Neil Vasan (B.A., M.A. Harvard Univ. 2005), Viennadage, W.Va.  
 Ellen Marie Vollmers (B.S. Tulane Univ. of Louisiana 2004), Old Town, Maine.  
 Chen Wang (B.A. Univ. Of Colorado At Boulder 2007), Edmond, Okla.  
 Mary Catherine Whitman (B.A. Harvard Univ. 2001), Rockville, Md.  
 Cicely Ann Williams (B.A. Univ. Virginia 2001), Knoxville, Tenn.  
 Ernest John Wright (B.S. Univ. Of California-Irvine 2006), San Jose, Calif.  
 Julie Mae Xanthopoulos (B.S. Lafayette Coll. 2004), Lewistown, Pa.  
 Qing Yang (B.S. Yale Univ. 2006), Pittsburgh, Pa.  
 Yvonne Sue Yang (B.A. Yale Univ. 2000), Fresno, Calif.  
 Mihae Eunice Yun (B.S. Yale Univ. 1998), Lebanon, Pa.

*Total, 87*

#### REGISTERED FOR THE COMBINED M.H.S.-M.D. DEGREE

Carolyn Sears Avery (B.S. Yale Univ. 2003), Chestnut Hill, Mass.  
 Palav Ashok Babaria (B.A. Harvard Univ. 2003), Moorestown, N.J.  
 Jesse Emory Bible (B.S. Univ. Virginia 2004), Chuckey, Tenn.  
 Debdut Biswas (B.A. Cornell Univ. 2004), Medina, Ohio.  
 Leon Dimitrios Boudourakis (B.A., B.S. Michigan State Univ. 2003), Fraser, Mich.  
 Laura Elisabeth Dichtel (B.A. Harvard Univ. 2003), Roanoke, Va.  
 Nicholas Joseph Galante (B.S. SUNY [Stony Brook] 2004), Selden, N.Y.  
 Lars J. Grimm (B.S. Stanford Univ. 2004), Naples, Fla.  
 James C. Lee (B.A. Univ. Washington 2003), Honolulu, Hawaii.  
 Shane Lloyd (B.S. Brigham Young Univ. 2004), London, Utah.  
 Sheng-Fu Larry Lo (B.A. Macalester Coll. 2004), Tokyo, Japan.  
 Dania Bize Magri (B.A. Univ. California [Berkeley] 1995), Watertown, Mass.  
 Amy Lynn Meadows (B.S. Massachusetts Inst. of Technology 2003), Lexington, Ky.  
 Jonathan Conrad Romanyshyn (B.A. Yale Univ. 2004), Houston, Tex.  
 Christopher Ryan Spock (B.A. Princeton Univ. 2003), Canton, Conn.  
 Rachel Lynn Wattier (B.S. Univ. Kentucky 2004), Paducah, Ky.  
 Sara Whetstone (B.A. Brown Univ. 2002), Palo Alto, Calif.

*Total, 17*

**REGISTERED FOR THE COMBINED M.B.A.-M.D. DEGREE**

Paul Daniel Di Capua (B.A. Harvard Univ. 2002), North Miami Beach, Fla.  
 Adam Harris Kaye (B.A. Univ. Pennsylvania 2004), Westport, Conn.  
 Mallika Lakshmi Mendu (B.S. Brown Univ. 2004), Barrington, R.I.  
 Anup Patel (B.S. Univ. Florida 2004), Altomonte Springs, Fla.  
 Robert Raul Stavert (B.A. Harvard Univ. 2003), Wilton, Conn.

*Total, 5*

**REGISTERED FOR THE COMBINED J.D.-M.D. DEGREE**

Rasika Priya Jayasekera (B.A. Yale Univ. 1999), Lexington, Ky.  
 Ami Mahendra Parekh (B.A. Williams Coll. 2001), North Andover, Mass.

*Total, 2*

**REGISTERED FOR THE DEGREE OF MASTER OF PUBLIC HEALTH***Second-Year Class*

Charles Wynn Acher (B.A. Middlebury Coll. 2005), Madison, Wis.  
 Wilfred A.K. Agbenyikey (B.S. Kwame Nkrumah Univ. of Science and Technology 2002), Cambridge, Mass.  
 Linda Akeyo Alila (B.A. Princeton Univ. 2002), North Wales, Pa.  
 Kristy Chitu Anwuri (B.A. Stanford Univ. 2006), Carson, Calif.  
 Daina Nicole Barauskas (B.A. Univ. California [Santa Barbara] 2005), Soquel, Calif.  
 Tanya Lee Barros (B.A. Coll. of the Holy Cross, 2002), Oranjestad, Aruba.  
 Erica Lynnn Bateman (B.A. Emory Univ. 2003), Darien, Conn.  
 Alexandra Belknap Beale (B.A. Harvard-Radcliffe Coll. 2001), Cambridge, Mass.  
 Ann Elizabeth Bellenger (B.A. Univ. Wisconsin [Madison] 2001), North Potomac, Md.  
 Shawna Whitney Benard (B.A. Univ. Calif [Los Angeles] 2005), Manhattan Beach, Calif.  
 Satasuk Joy Bhosai (B.A. Pomona Coll. 2005), Clovis, Calif.  
 Sara Bodach (B.S. Vassar Coll. 2004), Norwalk, Conn.  
 David Lee Boozer (B.S. Auburn Univ. [Auburn] 2006), Prattville, Ala.  
 Saideep Bose (B.A. Columbia Univ. 2006), Singapore, Singapore.  
 Rebecca June Boulous (B.A. George Washington Univ. 2004), Washington, D.C.  
 Katherine Anne Brickson (B.A. Washington Univ. [Missouri] 2001), Saint Louis, Mo.  
 Lindsay Palmer Busby (B.S. Univ. California [Santa Cruz] 2005), Oakland, Calif.  
 Patrick Robin Byam (B.S. McGill Univ. 2004), Toronto, Ontario, Canada.  
 Gina Leean Calder (B.A. Yale Univ. 2005), New Haven, Conn.  
 Wontae Cha (B.S. Duke Univ. 2004), Marina Del Rey, Calif.  
 Shaan Chaturvedi (B.A. George Washington Univ. 2006), Palos Verdes Estates, Calif.  
 Jeffrey Maximilian Chen (B.A. Washington Univ. [Missouri] 2006), Bakersfield, Calif.  
 Tendai Linda Chizana (B.S. Massachusetts Inst. of Technology 2006), Harare, Zimbabwe.

Alice Ruth Christensen (B.A. Johns Hopkins Univ. 2003), Duluth, Minn.  
Christi Nicole Cosby (B.S. Univ. Connecticut [Storrs] 2005), West Haven, Conn.  
Paul N. Council (B.A. Duke Univ. 2003), Bethesda, Md.  
Valery Ann Danilack (B.A. Hamilton Coll. 2006), Mountain Top, Pa.  
Rupak Datta (B.S. Tufts Univ. 2004), Randolph, N.J.  
Stacey Marie Decembrele (B.A. Georgetown Univ. 2002), Dover, Mass.  
Kristen Patricia Desy (B.S. Fairfield Univ. 2005), Marlborough, Mass.  
Sara Kathryn Dewitz (B.S. Univ. Texas [Austin] 2006), The Woodlands, Tex.  
Laurel Anne Donnell-Fink (B.A. Univ. Michigan [Ann Arbor] 2001), Brookline, Mass.  
Stephanie Margaret Doyle (B.A. SUNY Coll. [Geneseo] 2005), Rochester, N.Y.  
Elizabeth Dunford (B.A. Marquette Univ. 2002), Washington, D.C.  
Jessica Joy Federer (B.S. George Washington Univ. 2005), Saint Louis, Mo.  
Ashley Brooke Fields (B.S. North Carolina State Univ. 2005), Durham, N.C.  
Kathryn Foti (B.S. Auburn Univ. [Auburn] 2006), New London, Conn.  
Laura Joslin Frye (B.A. Tufts Univ. 2005), Schenectady, N.Y.  
Jennifer Marie Garnett (B.S. Gonzaga Univ. 2004), Seattle, Wash.  
Ligia Cecilia Gomez (B.S. Univ. Miami), Miami, Fla.  
Elena Idell Gore (B.S. Howard Univ. 2006), Little River, S.C.  
Shuo (Sally) He (B.S. Carnegie Mellon Univ. 2006), Flushing, N.Y.  
Maua Herme (B.A. Wellesley Coll. 2006), Dar-es-Salaam, Tanzania.  
Marcus Alexander Hill (B.A. Wake Forest Univ. 2005), Raleigh, N.C.  
Ling-I Hsu (B.S. National Taiwan Univ. 2005), Kaohsiung Taiwan.  
Yi-Chen Stacy Huang (B.A. Harvard Univ. 2006), Madison, Wis.  
Alice Kyung Jo (M.S. Columbia Univ. 2006), Calabasas, Calif.  
Sara Bingham Jones (B.S. Univ. Virginia 2004), Williamsburg, Va.  
Pooja Khanolkar (B.A. New York Univ. 2005), Matawan, N.J.  
So Yeon Joyce Kong (B.S. Duke Univ. 2004), Durham, N.C.  
Abigail Kowaloff (B.A. Cornell Univ. 2001), New Haven, Conn.  
Melissa Ann Laing (B.S. Bentley Coll. 2006), Billerica, Mass.  
Qijuan Li (M.A. Sichuan Univ. 2005), New Haven, Conn.  
Mitchell Ting-Ming Liao (B.S. Univ. California [Los Angeles] 2004), Diamond Bar, Calif.  
Michael William Long (B.A. Princeton Univ. 2002), Los Angeles, Calif.  
Ariel Simone Ludwig (B.A. Kenyon Coll. 2004), Greenville Miss.  
Corinne Lee Luszcz (B.S. Lehigh Univ. 2005), Newton, N.J.  
Kristin Ann Madden (B.S. Cornell Univ. 2005), Merrick, N.Y.  
Chelsea Christine Mao (B.A. Univ. California [Berkeley] 2001), San Bruno, Calif.  
Rachel Dianna Maree (B.A. Wake Forest Univ. 2006), Columbia, S.C.  
Zohar Massey (B.A. Yale Univ. 1995), New York, N.Y.  
Laura Elizabeth Mattaliano (B.S. Vanderbilt Univ. 2006), Monroe, Conn.  
Heather Elizabeth McPherson (B.A. Univ. Connecticut [Storrs] 2003), Arlington, Va.  
Grace Noella Mhango (B.A. Bryn Mawr Coll. 1997), Dar es Salaam, Tanzania.  
Jennifer Anne Michalove (B.S. Coll. of William and Mary 2006), Stonington, Conn.  
Anna Hartung Milkowski (B.A. Hunter Coll. [CUNY] 2006), Staten Island, N.Y.

Aya Alice Mitani (B.A. Pitzer Coll. 2006), Toyonaka-shi, Japan.  
 Emily Marie Mosites (B.A. Colby Coll. 2006), McMurray, Pa.  
 Madhuri Vemuri Murthy (B.A. Washington Univ. [Missouri] 2006), Oak Brook, Ill.  
 Tiffany Shindana North (B.A. Univ. California [Berkeley] 2005), Marietta, Ga.  
 Christine Marie Ordija (B.A. Boston Univ. 2002), Naples, Fla.  
 Sarah Bryan Perry (B.A. Wake Forest Univ. 2006), Vienna, Va.  
 Elizabeth Wade Persons (B.A. Tufts Univ. 2006), Stony Brook, N.Y.  
 Jason Michael Robinson (B.A. Univ. Virginia 1997), New Haven, Conn.  
 Deborah Erin Roseman (B.A. Univ. North Carolina [Chapel Hill] 1999), McLean, Va.  
 Meredith Catherine Safer (B.A. Reed Coll. 2000), Higganum, Conn.  
 Megan Rae Sands (B.A. Middlebury Coll. 2002), New York, N.Y.  
 Radha K Shenoy (B.A. Yale Univ. 2004), Wallingford, Conn.  
 Laura Leigh Snow (B.A. Colby Coll. 2004), Somerville, Mass.  
 Laura Sue (B.A. Univ. California [Berkeley] 2006), Rancho Palos Verdes, Calif.  
 Maria Terekhov (B.A. Univ. California [Berkeley] 2004), Berkeley, Calif.  
 Cherie Marie Vitartas (B.S. Univ. California [San Diego] 2004), Calabasas, Calif.  
 Courtney Elizabeth Walls (B.A. Coll. of the Holy Cross 2006), Tewksbury, Mass.  
 Rebecca Faye Weiser (B.A. Univ. Pennsylvania 2004), New York, N.Y.  
 Robert Allen Whitaker (M.B.A. Univ. Texas [Houston] 2006), Houston Tx  
 Tammy Lynn Yahner (B.A. Univ. North Carolina [Chapel Hill] 2006), York, Pa.  
 Kimberly Yee (B.A. Yale Univ. 2005), Elk Grove, Calif.  
 Sophia Young (B.S. Univ. California [Los Angeles] 2006), Los Angeles, Calif.  
 Liza May Zolot (B.A. Illinois Wesleyan Univ. 2003), Colorado Springs, Colo.

*Total, 88*

### *First-Year Class*

Caesar Angoncello Anderson (M.D. Howard Univ. 2001),  
 Shanna B. Bernstein (B.S. Univ. Maryland [College Park] 2006), Md.  
 Rupali Bharadwaj (M.B.B.S. Nagpur Univ. 1996), India.  
 Vishwajit Bharadwaj (M.B.B.S. Amravati Univ. 2006), India.  
 Zinzi N. Blell (B.S.N. Univ. South Florida 2005), Fla.  
 Maria Magdalena Boelsterl (M.D. Munich Technological Univ. 2006),  
 Nicole Britten (B.S. Western Michigan Univ. 2006), Mich.  
 Whitney E. Carlson (B.S. Univ. Michigan [Ann Arbor] 2007), Mich.  
 Ryan Carney (B.A. Univ. California [Berkeley] 2003), Calif.  
 Alexandra J. Carter (M.D. Univ. Western Ontario 2001), Conn.  
 Patricia Choi (B.A. Wellesley Coll. 2005), Md.  
 Rabeea K. Choudhary (B.S. Aga Khan Univ. 2002), Conn.  
 Erica L. Cook (B.A. Univ. Florida 2007), Fla.  
 Jorge I. Cruz (B.A. New York Univ. 2007), N.Y.  
 Hillary. D'Atri (B.A. Boston Coll. 2007), Conn.  
 Yalina Disla (B.A. Yale Univ. 2007), N.Y.  
 Julia M. Dixon (B.S. Coll. of William and Mary 2004), Va.  
 Tina Lee Edgerly (B.A. Emory Univ. 2005), Conn.

Roberto Jorge Freire Esteves (M.D. Univ. Estadual de Campinas 2004), Brazil.  
Nana Sarkoah Fenny (B.S. Beloit Coll. 2004), Ghana.  
Jennifer Leilani Fitzgerald (B.A. Yale Univ. 2007), Hawaii.  
Lauren Ford Fleeger (B.A. Pennsylvania State Univ. 1999), Ohio.  
Jessica Franquez (B.A. Yale Univ. 2007), Calif.  
Yue Gao (B.S. Peking Univ. 2007), China.  
Allison H. Gathany (B.A. Dartmouth Coll. 2007), Ill.  
Rachael E. Gerber (B.A. Boston Univ. 2004), N.H.  
Melissa Gunasekera (M.D. Stony Brook Univ. 2007), N.Y.  
Khadija Gurnah (B.A. Dalhousie Univ. 1998), Conn.  
Nigel Thomas Gurnett (B.S. Endicott Coll. 2003), Conn.  
Negin Hajizadeh, (M.D. Brown Univ. 2002), Conn.  
Gregory M. Heard, (M.B.A. Univ. Chicago 2004), Md.  
Kumba Adia Hinds (B.A. Yale Univ. 2006), Conn.  
Ikenna C. Ibe (M.B.B.CH. Univ. Calabar 1998), N.J.  
Jahara Binte Ibrahim (B.S. National Univ. Singapore 1996), Singapore.  
Kate E. Ittleman (B.A. Univ. Vermont 2006), Vt.  
Umo Umo Iyanam (B.S. Oral Roberts Univ. 2007), Nigeria.  
Sarah Saleem Jilani (B.A. Univ. Chicago 2005), Conn.  
Heather J. Jordan (B.A. Mt. Holyoke Coll. 2005), Washington, D.C.  
Erica Lauren Kenney (B.A. Brown Univ. 2003), Mass.  
Cara Marie Kiernan (B.A. Yale Univ. 2007), Va.  
Amani Jackson Kitali (B.A. Yale Univ. 2007), Tanzania.  
Nancy Kwon (B.S. Northwestern Univ. 2006), Colo.  
Yuna Swatlian Hiratsuka Lee (BACHLR. Univ of Western Australia 2007), Australia.  
Yingjun Sui-Man Li (B.S. Fudan Univ. 2006), China.  
Kara Livingston (B.A. Coll. of the Holy Cross 2005), Mass.  
Rong Lou (PH.D. Peking Union Medical Coll. 2002), Conn.  
Akshara Menon (B.A. Northwestern Univ. 2003), Conn.  
Safiya Mojerie (B.A. Univ. Maryland [Baltimore] 2007),  
Jaclyn M. Morgan (B.A. Dartmouth Coll. 2005), Mass.  
Camellia A. Morteazadeh (B.A. Univ. Wisconsin [Madison] 2007), Ariz.  
Garett M. Ng (B.A. Univ. California [Berkeley] 2004), Calif.  
Nneoma Nwachuku (B.S. Yale Univ. 2007), Conn.  
Rita Ohene-Adjei (M.B.B.S. Univ. Ghana 1999), Conn.  
Nkemdilin G. Okafor (B.A. Univ. North Carolina [Chapel Hill] 2006), Tex.  
Elisabeth D. Okrant (B.A. Trinity Coll. [Connecticut] 1999), Conn.  
Paul Mark Opare-Addo (B.A. Middlebury Coll. 2004), Ghana.  
Lili Pirbazari (B.A. Univ of Southern California 2004), Calif.  
Zain Rajan (B.S. Queens Univ. 2004), Alberta, Canada.  
Jennifer A. Reckleff (B.S. Duke Univ. 2006), N.C.  
Michele K. Rhee (B.A. Georgetown Univ. [Washington, D.C.] 2005), N.J.  
Corey Calista Ridings (B.A. Occidental Coll. 2003), Wash.  
Kristen M. Scott (B.A. Univ. Virginia 2005), Va.



Brian K. Seavey (B.S. Univ. Virginia 2004), Va.  
 Virginia Senkomago (B.A. Berea Coll. 2007), Uganda.  
 Raphael N. Shaw (M.A. Grande Ecole 2004), S.C.  
 Takudzwa Shumba (B.S. Yale Univ. 2007), Harare, Zimbabwe.  
 Zimbabwe Meliessa G. Siemens (B.A. Univ. Toronto 1995), Conn.  
 Katherine Jane Skene (B.A. Univ. Nottingham 2006), United Kingdom.  
 Stephanie Melissa Smith (B.A. Yale Univ. 2007), Calif.  
 Pamela R. Soulos (B.A. Grinnell Coll. 2005), N.Y.  
 Marisa N. Spann (PH.D. George Washington Univ. 2005), Mass.  
 Elizabeth S. Tronstein (B.A. Univ. Colorado [Boulder] 2005), Mich.  
 Brian J. Wayda (B.A. Yale Univ. 2007), Pa.  
 Heidi Westermann (B.A. Vassar Coll. 2004), Conn.  
 Libby Williams (B.A. Coll. of Wooster 2002), Mass.  
 Hongzhi Xu (B.S. Shanghai Jiao Tong Univ. 1996), Conn.

*Total, 76*

#### REGISTERED FOR THE COMBINED M.P.H.—M.E.SC. DEGREE

Anna Milkowski  
 Lili Pirbazari

*Total, 2*

#### REGISTERED FOR THE COMBINED M.P.H.—M.B.A. DEGREE

Alexandra Beale  
 Abigail Kowoloff  
 Josh Pashman  
 Jason Robinson

*Total, 4*

#### REGISTERED FOR THE COMBINED M.P.H.-NURS. DEGREE

Julie Beck

*Total, 1*

#### REGISTERED FOR THE COMBINED M.P.H.-M.DIV. DEGREE

Daniel Kim

*Total, 1*

#### REGISTERED FOR THE COMBINED M.P.H.-M.A. DEGREE

Maria Terekhov

*Total, 1*

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**REGISTERED FOR THE PHYSICIAN ASSOCIATE PROGRAM**
*Second-Year Class*

Keri Lynn Bollman (B.S. Texas A&M Univ. [Galveston] 2005), San Marcos, Tex.  
 Tamara Maria Brining (B.A. Univ. Washington [Bothell] 2004), Spokane, Wash.  
 Adam Scott Cohn (B.A. Univ. Colorado [Boulder] 1995), Boulder, Colo.  
 Song Jin Kim Comstock (B.S. George Washington Univ. 2005), McLean, Va.  
 Rachele Tatoy Concepcion (B.S. Univ. Southern California 2005), Corona, Calif.  
 Karen Edwards (B.S. Sacred Heart Univ. 1997), Milford, Conn.  
 Lisa Nicole Erskine (B.S. Univ. South Florida 2005), Trinity, Fla.  
 Jason Ray Fleury (B.S. Auburn Univ. 2003), Atlanta, Ga.  
 Jeffrey P. Gagnon (B.S. Bates Coll. 2002), Branford, Conn.  
 Ryan Christopher Gallo (B.S. Springfield Coll. 2003), Enfield, Conn.  
 Sarah Halloran (B.S. Univ. Florida 2005), Pembroke Pines, Fla.  
 Daniel Glenn Heacock (B.S. Loyola Coll. 2002), Milton, Del.  
 Agnes J. Hoppe (B.S. Univ. Washington [Bothell] 1997), Seattle, Wash.  
 Roxana Jimenez (B.A. Our Lady of the Lake Univ. 2002), Eagle Pass, Tex.  
 Vanessa Lehner (B.S. Univ. Miami 2003), Bogotá, Colombia.  
 Arielle Deborah Macher (B.A. Brandeis Univ. 2006), Akron, Ohio.  
 Lauren Elizabeth Myers (B.S. Colorado State Univ. 2005), Aurora, Colo.  
 Kevin O'Hara (B.A. State Univ. New York [Stony Brook] 2006), Merrick, N.Y.  
 John Isaiah O'Reilly (B.S. Cornell Univ. Endowed Coll. 2006), Greenville, N.Y.  
 Anthony Pazienza (B.S. Univ. California [Santa Barbara] 2006), Palmdale, Calif.  
 Julee Pulverenti (B.S. Georgetown Univ. 2004), North Andover, Mass.  
 Gregory Phillip Raines (B.S. Univ. Massachusetts [Lowell] 2000), Beverly, Mass.  
 Rhonda Leigh Sawyer (B.S. Univ. Central Florida 2006), Tavares, Fla.  
 Esther Elizabeth Schlegel (B.A. Wesleyan Univ. 2004), New Haven, Conn.  
 Courtney Marie Southard (B.S. Univ. Scranton 2006), Ansonia, Conn.  
 Jaime Nicole Stewart (B.S. Walla Walla Coll. 2004), Portland, Ore.  
 Melissa Anne Studdard (B.A. Assumption Coll. 2006), Clinton, Conn.  
 Michael Treat (B.A. Bowdoin Coll. 1997), Southborough, Mass.  
 Matthew Gunnar Wark (B.S. Fort Lewis Coll. 2006), Durango, Colo.  
 Jenny Ann Willets (B.S. Albertus Magnus Coll. 2005), Seymour, Conn.

*Total, 30**First-Year Class*

Daniel J. Ainsworth (B.A. State Univ. New York [Geneseo] 2005), Canton, N.Y.  
 Sarah Rose Bailey (B.A. Univ. Washington [Bothell] 2006), Bainbridge Island, Wash.  
 Jessica Dale Beer (B.A. Univ. Puget Sound 1999), Denver, Colo.  
 Nicholas Francis Bonomo (B.S. Stonehill Coll. 2006), Orange, Conn.  
 Emily Jeanne-Marie Burgun (B.S. Wake Forest Univ. 2006), Newark, Del.  
 Carolyn Marie Canonica (B.S. Fairfield Univ. 2005), Franklin Square, N.Y.

Dominique Marie Caruso (B.S. Georgetown Univ. 2007), North Andover, Mass.  
 Anton Robert Cherry (B.S. Univ. Toronto 1994, D.C. Logan Coll. of Chiropractic 1998), Ontario, Canada.  
 Thea Cogan-Drew (B.A. Univ. Vermont 1991, M.A. Ohio Univ. 2000), Somerville, Mass.  
 Amy Larissa DeDea (B.S., PHARM.D. Univ. Florida 2000), Gallup, N.Mex.  
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 Danielle Leigh Harris (B.H.S. Univ. Florida 2007), Gainesville, Fla.  
 Deborah Hendrick (B.S. Boston Univ. 2005), Cambridge, Mass.  
 Fiona Caroline Horgan (B.A. Coll. William and Mary 2003), Englewood, Colo.  
 Kelsey Marie Johnson (B.A. Kalamazoo Coll. 2006), Grand Rapids, Mich.  
 Susanne Day Kenagy (B.A. Yale Univ. 2006), Belmont, Mass.  
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 Patricia Margaret Rose (B.S. Univ. Notre Dame 2007), Germantown, Tenn.  
 Adam Benjamin Shain (B.S. Western Connecticut State Univ. 2007), Fairfield, Conn.  
 Clay Daniel Shorter (B.S. Brigham Young Univ. 2006), Lynchburg, Va.  
 Michelle Smith (B.S. Pacific Lutheran Univ. 2003), Moses Lake, Wash.  
 Geoffrey Streeter (B.S. Brigham Young Univ. 2002), Gilbert, Ariz.  
 Becky Strickland (B.S. Brigham Young Univ. 2006), Las Vegas, Nev.  
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 Maria Teresa Trigg (B.S. Mesa Coll. 2005), Grand Junction, Colo.  
 Chelsea Lundstrom Woods (B.S. Western Washington Univ. 2003), Seattle, Wash.  
 Erica Ilene Zarolnick (B.A. Boston Univ. 2004), Smithtown, N.Y.

*Total, 37*

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# The Work of Yale University

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The work of Yale University is carried on in the following schools:

**Yale College:** Courses in humanities, social sciences, natural sciences, mathematical and computer sciences, and engineering. Bachelor of Arts (B.A.), Bachelor of Science (B.S.).

For additional information, please write to the Office of Undergraduate Admissions, Yale University, PO Box 208234, New Haven CT 06520-8234; tel., 203.432.9300; e-mail, [student.questions@yale.edu](mailto:student.questions@yale.edu); Web site, [www.yale.edu/admit/](http://www.yale.edu/admit/)

**Graduate School of Arts and Sciences:** Courses for college graduates. Master of Arts (M.A.), Master of Engineering (M.Eng.), Master of Science (M.S.), Master of Philosophy (M.Phil.), Doctor of Philosophy (Ph.D.).

For additional information, please visit [www.yale.edu/graduateschool](http://www.yale.edu/graduateschool), write to [graduate.admissions@yale.edu](mailto:graduate.admissions@yale.edu), or call the Office of Graduate Admissions at 203.432.2771. Postal correspondence should be directed to the Office of Graduate Admissions, Yale Graduate School of Arts and Sciences, PO Box 208323, New Haven CT 06520-8323.

**School of Medicine:** Courses for college graduates and students who have completed requisite training in approved institutions. Doctor of Medicine (M.D.). Postgraduate study in the basic sciences and clinical subjects. Combined program with the Graduate School of Arts and Sciences leading to Doctor of Medicine and Doctor of Philosophy (M.D./Ph.D.). Combined program with the Graduate School of Arts and Sciences leading to Doctor of Medicine and Master of Health Science (M.D./M.H.S.). Courses in public health for qualified students. Master of Public Health (M.P.H.). Master of Medical Science (M.M.Sc.) from the Physician Associate Program.

For additional information, please write to the Director of Admissions, Office of Admissions, Yale School of Medicine, 367 Cedar Street, New Haven CT 06510; tel., 203.785.2643; fax, 203.785.3234; e-mail, [medical.admissions@yale.edu](mailto:medical.admissions@yale.edu); Web site, <http://info.med.yale.edu/education/admissions/>

For additional information about the Department of Epidemiology and Public Health, an accredited School of Public Health, please write to the Director of Admissions, Yale School of Public Health, PO Box 208034, New Haven CT 06520-8034; e-mail, [eph.admissions@yale.edu](mailto:eph.admissions@yale.edu); Web site, <http://publichealth.yale.edu/>

**Divinity School:** Courses for college graduates. Master of Divinity (M.Div.), Master of Arts in Religion (M.A.R.). Individuals with an M.Div. degree may apply for the program leading to the degree of Master of Sacred Theology (S.T.M.).

For additional information, please write to the Admissions Office, Yale Divinity School, 409 Prospect Street, New Haven CT 06511; tel., 203.432.5360; fax, 203.432.7475; e-mail, [divinityadmissions@yale.edu](mailto:divinityadmissions@yale.edu); Web site, [www.yale.edu/divinity/](http://www.yale.edu/divinity/). Online application, <http://apply.embark.com/grad/yale/divinity/>

**Law School:** Courses for college graduates. Juris Doctor (J.D.). For additional information, please write to the Admissions Office, Yale Law School, PO Box 208329, New Haven CT 06520-8329; tel., 203.432.4995; e-mail, [admissions.law@yale.edu](mailto:admissions.law@yale.edu); Web site, [www.law.yale.edu/](http://www.law.yale.edu/)

Graduate Programs: Master of Laws (LL.M.), Doctor of the Science of Law (J.S.D.), Master of Studies in Law (M.S.L.). For additional information, please write to Graduate Programs, Yale Law School, PO Box 208215, New Haven CT 06520-8215; tel., 203.432.1696; e-mail, [gradpro.law@yale.edu](mailto:gradpro.law@yale.edu); Web site, [www.law.yale.edu/](http://www.law.yale.edu/)

**School of Art:** Professional courses for college and art school graduates. Master of Fine Arts (M.F.A.).

For additional information, please write to the Office of Academic Affairs, Yale School of Art, PO Box 208339, New Haven CT 06520-8339; tel., 203.432.2600; e-mail, [artschool.info@yale.edu](mailto:artschool.info@yale.edu); Web site, <http://art.yale.edu/>

**School of Music:** Graduate professional studies in performance, composition, and conducting. Certificate in Performance, Master of Music (M.M.), Master of Musical Arts (M.M.A.), Artist Diploma, Doctor of Musical Arts (D.M.A.).

For additional information, please write to the Yale School of Music, PO Box 208246, New Haven CT 06520-8246; tel., 203.432.4155; fax, 203.432.7448; e-mail, [gradmusic.admissions@yale.edu](mailto:gradmusic.admissions@yale.edu); Web site, [www.yale.edu/music/](http://www.yale.edu/music/)

**School of Forestry & Environmental Studies:** Courses for college graduates. Master of Forestry (M.F.), Master of Forest Science (M.F.S.), Master of Environmental Science (M.E.Sc.), Master of Environmental Management (M.E.M.), Doctor of Philosophy (Ph.D.).

For additional information, please write to the Office of Admissions, Yale School of Forestry & Environmental Studies, 205 Prospect Street, New Haven CT 06511; tel., 800.825.0330; e-mail, [fesinfo@yale.edu](mailto:fesinfo@yale.edu); Web site, <http://environment.yale.edu/>

**School of Architecture:** Courses for college graduates. Professional degree: Master of Architecture (M.Arch.); nonprofessional degree: Master of Environmental Design (M.E.D.).

For additional information, please write to the Yale School of Architecture, PO Box 208242, New Haven CT 06520-8242; tel., 203.432.2296; e-mail, [gradarch.admissions@yale.edu](mailto:gradarch.admissions@yale.edu); Web site, [www.architecture.yale.edu/](http://www.architecture.yale.edu/)

**School of Nursing:** Courses for college graduates. Master of Science in Nursing (M.S.N.), Post Master's Certificate, Doctor of Philosophy (Ph.D.).

For additional information, please write to the Yale School of Nursing, PO Box 9740, New Haven CT 06536-0740; tel., 203.785.2389; Web site, <http://nursing.yale.edu/>

**School of Drama:** Courses for college graduates and certificate students. Master of Fine Arts (M.F.A.), Certificate in Drama, One-year Technical Internship (Certificate), Doctor of Fine Arts (D.F.A.).

For additional information, please write to the Registrar's Office, Yale School of Drama, PO Box 208325, New Haven CT 06520-8325; tel., 203.432.1507; e-mail, [ysdadmissions@yale.edu](mailto:ysdadmissions@yale.edu); Web site, [www.yale.edu/drama/](http://www.yale.edu/drama/)

**School of Management:** Courses for college graduates. Professional degree: Master of Business Administration (M.B.A.).

For additional information, please write to the Admissions Office, Yale School of Management, PO Box 208200, 135 Prospect Street, New Haven CT 06520-8200; tel., 203.432.5932; fax, 203.432.7004; e-mail, [mba.admissions@yale.edu](mailto:mba.admissions@yale.edu); Web site, [www.mba.yale.edu/](http://www.mba.yale.edu/)

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## Travel Directions

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See also <http://info.med.yale.edu/center/directions/directions.html>. Additional parking is available at the Amistad, Howard Avenue, and Temple garages, and at Yale-New Haven Hospital's Emergency Department and Children's Hospital. (See map, page 4.)

**I-95 traveling north or south:** Take Exit 47 (Downtown-Route 34 connector), to York Street (Exit 3). Follow signs to Air Rights Garage for visitor parking.

**I-91 traveling south:** Take Exit 1 (Downtown-Route 34 connector), to York Street (Exit 3). Follow signs to Air Rights Garage for visitor parking.

**Wilbur Cross Parkway (Route 15) traveling south:** Take Exit 61 (Whitney Avenue). Turn right at end of ramp and drive south on Whitney Avenue for approximately five miles, at which point the road splits. Stay to the right on what is now Temple Street. At the fourth light, turn right onto Chapel Street. At the first light, turn left onto College Street. Go three blocks and turn right onto North Frontage Road. Follow signs to Air Rights Garage for visitor parking.

**Merritt Parkway (Route 15) traveling north:** Take Exit 57 onto Route 34 east into New Haven. Turn right onto Ella T. Grasso Boulevard (Route 10) and left onto South Frontage Road. Follow signs to Air Rights Garage for visitor parking.

**Route 1 (Boston Post Road) traveling east:** After crossing Ella T. Grasso Boulevard (Route 10), turn left onto Davenport Avenue. When Davenport crosses Howard Avenue, it becomes York Street. Visitor parking is straight ahead in the Air Rights Garage spanning York Street.

The University is committed to basing judgments concerning the admission, education, and employment of individuals upon their qualifications and abilities and affirmatively seeks to attract to its faculty, staff, and student body qualified persons of diverse backgrounds. In accordance with this policy and as delineated by federal and Connecticut law, Yale does not discriminate in admissions, educational programs, or employment against any individual on account of that individual's sex, race, color, religion, age, disability, status as a special disabled veteran, veteran of the Vietnam era, or other covered veteran, or national or ethnic origin; nor does Yale discriminate on the basis of sexual orientation or gender identity or expression.

University policy is committed to affirmative action under law in employment of women, minority group members, individuals with disabilities, special disabled veterans, veterans of the Vietnam era, and other covered veterans.

Inquiries concerning these policies may be referred to the Office for Equal Opportunity Programs, 104 William L. Harkness Hall, 203.432.0849.

In accordance with both federal and state law, the University maintains information concerning current security policies and procedures and prepares an annual crime report concerning crimes committed within the geographical limits of the University. Upon request to the Office of the Secretary of the University, PO Box 208230, New Haven CT 06520-8230, 203.432.2310, the University will provide such information to any applicant for admission.

In accordance with federal law, the University prepares an annual report on participation rates, financial support, and other information regarding men's and women's intercollegiate athletic programs. Upon request to the Director of Athletics, PO Box 208216, New Haven CT 06520-8216, 203.432.1414, the University will provide its annual report to any student or prospective student.

*For all other matters relating to admission to the School of Medicine, please telephone the Office of Admissions, 203.785.2696.*

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