

# School of Medicine

2004–2005



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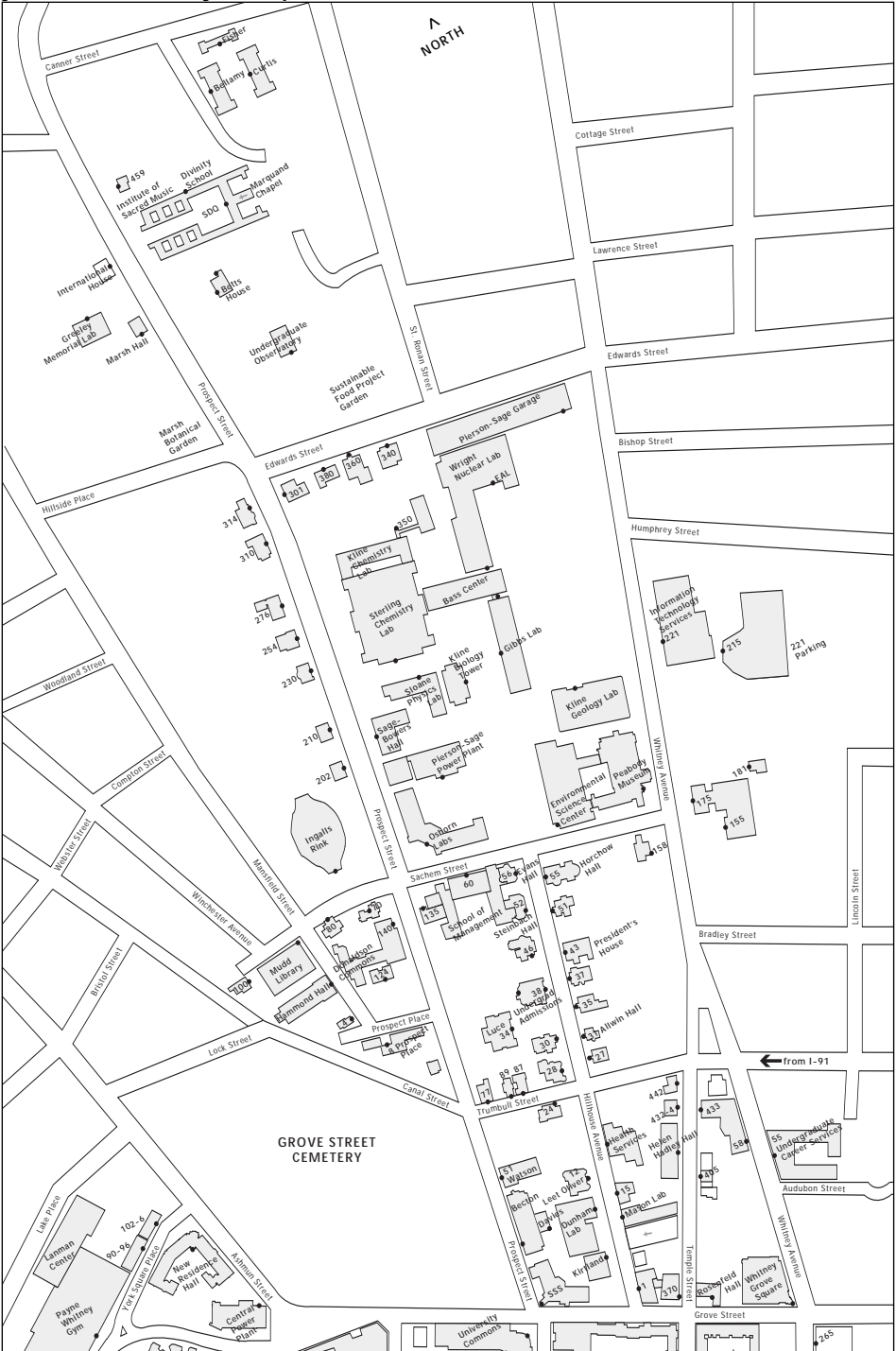
# School of Medicine

## 2004–2005

bulletin of yale university

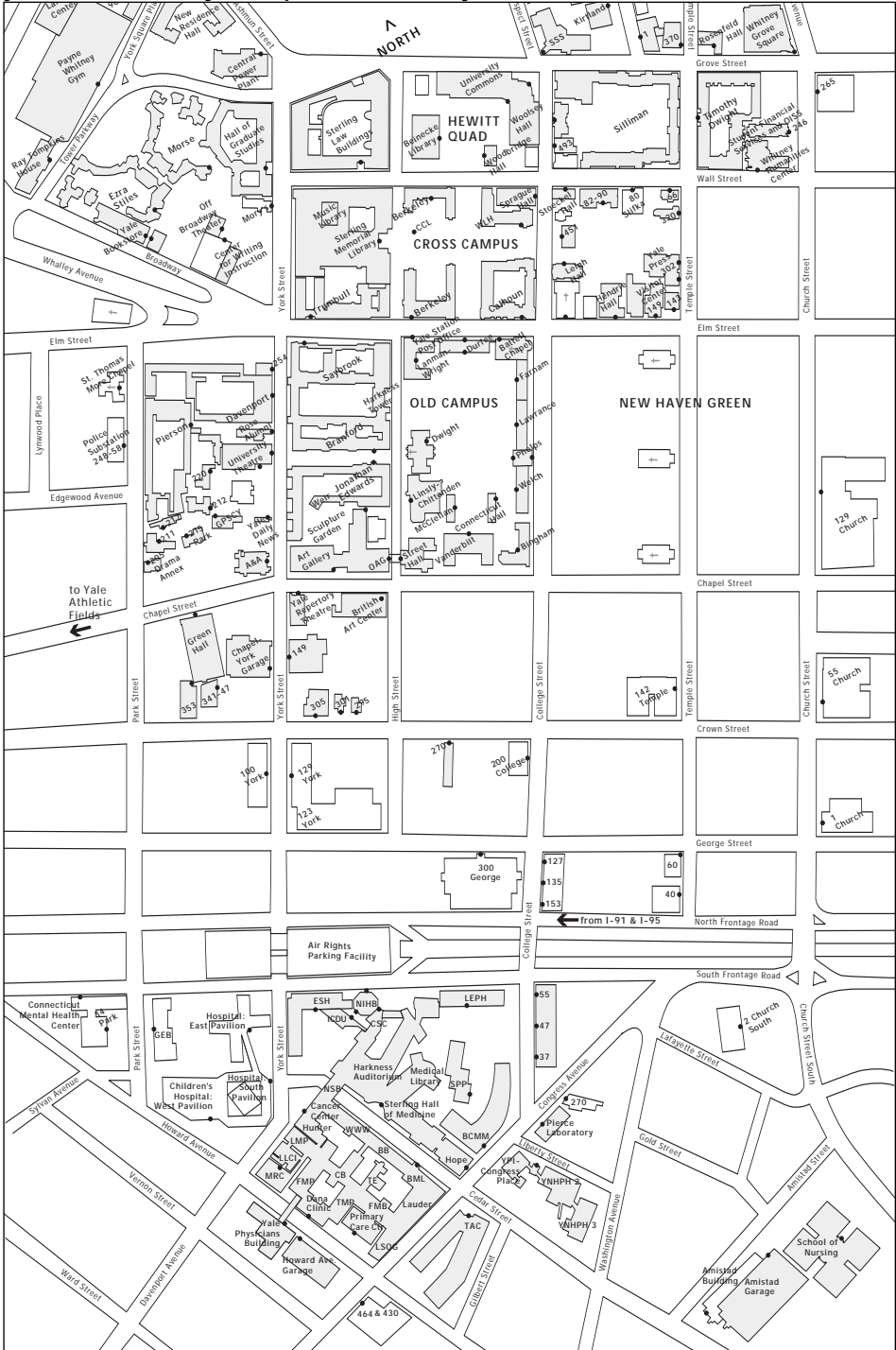
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# yale university campus north

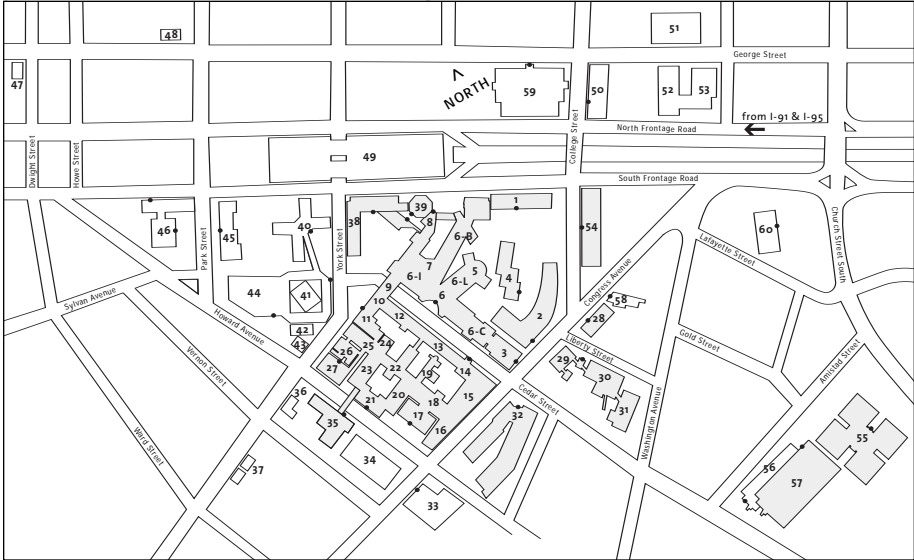


Continued on next page

yale university campus south & yale medical center (see also p. 4)



## 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. Grace Building, 25 Park St.
46. Connecticut Mental Health Center
47. Ronald McDonald House, 501 George St.
48. 425 George St.
49. **Air Rights Parking Garage**
50. 127, 135, and 153 College St.
51. New Haven Hotel, 229 George St.
52. **Temple Garage**
53. Temple Medical Center, 40-60 Temple St.
54. College Place, 47 College St.
55. Medical Center South, 100 Church St. South (Yale School of Nursing)
56. Amistad Building, 10 Amistad St.
57. **Amistad Garage**
58. 270 Congress Ave.
59. 300 George St.
60. 2 Church St. South

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# Calendar

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## one hundred and ninety-third session

### fall 2004

June 21	Mon.	Clerkship year for third-year students begins, 8 a.m.
Aug. 9–20	Mon.–Fri.	Registration for third- through fifth-year students, 9 a.m.– 4.30 p.m.
Aug. 31	Tues.	Matriculation for first-year students, 8– 11 a.m.
Sept. 7–17	Tues.–Fri.	Registration for second-year students, 9 a.m.– 4.30 p.m.
Sept. 7	Tues.	First term begins for first- and second-year students.
Nov. 22–28	Mon.–Sun.	Fall recess for first- and second-year students.
Dec. 4	Sat.	Winter recess begins for third- and fourth-year students.
Dec. 24	Fri.	Winter recess begins for first- and second-year students.

### spring 2005

Jan. 3	Mon.	Clerkships begin for third- and fourth-year students.
Jan. 3–14	Mon.–Fri.	Registration for third- through fifth-year students, 9 a.m.– 4.30 p.m.
Jan. 10	Mon.	Winter recess ends, 8 a.m. Second term begins for first- and second-year students, 8.30 a.m.
Jan. 10–21	Mon.–Fri.	Registration for first- and second-year students, 9 a.m.– 4.30 p.m.
Jan. 17	Mon.	Martin Luther King Day. No classes.
March 11	Fri.	Spring recess begins, 5 p.m. (No recess for students on clinical rotations.)
March 21	Mon.	Spring recess ends, 8 a.m.
March 25	Fri.	Good Friday. No classes for first- and second-year students.
May 10	Tues.	Student Research Day. No afternoon classes for first- and second-year students.
May 13	Fri.	Second term ends for second-year students, 5 p.m.
May 20	Fri.	Second term ends for fourth-year students, 5 p.m.
May 23	Mon.	University Commencement.
June 10	Fri.	Second term ends for first-year students, 5 p.m.
June 17	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.lit., 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 (June 2005).

Gerhard Casper, ll.m., ph.d., ll.d., Atherton, California.

Susan Crown, b.a., m.a., Chicago, Illinois.

Charles Daniel Ellis, b.a., m.b.a., ph.d., New Haven, Connecticut.

Holcombe Tucker Green, Jr., b.a., ll.b., Atlanta, Georgia.

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).

Linda Anne Mason, b.a., m.b.a., Belmont, Massachusetts.

Indra Nooyi, b.s., m.b.a., m.p.p.m., Greenwich, Connecticut.

Barrington Daniel Parker, Jr., b.a., ll.b., Stamford, Connecticut.

Theodore Ping Shen, b.a., m.b.a., Brooklyn Heights, New York (June 2007).

Janet Louise Yellen, b.a., ph.d., Berkeley, California (June 2006).

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# The Officers of Yale University

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President

Richard Charles Levin, b.a., b.lit., ph.d.

Provost

Andrew David Hamilton, b.sc., ph.d.

Vice President and Secretary

Linda Koch Lorimer, b.a., j.d.

Vice President and General Counsel

Dorothy Kathryn Robinson, b.a., j.d.

Acting Vice President for Development

Joan Elizabeth O'Neill, b.a.

Vice President and Director of New Haven and State Affairs

Bruce Donald Alexander, b.a., j.d.

Vice President for Finance and Administration

John Ennis Pepper, Jr., b.a., m.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. The Medical School Council serves as a forum for interaction between students, faculty, and administration and provides a mechanism for the medical school community to review matters of interest to the School of Medicine. The Educational Policy and Curriculum Committee oversees the educational program of the School and reports to the Board of Permanent Officers.

## committees for 2004–2005

### Board of Permanent Officers

Ex Officio: President Richard C. Levin, Provost Andrew D. Hamilton, Dean Robert J. Alpern, Mr. Joseph A. Zaccagnino

I. Willard Abrahams,\* James J. Abrahams, George K. Aghajanian, Serap Aksoy, Jonathan Alexander,\* Meenakshi Alreja,† Karen S. Anderson, Warren A. Andiman, Norma W. Andrews, Walter R. Anyan, Jr., Aydin M. Arici, Stephan Ariyan,\* Marvin S. Arons,\* Peter S. Aronson, Philip W. Askenase, M. Douglas Baker, Allen E. Bale,† Robert S. Baltimore, Paul G. Barash, Colin J. Barnstable, Roland Baron, Michele Barry, Linda M. Bartoshuk, Susan J. Baserga,† William P. Batsford, Alia Bazy-Asaad,† G. Peter Beardsley, Harold R. Behrman, Morris D. Bell, Joseph L. Belsky,\* Jeffrey R. Bender, David N. Berg,\* Nancy Berliner, Michael R. Berman,\* Frank J. Bia, Margaret J. Bia, Henry J. Binder, Sidney J. Blatt, Jean L. Bolognia, John Booss, Walter F. Boron, Alfred L. M. Bothwell, H. Kim Bottomly, Emile L. Boulpaep, John M. Boyce,\* James L. Boyer, Michael B. Bracken, Myron H. Brand,\* Douglas E. Brash, Lawrence M. Brass, Ferne R. Braveman, Irwin M. Braverman, James A. Brink, Arthur E. Broadus, Richard A. Bronen, Paul W. Brown,\* Charles J. Bruce,† Richard Bucala, Benjamin S. Bunney, Morton I. Burrell, Thomas N. Byrne,\* Henry S. Cabin, Cecilia M. Canessa,† Lloyd G. Cantley,† Michael J. Caplan, Sonia Caprio, David A. Carlson,\* Thomas O. Carpenter, Kathleen M. Carroll, Michael Centrella, William K. Chandler, Herbert S. Chase, Yung-Chi Cheng, Young Choi, Edward Chu, Michael W. Cleman, Miguel Coca-Prados, Jacques Cohen, Lawrence B. Cohen, Lawrence S. Cohen, David L. Coleman, J. G. Collins, James P. Comer, Robert T. Constable,† Lynn Cooley, Leo M. Cooney, Dennis L. Cooper, Joshua A. Copel, José Costa, Joseph E. Craft, Peter Cresswell, Mark R. Cullen, Mary G. Curnen,\* Anne McBride Curtis, Nicholas Dainiak,\* Priscilla S. Dannies, Fredric Daum, Lycurgus M. Davey,\* Gustave L. Davis,\* Pietro De Camilli, Nihal C. deLanerolle,†

\* Clinical Professor

† Associate Professor

Gary V. Desir, Vincent T. DeVita, Jr., Daniel C. DiMaio, John W. Dobbins,\* Richard K. Donabedian, T. Wayne Downey,\* Arthur B. Du Bois, Stanley J. Dudrick, Thomas P. Duffy, Ronald S. Duman, Charles C. Duncan, James S. Duncan, Israel Dvoretzky,\* Michael H. Ebert, Stephen C. Edberg, Richard L. Edelson, Marie E. Egan,† Richard A. Ehrenkranz, Jan Ehrenwerth, Barbara E. Ehrlich, John A. Elefteriades, Jack A. Elias, Donald M. Engelman, Robert W. Evans,\* Leonard R. Farber,\* John E. Fenn,\* Susan S. Ferro-Novick, Erol Fikrig, Fredric O. Finkelstein,\* David S. Fischer,\* James J. Fischer, Durland Fish, Rosemarie L. Fisher, Gerald H. Flamm,\* Richard A. Flavell, Martin H. Floch,\* Stuart D. Flynn, Bliss Forbush III, Judith Ford, Bernard G. Forget, John N. Forrest, Jr., Gary E. Friedlaender, Gerald H. Friedland, Lloyd Friedman,\* Jorge E. Galán, Patrick G. Gallagher,† Guadalupe Garcia-Tsao, Alan Garen, John P. Geibel, Joel E. Gelernter, Mark B. Gerstein,† Sankar Ghosh, Thomas M. Gill,† Peter M. Glazer, Paul S. Goldstein,\* Caleb Gonzalez, Martin Gordon,\* Frederick S. Gorelick, Barry G. Green, David G. Greenfeld,\* Charles A. Greer, Brigitte P. Griffith,\* Ezra H. Griffith, Carlos M. Grillo, Nigel D. F. Grindley, Ian Gross, Roberto J. Groszmann, Caren M. Gundberg, Richard J. Gusberg, Bruce G. Haffty, Graeme L. Hammond, Carl Hashimoto,† John P. Hayslett, Peter W. Heald, Steven C. Hebert, Ernesto D. Hendler,\* Peter N. Herbert,\* Roberta Hines, Richard B. Hochberg, Mark W. Hochstrasser, Paul B. Hoffer, Ralph Edward Hoffman, Michael A. Hoge, Nikki J. Holbrook, Theodore R. Holford, Mark C. Horowitz, Tamas Horvath,† Arthur L. Horwich, Margaret K. Hostetter, James R. Howe,† Paul B. Iannini,\* Jeannette R. Ickovics,† Sharon K. Inouye, Karl L. Insogna, Silvio E. Inzucchi, Bahman Jabbari, Harris C. Jacobs,\* Selby C. Jacobs, Robert O. Jacoby, C. Carl Jaffe, James D. Jamieson, Peter I. Jatlow, Marie-Louise T. Johnson,\* Peter Jokl, Ervin E. Jones, Leonard K. Kaczmarek, Zeev Kain, Fred S. Kantor, Cyrus R. Kapadia, Michael Kashgarian, Stanislav V. Kasl, Jonathan D. Katz,\* Lee D. Katz, Alan S. Kaufman,\* Paula B. Kavathas, Kristaps J. Keggi,\* Thomas L. Kennedy,\* James D. Kenney,\* Robert D. Kerns, Jr., Ali A. Khodadoust,\* Kenneth K. Kidd, E. Leon Kier, Jung H. Kim, Barbara K. Kinder, Robert A. King, Alan S. Kliger,\* Jeffery D. Kocsis, Donald W. Kohn,\* William H. Konigsberg, Gary S. Kopf, Thomas R. Kosten, Leonard S. Krassner,\* Diane S. Krause,† Mitchell M. Kresch,\* Harlan M. Krumholz, John H. Krystal, Samuel D. Kushlan,\* Robert G. LaCamera,\* Fadi Lakkis,† Carole C. LaMotte, Robert H. LaMotte, Marie-Louise Landry, Donald R. Lannin, Nathaniel Laor,\* Dori Laub,\* Stanley R. Lavietes,\* Brian P. Leaderer, James F. Leckman, Steven B. Leder, Forrester A. Lee, Carol H. Lee-French, David J. Leffell, Thomas L. Lentz, Csaba Leranth, Robert L. Lesser,\* John M. Leventhal, Robert A. Levine,\* Robert J. Levine, Lewis L. Levy,\* Susan R. Levy,\* Dorothy O. Lewis,\* Richard P. Lifton, Paul M. Lizardi, Charles J. Lockwood, Jacob S. O. Loke,\* Elias Lolis,† Paul J. Lombroso, Walter E. Longo, Marc I. Lorber, David M. Lowell,\* James K. Lynch,\* Vincent A. Lynch,\* Joseph A. Madri, Rex L. Mahnensmith, Maurice J. Mahoney, Nita J. Maihle, Robert W. Makuch, Stephen E. Malawista, Laura M. Manuelidis, Sally L. Marchesi, Vincent T. Marchesi, Kenneth Marek,\* Norman J. Marieb,\* Lawrence E. Marks, Richard A. Matthay, Linda C. Mayes, Susan T. Mayne,† Carolyn M. Mazure, Paul L. McCarthy,

\* Clinical Professor

† Associate Professor

Shirley M. McCarthy, Bruce L. McClennan, David A. McCormick, Bruce M. McDonald,\* Thomas H. McGlashan, Diane M. McMahon-Pratt, John R. McNamara,\* Peter McPhedran, Ruslan M. Medzhitov, Ira S. Mellman, Laura R. Ment, Mark R. Mercurio,\* Alan C. Mermann,\* Michael H. Merson, I. George Miller, Perry L. Miller, Leonard M. Milstone, Mary Jane Minkin,\* Irvin M. Modlin, Vahid Mohsenin, Jon S. Morrow, Marvin Moser,\* David F. Musto, Prakash Nadkarni,† Frederick Naftolin, Sreedhar Nair,\* Angus C. Nairn, Ravinder Nath, Michael H. Nathanson, James C. Niederman,\* Paul W. Noble, Peter J. Novick, Diego B. Nunez,\* Patrick G. O'Connor, Tae H. Oh, Stephanie S. O'Malley, A. David Paltiel,† Manohar M. Panjabi, Rose J. Papac, Pasquale Patrizio, Curtis L. Patton, Godfrey D. Pearlson, Richard R. Pelker, James C. Perry, John A. Persing, Richard E. Peschel, Ognen A. C. Petroff,† Joseph M. Piepmeier, Jordan S. Pober, Kyle D. Pruett,\* Anna Marie Pyle, Vincent J. Quagliarello, Donald M. Quinlan, Reuven Rabinovici, Terence D. Rafferty, Pasko Rakic, Joel Rappoport, Asghar Rastegar, Carrie Redlich, Donald E. Redmond, Jr., Lynne J. Regan, Randolph B. Reinhold,\* Lynn W. Reiser,\* Thomas S. Renshaw, Gustavo Reynoso,\* Charles E. Riordan,\* Harvey A. Risch, Samuel Ritvo,\* Scott A. Rivkees, Sara C. Rockwell, Seamus A. Rooney, John K. Rose, Stanley H. Rosenbaum, William H. Rosenblatt, Arthur T. Rosenfield, Robert A. Rosenheck, Robert H. Roth, Jr., Douglas L. Rothman, David M. Rothstein,† Bruce J. Rounsaville, Craig R. Roy,† Harvey L. Ruben,\* Nancy H. Ruddle, Gary Rudnick, W. Dean Rupp, Jr., Herbert S. Sacks,\* Joseph Santos-Sacchi, Alan C. Sartorelli, Clarence T. Sasaki, Ronald C. Savin,\* David G. Schatz, Mark J. Schlesinger, Joseph Schlessinger, Robert T. Schoen,\* Mark H. Schoenfeld,\* Richard S. Schottenfeld, Ilsa R. Schwartz, Michael L. Schwartz,† Peter E. Schwartz, Leslie M. Scoutt, Margretta R. Seashore, Steven S. Segal, Michael J. Sernyak, Jr., William C. Sessa, Eugene D. Shapiro, Coralie Shaw, Bennett A. Shaywitz, Sally E. Shaywitz, Gordon M. Shepherd, Carl B. Sherter,\* Robert S. Sherwin, M. Bruce Shields, Myong S. Shin,\* Mark J. Shlomchik, Gerald I. Shulman, Norman J. Siegel, Frederick J. Sigworth, Joel S. Sildiker,\* David G. Silverman, David E. Silverstone,\* Raymond S. Sinatra, Jody L. Sindelar, Martin W. Sklaire,\* Jeffrey Sklar, James D. Slavin,\* Carolyn W. Slayman, Clifford L. Slayman, William H. Sledge, Brian R. Smith, David L. Snow, Edward L. Snyder, Dieter G. Söll, Mark J. Solomon,† Stefan Somlo, Yung H. Son, Robert Soufer, Steven M. Southwick, Dennis D. Spencer, Susan S. Spencer, Richard S. Stahl,\* Lawrence H. Staib,† Joan A. Steitz, Thomas A. Steitz, David F. Stern, Michael J. Stern,† William B. Stewart,† Stephen M. Strittmatter, Scott A. Strobel, William C. Summers, Bauer E. Sumpio, Patrick Sung, Joann B. Sweasy,† Gordon Sze, Hemant D. Tagare,† William V. Tamborlane, Peter J. Tattersall, Francine M. Testa,\* Robert E. Tigelaar, Mary E. Tinetti, Irena Tocino, Robert J. Touloukian, Robert Udelsman, Elisabetta Ullu, Flora M. Vaccarino,† Anthony Van den Pol, Ronald J. Vender,\* Fred R. Volkmar, Frans J. T. Wackers, Thomas J. Walsh,\* Stephen C. Wardlaw,\* John H. Warner, Graham B. Warren, Lawrence J. Wartel,\* Stephen G. Waxman, Ulrich H. Weil,\* Jeffrey C. Weinreb, Robert M. Weiss, Sherman M. Weissman, Morris A. Wessel,\* Bruce E. Wexler, Robert I. White, Jr., Stephen M. Winter,\* Sandra L. Wolin,† Andrew S. Wong,\*

\* Clinical Professor

† Associate Professor

Brian Wong,† Scott W. Woods, Joseph Woolston, Fred S. Wright, John J. Wysolmerski,† Tian Xu, Derek Yach, Eiji Yanagisawa,\* John L. Young,\* Lawrence H. Young, Barry L. Zaret, Joseph H. Zelson,\* Daniel Zelterman, Heping Zhang, Hongyu Zhao,† Tongzhang Zheng,† Howard V. Zonana

## Medical School Council

Steering Committee of the Medical School Council  
Committee for the Well-Being of Students

## Other Standing Committees for 2004–2005

Affirmative Action Committee  
Animal Resources Executive Committee  
Committee on Admissions  
Committee on International Health  
Educational Policy and Curriculum Committee  
Funds and Fellowships Committee  
General Clinical Research Center Advisory Committee  
M.D./Ph.D. Committee  
Medical Library Committee  
Scholar Awards Committee  
Senior Appointments and Promotions Committee  
Senior Faculty Allotment Committee  
Status of Women in Medicine Committee  
Term Appointments and Promotions Committee

## administration

Richard C. Levin, b.a., b.litt., ph.d., President of the University.  
Andrew D. Hamilton, ph.d., Provost of the University.  
Robert J. Alpern, m.d., Dean of the School of Medicine.  
Brian P. Leaderer, ph.d., m.p.h., Interim Dean for Public Health.  
Jaclyne W. Boyden, m.b.a., Deputy Dean for Finance and Administration.  
Herbert S. Chase, m.d., Deputy Dean for Education.  
Carolyn W. Slayman, ph.d., Deputy Dean for Academic and Scientific Affairs.  
David J. Leffell, m.d., Senior Associate Dean for Clinical Affairs.  
Lawrence S. Cohen, m.d., Special Adviser to the Dean.

Nancy R. Angoff, m.d., m.p.h., m.ed., Associate Dean for Student Affairs.  
Rosalie Blunden, m.b.a., Associate Dean for Finance and Administration for Epidemiology and Public Health.  
James P. Comer, m.d., m.p.h., Associate Dean for Student Progress.  
Penrhyn E. Cook, Executive Director, Grants and Contracts.

\* Clinical Professor

† Associate Professor

Rosemarie L. Fisher, m.d., Associate Dean for Graduate Medical Education.  
John N. Forrest, m.d., Director, Office of Student Research.  
Mary J. Hu, m.b.a., Director, Planning and Communications.  
James D. Jamieson, m.d., ph.d., Director, M.D./Ph.D. Program.  
Forrester A. Lee, m.d., Assistant Dean for Multicultural Affairs.  
Thomas L. Lentz, m.d., Associate Dean for Admissions.  
Regina K. Marone, m.l.s., Director, Medical Library.  
Carolyn M. Mazure, ph.d., Associate Dean for Faculty Affairs.  
Pamela J. Nyiri, m.a., Director, Office of Financial Aid.  
Anne F. Pistell, m.b.a., Associate Dean for Student Affairs for Epidemiology and Public Health.  
Sara Rockwell, ph.d., Director, Office of Scientific Affairs.  
Nancy H. Ruddle, ph.d., Interim Deputy Dean for Public Health.  
Martha Schall, Associate Vice President for Development and Director of Medical Development.  
Richard A. Silverman, Director, Office of Admissions.  
Terri L. Tolson, Registrar for Student Affairs.  
Mary L. Warner, m.m.sc, p.a.-c., Assistant Dean, Physician Associate Program.  
Merle Waxman, m.a., Associate Dean for Academic Development.

## faculty

Robert M. Aaronson, m.d., Assistant Clinical Professor of Medicine.  
Sumaira Aasi, m.d., Assistant Professor of Dermatology.  
Nadia Abdala, ph.d., d.v.m., Associate Research Scientist in Epidemiology.  
Danielle J. Abi-Saab, psy.d., Associate Research Scientist in Psychiatry.  
Walid Abi-Saab, m.d., Assistant Professor (Adjunct) of Psychiatry.  
I. Willard Abrahams, m.d., Clinical Professor of Ophthalmology and Visual Science.  
James J. Abrahams, m.d., Professor of Diagnostic Radiology and Surgery (Otolaryngology).  
Vikki M. Abrahams, ph.d., Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences.  
Harold Abrams, m.d., Assistant Clinical Professor of Surgery (Gastroenterology).  
Ali K. Abu-Alfa, m.d., Associate Professor of Medicine.  
Denise Acampora, m.p.h., Lecturer in Medicine (Geriatrics).  
Angelo J. Accomando, m.d., Assistant Clinical Professor of Medicine.  
Lynn Acton, m.s., Lecturer in Surgery (Otolaryngology).  
Susan S. Addiss, m.p.h., m.u.s., Lecturer in Public Health.  
Edward A. Adelberg, ph.d., Professor Emeritus of Genetics.  
Ron A. Adelman, m.d., m.p.h., Assistant Professor of Ophthalmology and Visual Science.  
Abby C. Adis, m.s.w., Assistant Clinical Professor of Psychiatry (Social Work).  
Jean Adnopoz, m.p.h., Associate Clinical Professor in the Child Study Center.  
M. Sherif Afifi, m.b.b.s., Assistant Clinical Professor of Anesthesiology.  
Hervé F. Agaisse, ph.d., Assistant Professor of Microbial Pathogenesis.  
Seema Agarwal, ph.d., Associate Research Scientist in Medicine (Medical Oncology).



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George K. Aghajanian, m.d., Foundations Fund Professor of Psychiatry and Professor of Pharmacology.

Elliot D. Agin, m.d., Clinical Instructor in Medicine.

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W. Roy Breg, Jr., m.d., Professor Emeritus of Genetics and Pediatrics.  
Joel D. Bregman, m.d., Assistant Clinical Professor in the Child Study Center.  
Joseph J. Brennan, m.d., Associate Professor of Medicine (Cardiovascular Medicine).  
Stephen D. Brenner, m.d., Associate Clinical Professor of Medicine.  
Gina R. Brescia, m.d., Assistant Clinical Professor of Medicine.  
Elizabeth A. Brett, ph.d., Associate Clinical Professor of Psychiatry.  
Helena M. Brett-Smith, m.d., Assistant Clinical Professor of Medicine (Infectious Diseases).  
Christopher K. Breuer, m.d., Assistant Professor of Surgery (Pediatric) and Pediatrics.  
Phillip A. Brewer, m.d., Assistant Professor of Surgery (Emergency Medicine).  
Ursula C. Brewster, m.d., Instructor in Medicine (Nephrology).  
Laurie Bridger, m.d., Assistant Clinical Professor of Medicine.  
Samuel L. Bridgers II, m.d., Assistant Clinical Professor of Neurology.  
Harry C. Briggs, m.d., Lecturer in Surgery (Gross Anatomy).  
Margaret J. Briggs-Gowan, ph.d., Associate Research Scientist in Public Health.

Michael L. Brines, m.d., ph.d., Assistant Clinical Professor of Medicine.  
Patricia C. Brines, m.d., Assistant Clinical Professor of Obstetrics, Gynecology, and Reproductive Sciences.  
James A. Brink, m.d., Professor of Diagnostic Radiology.  
Josephine H. Bristol, m.d., m.p.h., Lecturer in Psychiatry.  
Dante A. Brittis, m.d., Clinical Instructor in Orthopaedics and Rehabilitation.  
Pia R. Britto, ph.d., Associate Research Scientist in the Child Study Center.  
Arthur E. Broadus, m.d., ph.d., Ensign Professor of Medicine.  
Karen H. Brody, m.d., Assistant Clinical Professor in the Child Study Center.  
Richard A. Bronen, m.d., Professor of Diagnostic Radiology and Neurosurgery.  
Andrew Bronin, m.d., Associate Clinical Professor of Dermatology.  
Jeanne Q. Brooks, m.d., Clinical Instructor in Ophthalmology and Visual Science.  
Alice W. Brown, j.d., Lecturer in Public Health (Global Health).  
Eric Y. Brown, m.d., Assistant Clinical Professor of Medicine.  
Fay E. Brown, ph.d., Associate Research Scientist in the Child Study Center.  
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Nancy B. Brown, m.d., Assistant Clinical Professor of Pediatrics.  
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Thomas E. Brown, ph.d., Assistant Clinical Professor of Psychiatry.  
Thomas H. Brown, ph.d., Professor of Psychology and Cellular and Molecular Physiology.  
Marie J. Browne, m.d., Associate Clinical Professor of Pediatrics.  
Kelly D. Brownell, ph.d., Professor of Psychology and Epidemiology.  
Allison Brownlow, ph.d., m.s.w., Assistant Clinical Professor of Psychiatry.  
Charles J. Bruce, ph.d., Associate Professor of Neurobiology.  
David S. Bruce, b.a., Lecturer in Public Health.  
R. Douglas Bruce, m.d., Clinical Instructor in Medicine (AIDS Program).  
Gary W. Brudvig, ph.d., Professor of Chemistry and Molecular Biophysics and Biochemistry.  
Martina Brueckner, m.d., Associate Professor of Pediatrics (Cardiology).  
Christina M. Brunet, m.d., Assistant Clinical Professor of Medicine.  
Daniela Brunner, ph.d., Assistant Professor (Adjunct) of Psychiatry.  
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Wei R. Chen, ph.d., Assistant Professor of Neurobiology.  
Xinguo Chen, ph.d., Associate Research Scientist in Cell Biology.  
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Mark A. Ciampi, m.d., Clinical Instructor in Medicine.  
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Jude F. Clancy, m.d., Assistant Professor of Medicine (Cardiology).  
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Tian Xu, ph.d., Professor of Genetics.  
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Henry K. Yaggi, m.d., Instructor in Medicine (Pulmonary and Critical Care).  
Tetsuya Yamada, m.d., Research Affiliate in Ophthalmology and Visual Science (Glaucoma).  
Masashi Yamasaki, ph.d., Research Affiliate in Medicine (Pulmonary and Critical Care).  
Heng-Lin Yan, ph.d., Associate Research Scientist in Pediatrics.  
Eiji Yanagisawa, m.d., Clinical Professor of Surgery (Otolaryngology).  
Ken Yanagisawa, m.d., Assistant Clinical Professor of Surgery (Otolaryngology).



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- Guangwei Yang, ph.d., Associate Research Scientist in Pharmacology.  
Jinghua Yang, ph.d., Associate Research Scientist in Surgery (Administration).  
Kai H. Yang, m.d., Assistant Clinical Professor of Medicine.  
Shih-Hung Yang, m.d., Associate Research Scientist in Neurology.  
Youshan Yang, ph.d., Associate Research Scientist in Cellular and Molecular Physiology.  
Teresa Yang-Feng, ph.d., Professor (Adjunct) of Genetics.  
Gang-Qing Yao, m.d., Research Scientist in Comparative Medicine.  
Yukio Yasukochi, m.d., ph.d., Associate Research Scientist in Genetics.  
Bogdan Yatsula, ph.d., Associate Research Scientist in Pathology.  
Reza Yavari, m.d., Assistant Professor (Adjunct) of Medicine.  
M. Yanki Yazgan, m.d., Clinical Instructor in the Child Study Center.  
Mark F. Yeckel, ph.d., Assistant Professor of Neurobiology.  
Raymond Yesner, m.d., Professor Emeritus of Pathology.  
Paul Yeung, m.d., Assistant Clinical Professor in the Child Study Center.  
Jean K. Yi, m.d., Clinical Instructor in Diagnostic Radiology.  
Tai Yi, m.d., Associate Research Scientist in Surgery (Transplant).  
Hanefi Yildirim, m.d., Research Affiliate in Diagnostic Radiology.  
Zhinan Yin, m.d., ph.d., Assistant Professor of Medicine (Rheumatology).  
Kimberly A. Yonkers, m.d., Associate Professor of Psychiatry and Lecturer in Epidemiology.  
John L. Young, m.d., Clinical Professor of Psychiatry.  
Lawrence H. Young, m.d., Professor of Medicine (Cardiology).  
Richard S. Young, m.d., Associate Clinical Professor of Pediatrics and Neurology.  
Herbert Yu, m.d., ph.d., Associate Professor of Epidemiology.  
Jun Yu, m.d., Associate Research Scientist in Pharmacology.  
Kuan-Ping Yu, ph.d., Associate Research Scientist in Medicine (Endocrinology).  
James J. Yue, m.d., Assistant Professor of Orthopaedics and Rehabilitation.  
Zhong M. Yun, ph.d., Assistant Professor of Therapeutic Radiology.  
Joseph A. Zaccagnino, m.p.h., Lecturer in Public Health.  
Mona Zain, m.d., Assistant Clinical Professor of Medicine.  
Alicia Zalka, m.d., Assistant Clinical Professor of Dermatology.  
Eduardo V. Zambrano, m.d., Assistant Professor of Pathology.  
Leonard H. Zamore, m.d., Associate Clinical Professor of Obstetrics, Gynecology, and Reproductive Sciences.  
Theodore Zanker, m.d., Associate Clinical Professor in the Child Study Center.  
Barry L. Zaret, m.d., Robert W. Berliner Professor of Medicine and Professor of Diagnostic Radiology.  
Stuart W. Zarich, m.d., Assistant Clinical Professor of Medicine.  
Hitten P. Zaveri, ph.d., Associate Research Scientist in Neurology.  
Marlene Zawin, m.d., Assistant Clinical Professor of Diagnostic Radiology.  
Dejan P. Zecevic, ph.d., Research Scientist in Cellular and Molecular Physiology.  
Caroline J. Zeiss, ph.d., b.v.sc., Associate Professor of Comparative Medicine and Ophthalmology and Visual Science.  
Richard A. Zell, m.d., Clinical Instructor in Orthopaedics and Rehabilitation.

- Joseph H. Zelson, m.d., Clinical Professor of Pediatrics.  
Daniel Zelterman, ph.d., Professor of Public Health (Biostatistics).  
Boris Zemelman, ph.d., Associate Research Scientist in Cell Biology.  
David Zenisek, ph.d., Assistant Professor of Cellular and Molecular Physiology.  
John S. Zesk, m.d., Assistant Clinical Professor of Medicine.  
Dekai Zhang, m.d., ph.d., Associate Research Scientist in Immunobiology.  
Heping Zhang, ph.d., Professor of Public Health (Biostatistics) and Statistics and in the Child Study Center.  
Hui Zhang, ph.d., Associate Professor of Genetics.  
Hui Z. Zhang, m.d., ph.d., Associate Research Scientist in Genetics.  
Jiasheng Zhang, m.d., Associate Research Scientist in Medicine (Cardiology).  
Junhui Zhang, m.d., Associate Research Scientist in Medicine (Nephrology).  
Lixin Zhang, m.d., ph.d., Associate Research Scientist in Comparative Medicine.  
Ping Zhang, ph.d., Associate Research Scientist in Cellular and Molecular Physiology.  
Ping-Xia Zhang, m.d., Associate Research Scientist in Pediatrics (Immunology).  
Shao-Min Zhang, m.d., ph.d., Associate Research Scientist in Ophthalmology and Visual Science.  
Wengeng Zhang, ph.d., Associate Research Scientist in Therapeutic Radiology.  
Xiang-Yang Zhang, m.d., ph.d., Associate Research Scientist in Psychiatry.  
Xian-Man Zhang, ph.d., Associate Research Scientist in Medicine (Endocrinology).  
Xuchen Zhang, ph.d., Associate Research Scientist in Medicine (Pulmonary and Critical Care).  
Yalan Zhang, ph.d., Associate Research Scientist in Pharmacology.  
Zhushan Zhang, ph.d., Associate Research Scientist in Pathology.  
Hongyu Zhao, ph.d., Ira V. Hiscock Associate Professor of Public Health (Biostatistics) and Genetics.  
Haoyi Zheng, m.d., ph.d., Associate Research Scientist in Medicine (Cardiology).  
Lian Zheng, m.d., ph.d., Lecturer in Immunobiology.  
Liangbiao Zheng, ph.d., Associate Professor of Epidemiology.  
Tongzhang Zheng, d.sc., Associate Professor of Epidemiology (Environmental Health).  
Wenxin Zheng, m.d., Associate Professor of Pathology.  
Yuehan Zhou, m.d., Associate Research Scientist in Cellular and Molecular Physiology.  
Yufeng Zhou, ph.d., Assistant Professor of Cellular and Molecular Physiology.  
Qingbing Zhu, m.d., Assistant Professor of Anesthesiology.  
Yong Zhu, ph.d., Assistant Professor of Epidemiology (Environmental Health).  
Yong-Lian Zhu, m.d., Associate Research Scientist in Pharmacology.  
Edward F. Zigler, ph.d., Sterling Professor Emeritus of Psychology and Sterling Professor in the Child Study Center.  
Erio Ziglio, ph.d., Lecturer in Public Health (Global Health).  
Lynne D. Zimmerman, ph.d., Assistant Clinical Professor in the Child Study Center.  
Susan E. Zimmerman, m.s.w., Assistant Clinical Professor of Psychiatry (Social Work).  
Zoran Zimolo, m.d., ph.d., Assistant Professor of Psychiatry.  
Jonathan R. Zirn, m.d., Assistant Clinical Professor of Dermatology.

Wayne Zito, psy.d., Associate Research Scientist in Psychiatry.

Ada Zohar, ph.d., Research Affiliate in the Child Study Center.

Howard V. Zonana, m.d., Professor of Psychiatry.

Tony Zreik, m.d., Assistant Clinical Professor of Obstetrics, Gynecology, and Reproductive Sciences.

I. George Zubal, ph.d., Associate Professor of Diagnostic Radiology.

Bella Zubkov, m.d., Clinical Instructor in Dermatology.

Bernard D. Zuckerman, m.d., Assistant Clinical Professor of Ophthalmology and Visual Science.

Kaye Zuckerman, m.d., Assistant Clinical Professor of Surgery (Gastroenterology).

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 (Y-NHH).

The combined facilities of the School of Medicine, the School of Nursing, the Connecticut Mental Health Center, and Y-NHH constitute the Yale-New Haven Medical Center.

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, School of Nursing, Yale-New Haven Hospital (Y-NHH), 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 granite 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 Y-NHH patient-care facilities, including the Hunter Building. The Children's Hospital at Yale-New Haven is connected to two other hospital pavilions by a four-story atrium. The Nathan Smith Building contains offices and laboratories of the 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, including the Children's Hospital at Yale-New Haven, is a 944-bed facility with 92 bassinets. School of Medicine faculty are attending physicians at Y-NHH, the School's primary teaching hospital. All medical and surgical specialties are represented at the hospital, which discharged 43,516 inpatients in the year ending September 30, 2002. During that period, ambulatory services treated 359,473 outpatients and emergency services had 91,259 visits. The hospital also houses the clinical component of the Yale Cancer Center, a joint program of Y-NHH and the School of Medicine.

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

Y-NHH is the flagship hospital of the Yale New Haven Health System, an integrated delivery system that includes the Southern Connecticut Health System, the parent corporation of Bridgeport Hospital, and Greenwich Health Care, the parent corporation of Greenwich Hospital. Yale New Haven Health System also has relationships for managed care with the Westerly Hospital and Norwalk Hospital. The Yale New Haven Health System, the state's largest, is among the fifty largest health systems in the nation.

The Laboratory of Epidemiology and Public Health is the School's other major teaching facility. The nine-story building at 60 College Street contains classrooms, laboratories, and an auditorium. It also is the site of two World Health Organization collaborating centers, one focusing on arbovirus research and the other on health promotion policy and research. The building at 47 College Street houses the Epidemiology and 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, Ophthalmology and Visual Science, Anesthesiology, and Diagnostic Radiology. The Boardman Building houses the Yale Eye Center and offices for the departments of Surgery and Ophthalmology and Visual Science. Farnam Memorial Building and the Laboratory of Surgery, Obstetrics and Gynecology 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 Y-NHH Clinic Building connects Farnam with the Laboratory for Medicine and Pediatrics (LMP). Adjacent to the Clinic Building are Tompkins Memorial Pavilion and Fitkin Memorial Pavilion, 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 is Fitkin Amphitheater, the LMP, and the Lippard Laboratory for Clinical Investigation, where clinical research is conducted in the departments of Dermatology, Internal Medicine, Neurology, Pediatrics, and Therapeutic Radiology.

Offices of the Department of Psychiatry are located in the Grace Building, 25 Park Street. Many of this department's teaching, research, and patient-care activities are conducted at the Connecticut Mental Health Center, the Yale Psychiatric Institute, and the Yale Psychiatric Hospitals.

The Yale Physicians Building, 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.

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.

The Boyer Center for Molecular Medicine, at the intersection of Congress Avenue and College Street, houses multidisciplinary programs in molecular genetics, molecular and developmental neurobiology, molecular oncology and development, and molecular cardiobiology for Yale and Howard Hughes Medical Institute scientists.

The Anlyan Center for Medical Research and Education, formerly known as the Congress Avenue Building, 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 will provide 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.

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 and the Yale/VA Positron Emission Tomography Center, an advanced imaging facility.

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## Harvey Cushing / John Hay Whitney Medical Library

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Regina Kenny Marone, m.l.s., Director	SHM L110
Mary Angelotti, m.l.s., m.s., Information Access and Delivery Services	SHM L111
Toby A. Appel, m.l.s., ph.d., Historical Librarian	SHM L118
Paula Ball, m.l.s., Head Catalog Librarian	SHM L11
Richard Bean, Evening Circulation Supervisor	SHM L104
Cynthia Crooker, m.l.s., Head, Technical Services, and Coordinator of Collection Development	SHM L15A
Daniel Dollar, m.l.s., Digital Resources Librarian	SHM L15
John Gallagher, b.s., Head, Information Access and Delivery Services	SHM L104
Mark Gentry, m.l.s., Clinical Support Librarian	SHM L113B
Jan Glover, m.l.s., Education Services and Reference Librarian	SHM L107
Charles Greenberg, m.l.s., m.ed., Head, Reference Services	SHM L105
Holly Grossetta-Nardini, m.l.s., Coordinator of Liaison Activities	SHM L107
Lynn Sette, m.l.s., Reference Librarian	SHM L107
Judy Spak, m.l.s., Curriculum Support and Reference Librarian	SHM L107
Matthew Wilcox, m.l.s., Epidemiology and Public Health Librarian	47 College
Robin Williams, Business Manager	SHM L110
Richard Zwies, m.l.s., Web Services Librarian	SHM L15
To be announced, Nursing Reference Librarian	SHM L107

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 educational 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 4,400 electronic journals and nearly 1,500 electronic books, as well as an extensive collection of medical education software.

The Medical Library is a dynamic and busy place; this year the Computer Resource Laboratory (CRL) was newly renovated and the study area on the lower level has new furniture. The library continues to be committed to providing students with a supportive place for study and learning.

The Medical Library has computing clusters in the Information Room and the 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 networking

access points are available in the Medical Library. The library also lends wireless cards for personal laptops for use in the library.

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. 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 literacy skills by providing medical students a solid foundation throughout their four years of medical school.

First-year students have an extensive orientation and tour, and are introduced to the Personal Librarian Program. 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, and prints, 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 most extensive 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 infor-



mation in electronic format on biostatistics, epidemiology, health policy and administration, environmental health, and global health.

The Nursing Library is part of the Medical Library. The print resources of the Nursing Library are divided between the Reference Room in the Yale School of Nursing and the Medical Library.

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 extending 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.), Master of Public Health (M.P.H.), or Doctor of Public Health (Dr.P.H.). The School of Medicine, jointly with the Graduate School, administers a combined program leading to the degrees of Doctor of Medicine (M.D.) and Doctor of Philosophy (Ph.D.). In addition, 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 moti-

vated 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 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 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. 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 \$75 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. The applicant is on leave from his/her medical school and is enrolled in a doctoral degree program at Yale University, and completion of medical studies at the Yale School of Medicine would enable the applicant to achieve important and unique educational objectives that are not available 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 educational objective of the School of Medicine is 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 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.

## 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, 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.

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 will remain with the chair of the department and/or the designated director of the course. 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, p. 124).

## Curriculum Management

### the educational policy and curriculum committee (epcc)

The Board of Permanent Officers, composed of the tenured faculty of the School, had delegated during the 1960s the governance of educational matters to the Medical School Council. The tenured faculty has accepted direct responsibility for the curriculum. Currently, a single body, the Educational Policy and Curriculum Committee, holds a broad mandate to change, integrate, or manage the curriculum, as appropriate to adapt to emerging needs.

The chair of the EPCC is the deputy dean for education, who oversees the activities of the EPCC, its subcommittees, and the Office of Education, and is responsible for

implementation of new curricular policies that have been approved by the Board of Permanent Officers.

The EPCC consists of three chairs of departments, five faculty elected by their peers, eight students (two from each class year), and ex officio members: the associate dean for student affairs, the chair of the Medical School Council, the director of the M.D./Ph.D. Program, the director of the Office of Student Research, the associate dean for admissions, the associate dean for administration, and an elected representative of the Yale Medical School Alumni. The chair of the EPCC reports during each academic year before the Board of Permanent Officers and the Medical School Council. The chair also makes presentations throughout the year to the Friday meetings of the collegium of departmental chairs as well as meets weekly with the associate dean for student affairs.

In addition to responsibility for the curriculum, the EPCC is further charged with addressing the status of teaching at the School of Medicine, the evaluation and rewarding of the teaching process, the advisory relationships between teachers and students, and the general philosophy of the educational system. The EPCC has the authority to arbitrate final proposals. The chair of the EPCC is an ex officio member of all subcommittees.

## management of educational mission

Reporting to the EPCC are three subcommittees charged with conducting an ongoing review of the content and success of the educational program: curriculum, assessment (pre-clinical), and assessment (clinical).

The mission of the curriculum subcommittee is to establish goals and learning objectives of the educational program. It does so by reviewing and modifying school-wide objectives; reviewing learning objectives of courses and clerkships; requesting and reviewing curricular goals of new proposals; anticipating needed modifications of the educational program; and monitoring LCME standards and AAMC initiatives. The curriculum subcommittee is composed of faculty and students representing the entire four-year curriculum, thus ensuring a vertical overview.

The mission of the assessment subcommittees (both pre-clinical and clinical) is to determine if the goals and learning objectives of the education program have been met. They do so by discussing assessment plans of new proposals; reviewing results of students' assessments of the educational program; reviewing the effectiveness and results of assessments of students' mastery of knowledge, skills, and attitudes; interviewing course, clerkship, and elective directors, and students; and reviewing course and clerkship materials.

## the thesis committee

The Thesis Committee is charged with the oversight of the M.D. thesis requirement, the selection of thesis prizes, and policy concerning the thesis and all aspects of independent research performed by medical students. The chair of the Thesis Committee is also appointed by the chair of the EPCC.



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## 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 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 Clerkship introduces students to the principles and skills of medical interviewing and physical examination. In addition to didactic sessions, this course provides weekly opportunities for students to see patients and to meet in small groups with a Clinical Tutor (throughout the first two years). Further understanding of the patient is achieved in Aspects of Child and Adolescent Development, 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 Clinical Epidemiology and Biostatistics 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, Pharmacology, and Epidemiology and Public Health. 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. Complete self-assessment exercises in second-year modules.
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

### usmle

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. 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 current Step II exam is now called Step II Clinical Knowledge (Step II CK). Step II CK is taken after completion of the clinical clerkships and must be taken by December 31 of the final year. Step II CK costs \$435. A clinical skills exam will become part of the USMLE in mid-2004, starting with students who graduate 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. Utilizing standardized patients, this exam will be administered at regionally located centers operating year-round. Test sites include Philadelphia, Atlanta, Los Angeles, Chicago, and Houston. Step II CS costs \$975.

The Office of Student Affairs holds an informational session in February. Applications may be downloaded from the USMLE Web site, or you may apply for the USMLE online at the NBME (National Board of Medical Examiners) Interactive Website for Applicants and Examinees ([https://external1.nbme.org/ciwc/java/candidate\\_menu](https://external1.nbme.org/ciwc/java/candidate_menu)). CD-ROMs containing test simulations are available throughout the year in the Office of Student Affairs. Students should return their completed applications for Step I and Step II to the Office of Student Affairs, which will certify and mail them directly to the NBME for processing. The application form for each exam must be accompanied by one passport photo and a check made out to the NBME for \$435. The student must also indicate one of the three-month periods during which he or she wishes to sit for the exam. Within six weeks, the student will receive an identification card with a student identification number. The student can then call any Prometric test site in the world to schedule a specific test day.

All Yale medical students are required to pass Steps I and II in order to graduate. 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 terminated from the School of Medicine.

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.

## clinical clerkships

The third year is devoted almost entirely to clinical clerkships. The required clinical clerkships that must be taken in the third year are:

Internal Medicine	8 weeks
Ambulatory Medicine	4 weeks
Surgery	6 weeks
Anesthesiology	2 weeks
Pediatrics	8 weeks
Clinical Neuroscience	4 weeks
Obstetrics and Gynecology (Inpatient)	4 weeks
Psychiatry (Inpatient)	4 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.

## The Fourth Year

Required clerkships that may be taken in the fourth year are:

Combined Outpatient Ob/Gyn and Psychiatry	4 weeks
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.

## Course Schedules

### first year

Aspects of Child and Adolescent Development in the Practice of Medicine  
Biological Basis of Behavior  
Cell Biology and Histology (component of Molecules to Systems Integrated Curriculum)  
Clinical Epidemiology and Biostatistics  
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)  
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: Basic Principles

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

## third year

## Internal Medicine

Inpatient 8 weeks

Ambulatory 4 weeks

Surgery 6 weeks

Anesthesiology 2 weeks

## Pediatrics

Inpatient 4 weeks

Ambulatory 4 weeks

Clinical Neuroscience 4 weeks

Obstetrics, Gynecology, and Reproductive  
Sciences (Inpatient) 4 weeks

Psychiatry (Inpatient) 4 weeks

† Combined Outpatient Ob/Gyn and Psychiatry 4 weeks

## fourth year

Primary Care 4 weeks

Integrative Clinical Medicine 3 weeks

Electives

Research

Thesis

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

† Clerkship may be taken in fourth year.

## 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), and there are many one-year research fellowships available. Conduct of the research is continued during free periods in the third and fourth year and often over summer vacations. A significant percentage of students elect to take an additional year of medical school to pursue their research project in greater depth, but this is not a requirement. 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.

## Required National Examinations

For the past several decades it has been a requirement of Yale School of Medicine that all students pass the Step I and Step II examinations of the United States Medical Licensing Examination. No student will be allowed to postpone Step I beyond three years from matriculation except in extraordinary circumstances. Students are granted three attempts to pass.

Students take Step I of the USMLE by the end of December of the third year, but they are strongly encouraged to take it before starting their clinical clerkships in June. Students are given up to nine weeks after the end of classes to study for Step I. The purpose of Step I is to determine if an examinee understands and can apply important concepts of the basic biomedical sciences, with a special emphasis on principles and mechanisms underlying health, disease, and modes of therapy. If a student fails Step I, he or she must take it again by the end of the academic year, but there is no requirement to stop clinical work unless the exam is failed twice in succession.

Step II is generally taken after completion of the third year; however, it must be taken by December 31 of the final year. Successful completion of Step II, like Step I, is a requirement for graduation. Students who fail Step II will have time to retake it before graduation. (See USMLE, pp. 120–21, for details on the two components of Step II.)

**Each student is required to show proof of sitting for Step II of the boards by December 31 of his/her fourth year, or that student's dean's letter will be held.** In the case of a student who has shown evidence of intention to sit for the boards by that date, but who subsequently fails to do so, all residency programs to which that student

applies may be notified that there is a danger the student may not pass the boards in time to graduate.

A student who has not passed the USMLE exam, or who has failed to complete any requirement for graduation, will be placed on “In Absentia to Submit” (IAS) status at the end of the academic year. Students in this status are not charged tuition and are not eligible for University services or loan deferments. There is no health insurance, disability insurance, or other amenity that would otherwise be offered to a full-time student in good standing. Student names are kept in the system so that when they register for the USMLE again, the School can act as the sponsoring agent. Students on IAS will be granted an additional five attempts to pass Step II within a three-year period from the first failure date. After the three-year period, if the student has not successfully passed Step II, he or she will be dismissed from the School of Medicine. It is the student’s responsibility to maintain yearly contact with the Office of Student Affairs and to find out about registration deadlines.

If a student cannot graduate because of failure in Step II, residency programs will be contacted by the associate dean and the student may or may not be able to begin the residency under the status of a “sub-intern.” This is totally up to the residency program director’s discretion.

It is a policy of the USMLE that once a student has obtained a passing total test grade, he or she may not repeat the examination in order to obtain a higher score. Students may take Step II any time after passing Step I.

Step III is taken after the M.D. degree has been received and the Step III requirements set by the medical licensing authority to which you are applying have been met.

The USMLE program states that medical licensing authorities require completion of USMLE Steps I, II, and III within a seven-year period. This seven-year period begins after passing the first step. However, in some cases, combined-degree students may remain a student longer than seven years. Such individuals must petition for an extension.

## combined degree programs

### Combined M.D./Ph.D. Degree

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 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 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.

All applicants selected for admission will 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. In order to be considered for MSTP support, candidates must be U.S. citizens or permanent residents. 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. degree

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.

### Combined M.D./M.Div. Degree

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. Students 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. (Please see "Financial Aid.")

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. degree.

### Combined M.D./J.D. Degree

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 determine whether 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. (Please see “Financial Aid.”) 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 joint-degree program.

### Combined M.D./M.B.A. Degree

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 at both schools.

## 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.) degree through the Graduate School.

### Master of Public Health Program

The M.P.H. program is a two-year, twenty-course program of study. For students with health-related doctoral degrees or those in joint programs with other Yale schools, the program is fifteen courses.

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, and Health Policy Administration/Health Policy Management.

The EPH core curriculum consists of a one-year sequence in statistical thinking and four other term courses, an internship, and a thesis. 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 Policy Management divisions, where the thesis is optional.

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 are usually spent in residence.

Applications for the M.P.H. program are available from the Office of Admissions, Department of Epidemiology and Public Health, Yale University School of Medicine, PO Box 208034, New Haven CT 06520-8034, or online at <http://publichealth.yale.edu/>. Completed applications should be submitted no later than March 1 of the calendar year for which admission is sought.

EPH requires the submission of official undergraduate and graduate transcripts, GRE scores, letters of recommendation, and a personal statement as part of the application for admission. The GMAT or MCAT may be substituted in lieu of the GRE.

### Combined M.D./M.P.H. Degree

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 joint-degree program are available at the EPH Office of Admissions or online at <http://publichealth.yale.edu/> and should be filed by March 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.

### Doctoral Program

The degree of Doctor of Philosophy (Ph.D.) is offered through the Graduate School of Arts and Sciences. Preliminary inquiries should be addressed to the Director of Graduate Studies, PO Box 208034, New Haven CT 06520-8034. 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. 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.

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.

## 2004–2005 EPH Calendar

### fall term 2004

Aug. 26	Thur.	Orientation for incoming students begins, 9 a.m.
Aug. 27	Fri.	Orientation ends.
Aug. 30	Mon.	Registration for incoming and returning students begins, 8.30 a.m. Fall-term classes begin.
Sept. 6	Mon.	Labor Day; no classes.
Sept. 7	Tues.	Course registration deadline (late fee: \$25).
Oct. 15	Fri.	Final date for course withdrawal.
Nov. 23	Tues.	Thanksgiving recess begins, 6 p.m.
Nov. 29	Mon.	Thanksgiving recess ends, 8.30 a.m.
Dec. 6–10	Mon.–Fri.	Reading period.
Dec. 13–17	Mon.–Fri.	Final examination week.

### spring term 2004

Jan. 10	Mon.	Registration begins, 8.30 a.m. Spring-term classes begin.
Jan. 17	Mon.	Martin Luther King Day; no classes.
Jan. 18	Tues.	Course registration deadline (late fee: \$25).
Mar. 4	Fri.	Final date for course withdrawal. Spring recess begins, 6 p.m.
Mar. 21	Mon.	Spring recess ends, 8.30 a.m.
Apr. 25–29	Mon.–Fri.	Reading period.
May 2–6	Mon.–Fri.	Final examination week.
May 23	Mon.	University Commencement.

## 2003–2004 eph grading calendar

Dec. 23	Thur.	Fall-term grades for all students due in the registrar's office.
May 2	Mon.	Thesis grades due.
May 13	Fri.	Grades for all graduating students due in the registrar's office.
May 26	Thur.	Grades for all continuing students due in the registrar's office.

## 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-five-month Yale program, established in 1971, is committed to educating students for generalist medical practice. As of September 2004, the Yale Physician Associate Program has graduated 788 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 perform a physical examination; diagnose illness and formulate patient treatment plans; counsel patients; perform medical procedures; and assist in surgery.

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

The program is divided into a didactic phase of ten months and a clinical phase of fifteen months. The rigor of the studies precludes student employment. As a result, applicants should be fully prepared to finance their education through other means. Tuition for the 2004–2005 academic year is \$25,000; 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 ten months are devoted to course work in basic and clinical sciences. Courses are listed below.

Anatomy (lecture and laboratory)	Introduction to Surgical Skills
Clinical Laboratory Medicine (Hematology, Urinalysis, Chemistries)	Medical Ethics
Clinical Practicum	Medicine and Surgery
Clinical Psychiatry	Medicine and the Law
Diagnostic Imaging	Microbiology
Emergency Medicine	Pathology
History-Taking and Physical Examination	Pharmacotherapeutics
Human Sexuality	Physician Associate Profession
	Physiology
	Preventive Medicine
	Introduction to Research

The Clinical Phase. Each student completes one eight-week rotation and thirteen four-week rotations, in a variety of medical specialties, in order to acquire broad experiences in primary, emergency, and surgical care. Nine rotations are mandatory: Internal Medicine I, Internal Medicine II, General Surgery, Family/General Medicine (eight weeks), Psychiatry, Pediatrics, Obstetrics and Gynecology, Geriatrics, and Emergency Medicine. The remaining four rotations are 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 eight 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.

In order to graduate from the program, a student must successfully complete all rotations, a series of standardized patient exercises, and a thesis in clinical medicine.

### mandatory rotations

Emergency Medicine	Internal Medicine II
Family/General Medicine	Obstetrics and Gynecology
General Surgery	Pediatrics
Geriatrics	Psychiatry
Internal Medicine I	

### elective rotations

Ambulatory Medicine	Neonatology
Anesthesiology	Neurology
Cardiology	Neurosurgery
Cardiothoracic Surgery	Ophthalmology
Diagnostic Imaging	Orthopaedics
Endocrinology	Otolaryngology
Hematology/Oncology	Pediatric Cardiology
Hospice	Plastic Surgery
Industrial and Occupational Medicine	Rehabilitative Medicine
Infectious Disease	Sports Medicine
	Trauma

### 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 anatomy, physiology, microbiology, introductory chemistry, psychology, and biochemistry or organic chemistry are prerequisites. 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 two or more years

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, awareness of the physician assistant role, 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 2006 is November 1, 2005. Program information, in lieu of a printed catalogue, may be accessed on our Web site. 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)	\$35,490
Yale Health Plan Hospitalization coverage	\$1,272*
Examination fees for candidates for the M.D. degree, United States Medical Licensing Examination:†	
Step I	\$435‡
Step II—Clinical Knowledge	\$435‡
Step II—Clinical Skills	\$975‡

Bills for tuition, room, and board are mailed to the student at the beginning of each term. The regulations of the University require that the term bill must be either paid in full or satisfied by special arrangements accepted by the Office of Student Financial Services prior to the due date specified on the bill. The Office of Student Financial Services will impose a late charge if any part of the term bill is not paid when due. The Office of Student Financial Services will also notify the dean as to the delinquency and request the appropriate disciplinary action.

Charge for returned checks: A processing charge of \$20 is assessed for checks returned for any reason by the bank. In addition, the following penalties may apply due to a returned check:

- (a) If the check was in payment of a term bill, a \$110 late fee is charged for the period that the bill was unpaid.
- (b) If the check was in payment of a term bill to permit registration, the student's registration may be revoked.
- (c) If the check was given in payment of an unpaid balance in order to receive a diploma, the University may refer the account to an attorney for collection.

Bills for miscellaneous charges such as Dining Hall board extras and on-campus telephone are mailed to the student on the fifteenth of each month.

No degree will be conferred and no transcript will be furnished until all bills due the University are paid in full.

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.‡

\* Includes prescription coverage of \$348 (fall term, \$145; spring term, \$203).

† Effective September 1, 2004, to September 1, 2005.

‡ The student is responsible for his or her own health insurance at a cost of \$3,114 for a single student (fall term, \$1,310; spring term, \$1,804).



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.<sup>‡</sup>

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 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 \$52,750, 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.

Upon admission each medical student is required to have a microscope for unrestricted personal use. Nikon student microscopes are available for rental from the University at a charge of \$75 for the academic year. The charge is added to the student's Office of Student Financial Services bill. First-year students may also 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 \$300 Activity Fee. If a student is enrolled beyond the fourth year, a \$150 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.

<sup>‡</sup> The student is responsible for his or her own health insurance at a cost of \$3,114 for a single student (fall term, \$1,310; spring term, \$1,804).

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## 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 Guaranteed Student Loan (GSL). 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 2004–2005, 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 \$38,500 through the Stafford (Subsidized and Unsubsidized) Loan program. They will also receive up to \$6,000 in Perkins loans. 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

Due to changes in federal regulations governing the return of federal student aid (Title IV) funds for withdrawn students, the tuition rebate and refund policy has changed from that of recent years. The following rules became effective on July 1, 2000.

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 2004–2005, the last days for refunding federal student aid funds will be November 5 (Years 1 and 2) or October 20 (Years 3 and 4) in the fall term; and April 15 (Year 1), May 22 (Year 2), May 16 (Year 3), or March 26 (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 2004–2005, September 16 (Years 1 and 2) or August 26 (Years 3 and 4) in the fall term; and January 24 (Year 1), January 30 (Year 2), January 24 (Year 3), or January 16 (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 2004–2005, October 1 (Years 1 and 2) or September 12 (Years 3 and 4) in the fall term; and February 14 (Year 1), March 2 (Year 2), February 27 (Year 3), or February 6 (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 2004–2005, October 26 (Years 1 and 2) or October 9 (Years 3 and 4) in the fall term; and April 1 (Year 1), May 2 (Year 2), April 24 (Year 3), or March 12 (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 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.

**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 Sanfurd 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.

**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.

**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 Ettore Ciampolini Medical Scholarship Fund.** Established in 1968 by bequest from the Estate of Helen A. Ciampolini in memory of her late husband, Ettore

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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 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.

**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 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.

**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 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.



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**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 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*.

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**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.

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

**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 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. Wiefert and Lucille Reed Wiefert Scholarship Fund.** Established in 1974 by a gift from an anonymous donor in honor of William M. Wiefert, B.A. 1933, M.D. 1937, and Lucille Reed Wiefert, 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.

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

**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 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.

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## 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 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 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. Lavietes, M.D., Summer Research Fellowship Fund.** Established in 1991 in honor of Paul H. Lavietes, 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



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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 post-doctoral fellows in diagnostic radiology.

**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 Pelagja V. Danowski Sellers. To support medical students in a fifth year of research investigations in the areas of diabetes, stroke, and heart disease.

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## Honors and Prizes

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### commencement awards, may 2004

**Cum Laude.** The degree of Doctor of Medicine cum laude will be conferred on students whose academic performance shows unusual merit. Elizabeth Kagen Arleo, Victoria Lee Bruegel Sanchez, William Reece Burns III, Keith Adam Choate, Virginia Grace James Cohen, Ugonna Ada Duru, Paul Saad El-Fishawy, Spencer J. Epps, Amir Tahmasb Fathi, Severine Chavel Greenspan, Eric Albert Gustafson, Cinthia Guzman, Timothy Jensen Henrich, Christopher Norris Herndon, Emily McHam Lambert, Alfred Ian Lee, Suneil R. Ramchandani, Reena Neela Rupani, Harsimran Sachdeva Singh, Parsia A. Vagefi.

**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. Rina Reyes-Garcia.

**Alpha Omega Alpha.** Recognizes students for their scholastic excellence, integrity, capacity for leadership, compassion, and fairness in dealing with colleagues. Jennifer Melissa Blair, Allyson Kelly Bloom, Renee Danielle Boynton-Jarrett, Keith Adam Choate, Oscar Rene Colegio, Katharine R. Fast, Darlene Gabeau-Lacet, Rupali Gandhi, Eric Albert Gustafson, Cinthia Guzman, Karl Haglund, Timothy Jensen Henrich, Grace Mariko Kalish, Melissa Louise Kirkwood, Emily McHam Lambert, Kavita Mariwalla, Dena Judith Springer, Rachel Willner Thompson, Parsia A. Vagefi, Erica T. Wang.

**The Norma Bailey Berniker Prize.** Established in 1970 by bequest of John H. Bailey, B.A. 1900, M.D. 1903. To be awarded to that member of the graduating class who, in the judgment of the faculty, gives promise of best exemplifying the disciplines and precepts of the Oath of Hippocrates and Maimonides' Prayer. Ashraf Thabet, Jane Alison Schneider.

**The Campbell Prize.** Founded in 1900 by bequest from James Campbell, honorary M.A. 1891, Professor of Obstetrics and Gynecology from 1886 to 1899. Awarded to the graduating students who secure the highest rank on Step II of the National Board examinations. Allyson Kelly Bloom, Virginia Grace James Cohen, Adam MacKay Pearson.

**Connecticut Academy of Family Physicians Award.** Established in 1994 to recognize an outstanding student entering a career in Family Practice. Pramita Elshiba Kuruvilla, Ada-Nkem Angela Nwaneri.

**Connecticut Chapter of American College of Surgeons Prize.** Awarded to a graduating student for excellence in the surgical sciences. Parsia A. Vagefi.

**Connecticut Society of American Board of Obstetricians and Gynecologists Prize.** Awarded annually to a graduating student for outstanding achievement in the field of obstetrics and gynecology. Not awarded in 2004.

**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, underrepresented, minority student in medicine and/or in public health who has demonstrated outstanding academic achievement, exemplary leadership, and a significant commitment to the community at large. Rina Reyes-Garcia.

**The Miriam Kathleen Dasey Award.** Established in 1950 in honor of Miriam Kathleen Dasey, Registrar from 1921 to 1950. To be presented annually to that student who by strength of character, personal integrity, and academic achievement gives promise of fulfilling the ideal of the compassionate physician. Alfred Ian Lee, Emily McHam Lambert.

**The Dean's Prize for Community Service.** This annual award recognizes the graduating student(s) who, by leadership and service, made major contributions to the School of Medicine, to the New Haven community, or to the community at large. Ryan Sykes Jean-Baptiste, Melissa Louise Kirkwood.

**Department of Surgery Awards of Distinction.** Awarded for outstanding clinical performance and for outstanding research. Clinical performance—Parsia A. Vagefi. Research—Jenny Huiju Yiee.

**Endocrinology Society Medical Student Achievement Award.** Established in 1997 to recognize a graduating senior who has shown special achievement and interest in the general field of endocrinology. Rina Reyes-Garcia.

**Janet M. Glasgow Memorial Achievement Citations.** Awarded to the outstanding women in the Class of 2004. Jennifer Melissa Blair, Renee Danielle Boynton-Jarrett, Shannelle A. Campbell, Katharine Fast, Tamiesha Afrakoma Frempong, Darlene Gabeau-Lacet, Emily McHam Lambert, Liana Kretschmar McCabe, Laura Nneka Mobisson, Jessica Clark Newman, Ada-Nkem Angela Nwaneri, Rina Reyes-Garcia, Jane Alison Schneider, Erica T. Wang, Ilene Yi-Zhen Wong.

**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. Byron Sandor Kennedy.

**The Norman Herzig International Fellowship.** Named in honor of Dr. Norman Herzig and awarded to a student who has shown continuing dedication to humanitarian service throughout his or her education. This fellowship provides funds for the student for an eight-week clinical rotation at a medical facility in the developing world. Sunil R. Ramchandani.

**The Marguerite Rush Lerner Award.** Established in 1981. To be given to a medical student for outstanding creative writing, either written or performed, not necessarily of a serious nature. Not awarded in 2004.

**M.D./Ph.D. Award.** Awarded to an outstanding graduating student in the combined M.D./Ph.D. Program. Alfred Ian Lee, Jacqueline May-Louise William.

**M.D./Ph.D. Alumni Award.** Awarded to a graduating M.D./Ph.D. student for outstanding academic achievements, leadership, and service. Oscar Rene Colegio.

**Merck Book Awards.** Awarded to three outstanding graduating students. Erik Daniel Weiss, Vernee Nicole Belcher, Kathryn Adamiak Davis.

**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." Paola Carolina Ayora.

**The Parker Prize.** Established in 1914 by bequest from Frank J. Parker, Ph.D. 1895, M.D. 1898. Awarded annually to the graduating student who, during the course, has shown the best qualifications for a successful physician, the faculty to be the judges. Renee Danielle Boynton-Jarrett.

**The Perkins Prize.** Awarded to the student who achieves the highest rank on Step I of the National Board examinations. Ashraf Thabet.

**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. Sean C. Lucan.

**The Society for Academic Emergency Medicine Award.** Awarded to the student who has demonstrated excellence in the specialty of emergency medicine. Chirag Dilip Shah.

**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. Timothy Jensen Henrich.

**Lauren Weinstein Award.** Established in 1992 in memory of Lauren Weinstein (Yale medical student 1988–89). Given to a graduate who displays courage, perseverance, and compassion and has dared to reach for the best in herself or himself. Bao Duong, Paul Saad El-Fishawy, Darlene Gabeau-Lacet.

**The Milton C. Winternitz Prize in Pathology.** Established in 1950 in honor of Milton Charles Winternitz, honorary M.A. 1917, Professor of Pathology and Bacteriology 1917 to 1925, Anthony N. Brady Professor of Pathology 1925 to 1950. Awarded to the student who, in his or her second year, in the opinion of the staff of the Department of Pathology, did outstanding work in the course. Not awarded in 2004.

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## thesis prizes, may 2004

**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 general area of cancer. Elizabeth Kagan Arleo, Paul Joseph Kim.

**Association for Academic Surgery—Novartis Research Award.** Awarded to the graduating medical student entering a surgical field who has done meritorious research during medical school. Byron Sandor Kennedy.

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

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

**The William U. Gardner Thesis Prize.** Established in 1989 by Dr. Gardner's widow and awarded to the graduating M.D. student with the most outstanding thesis in the class. Rina Reyes-Garcia.

**The Nicholas J. Giarman Prize.** Established in 1976. To be presented to a student for an outstanding thesis. Nicholas Giarman was Professor of Pharmacology at Yale, 1949 to 1968. Heather Nicole Shelsta.

**The International Health Prize.** Established in 1988 for the best thesis in the area of international health. Timothy Jensen Henrich.

**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. Michael Howard Bloch.

**Laboratory Medicine Award.** Established in 1988 for the best thesis in the area of transfusion or laboratory medicine. Sponsored by the Department of Laboratory Medicine. Rachel Willner Thompson.

**The Dr. Harold H. Lampport Biomedical Research Prize.** Established in 1976. To be presented to a student for an outstanding thesis reporting original biomedical research. Zachary David Goldberger.

**The Lidz Prize in Psychiatry.** Awarded to a graduating student for an outstanding thesis in the field of psychiatry. Not awarded in 2004.

**M.D./Ph.D. Thesis Prize.** Awarded to the graduating M.D./Ph.D. student with the most outstanding dissertation. Keith Adam Choate.

**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. Jennifer Melissa Blair.

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

**The Louis G. Welt Prize.** Established in 1976. To be presented to a student for an outstanding thesis in the area of renal physiology, nephrology, or medicine. Louis Welt was Professor of Medicine and Chairman of the Department of Internal Medicine at Yale, 1972 to 1974. Sarah Kohnstamm.

## student research day oral presentations, may 11, 2004

Michael Howard Bloch. Reduced Caudate Volume and Other Predictors of Future Tic and OCD Severity in Children with Tourette's Syndrome. (Child Study Center).

Keith Adam Choate. Function at the Tight Junction: Molecular Determinants of Paracellular Permeability. (Cell Biology).

Rina Reyes-Garcia. Impaired Mitochondrial Activity in Insulin-Resistant Offspring of Type 2 Diabetics. (Internal Medicine).

Timothy Jensen Henrich. Geographic Dynamics of Viral Encephalitis in Thailand. (Internal Medicine).

Sarah Kohnstamm. Cardiac Ion Channel Mutations Cause Sudden Infant Death Syndrome. (Pediatrics).

## awards to faculty and house staff, may 2004

**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. Barry J. Wu, M.D., Associate Clinical Professor of Medicine.

**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: Joseph Craft, M.D., Professor of Medicine and Immunobiology; Clinical Science: Auguste H. Fortin, M.D., Assistant Clinical Professor of 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 rep-

resents the highest degree of excellence in the promotion of humane and egalitarian medical education. Rajlakshmi Krishnamurthy, M.D., Assistant Professor of Medicine; Eve R. Colson, M.D., Assistant Professor of Pediatrics.

**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. James Perlotto, M.D., Associate Clinical Professor of Medicine.

**The Betsy Winters House Staff Award.** Established in 1972 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. Ashwin Balagopal, M.D., Instructor in Medicine.

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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, and staff. An educational and caring community functions best when there is civility and respect for the dignity and worth of each individual. These principles of respect and compassion are equally applicable to the patients who are served.

It must be ensured that the school is free from discrimination and acts of intolerance including but not limited to those based on race, gender, sexual orientation, religion, national origin, age, illness, physical handicap, or socioeconomic background. 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

There are at least six possible grievance procedures by which students enrolled in the School of Medicine may lodge a complaint against a member of the faculty or administration of the School of Medicine.

1. Sexual Harassment: The Dean's Board on Sexual Harassment exists to ensure that every student is able to pursue his or her education at Yale free of sexual harassment. The responsibility of the board is to address complaints of sexual harassment that students in the School of Medicine may bring that involve students, faculty, staff, and postdoctoral fellows. Board members are very willing to discuss with students any problem of sexual harassment or harassment on the basis of sexual orientation. The board will stress confidentiality, describe informal and formal methods of dealing with complaints, and note alternative channels of redress. A detailed description of the policy is available from the ombudsperson. In addition, a student may confidentially bring questions or concerns or seek informal advice from the ombudsperson at the School of Medicine.

2. General Student Grievance Procedure: This procedure governs any case in which a student has a complaint, including but not limited to a complaint of discrimination on the basis of race, sex, color, religion, national or ethnic origin, or handicap, against a



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member of the faculty or administration of the School of Medicine. The student should submit a letter to the associate dean for student affairs describing the complaint and the facts upon which it is based, specifying the issue in question and indicating what redress or resolution of the grievance is sought. The associate dean may appoint an investigator who will try to resolve the complaint informally or will supply relevant information to the Student Progress Committee or an ad hoc progress committee.

3. **Provost's Procedure for Student's 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 modification of university facilities is the remedy sought.

4. **Progress Committee:** The Progress Committee chaired by the associate dean for student affairs is made up of respected members of the medical school faculty. It meets regularly throughout the year to review the academic progress of each student through review of course evaluations, National Board scores, and academic performance as assessed by the faculty, and to decide whether or not each student should progress into the next year. The Progress Committee also reviews and assesses the moral and ethical character, emotional stability, and professional conduct of each student to determine whether or not a student should repeat a year, receive special care such as educational or psychiatric testing, take a year's leave of absence for special study, or be dismissed. It also determines the awarding of certain academic prizes and cum laude. Students who disagree with decisions of the Progress Committee may request a meeting with the committee and may be accompanied by legal counsel. A grievance that cannot be resolved through the usual processes may be brought to the dean of the School of Medicine.

5. **Peer Advocates:** For students who feel they may be the object of mistreatment, abuse, or harassment, there is a peer advocate program. Two students from the second-, third-, and fourth-year classes; one student from the M.D./Ph.D. Program; and one student from the Physician Associate Program are nominated by their peers and receive training from mental health professionals at the Yale Health Plan. Students may consult the peer advocates at any time for confidential advice and help with decisions regarding taking further action. In addition, peer advocates may access the support of the Peer Advocates Council, which includes the associate dean for student affairs, the associate dean for administration, faculty who are not involved in student evaluation, and all of the peer advocates.

6. **Office of the Ombudsperson:** see p. 167.

## residence and dining facilities

### Edward S. Harkness Dormitory and Apartments

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 Dormitory 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 \$4,200 to \$5,900 during the 2004–2005 academic year (August 2004 to May 2005). One-bedroom apartments with living room, kitchenette, and bathroom are available for singles or couples. The 2004–2005 apartment rate is \$6,700 per academic year for streetside apartments, and \$6,900 per academic year for courtyard apartments. All rents include Ethernet hook-up, cable television, and all utilities except telephone. Apartments are furnished with basic furniture, although many students supplement the existing furniture with their own.

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 this benefit, but all users are required to register for membership.

For information about Edward S. Harkness Memorial Hall, contact the Harkness housing office at 203.785.4686; or the Web site, <http://info.med.yale.edu/harkness>. For information about other Yale graduate residences, consult the Department of Graduate Housing's Web site at [www.yale.edu/hronline/gho](http://www.yale.edu/hronline/gho).

### 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 2004–2005 academic year is \$1,350 per term for dormitory residents. The meal plan is a debit-balance system allowing students to spend their board points any-time that the dining room is open. Pricing is à la carte. Apartment residents have no required meal plan, other than the off-campus dining plan requirement, which is explained below.

All first- and second-year medical students living off campus will be assessed a mandatory off-campus board fee of \$225 per term. 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/uhs](http://www.yale.edu/uhs).

### 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 enroll 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 enroll 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 Care 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

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.

For a detailed explanation of this plan, see the YHP Student Handbook.

**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.

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## yhp student two-person and family plans

A student may enroll his or her lawfully married spouse or same-sex 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 coverage for YHP Basic Coverage and for coverage under 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/uhs](http://www.yale.edu/uhs)) 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 coverage for YHP Basic and for the benefits offered under 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/uhs](http://www.yale.edu/uhs)) 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. Students who withdraw are not eligible to enroll in YHP Student Affiliate Coverage.

**Leaves of Absence:** Students who are granted leaves 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. 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/uhs](http://www.yale.edu/uhs)).

**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 coverage for YHP Basic and for the benefits offered under 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/uhs](http://www.yale.edu/uhs)). Students must complete an enrollment application for the plan prior to the start of the term.

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, 2000. 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, 2004. 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.

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.

## disability insurance

Yale University School of Medicine provides a long-term disability program for each active medical student beyond the second year of study. (A student may not be on a leave of absence.) 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.

## 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 operates an escort vehicle seven days a week. The hours of operation are 5 p.m. to 1 a.m. The escort vehicle departs from SHM and stops at Y-NHH, the University/Crown Apartment complex, LEPH, and Lot 47. After 1 a.m., the escort vehicle is available by calling 785.5555. In addition, the Security Department provides a walking escort twenty-four hours a day, seven days a week for the School of Medicine area and central campus.

There are approximately eighty 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. Each one of the security

officers completes a security training program that consists of subjects such as legal issues, fire protection, report writing, patrol techniques, communications, human relations, and several other topics. Prior to being assigned to a particular post, each security officer is given familiarization training for the Medical Center.

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. Six issues a year are published electronically under the editorial direction of a board of faculty members and students. 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 graduate departments of the biological 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. 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

The Medical Library has a Computer Resource Laboratory ([http://its.med.yale.edu/about\\_itsmed/academic\\_computing/crl](http://its.med.yale.edu/about_itsmed/academic_computing/crl)) on Lower Level I for general use, and a cluster of specially equipped computers in the reference area on the first floor for medical

education and scholarly information services. Both facilities contain Windows and Macintosh computers and printers. The CRL also has two flatbed scanners and a range of software including word processing, desktop publishing, statistical software (SAS), database management software, programming languages, and medical education software. 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.

Computer facilities at the Anlyan Center include five teaching laboratories, each equipped with nine iMac computers for both instructors and students. 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 Walk-In Help Desk 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. Each fall, spring, and summer, a student is asked to reregister in the Office of Student Affairs where he or she receives updated stickers for the ID card. 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 IE41, 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. If a card is lost, there is a \$5 replacement fee. Application for replacement may be made through the Office of Student Affairs.

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## 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

A calendar listing the broad range of events at the University is issued weekly during the academic year in the Yale Bulletin & Calendar. The hours when special exhibitions and the University's permanent collections are open to the public are also recorded in this publication. Free copies of the Yale Bulletin & Calendar are available at many locations throughout the campus, and the paper 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 contains representative collections of ancient, medieval, and Renaissance art, Near and Far Eastern art, archaeological material from the University's excavations, Pre-Columbian and African art, works of European and American masters from virtually every period, and a rich collection of modern art. The landmark Louis I. Kahn building is closed for a two-year renovation. The hub of the museum's activities during this period will be the adjacent Swartwout building, housing Yale's world-renowned collections of American paintings, sculpture, and decorative arts, as well as a selection of masterworks from all other departments.

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, Great Organ Music at Yale, New Music New Haven, Yale Opera performances and public master classes, and the Faculty Artist Series. Among New Haven's numerous performing organizations are Orchestra New England, the New Haven Chorale, and the New Haven Symphony Orchestra.

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 Church of Christ in Yale University, an open and affirming member congregation of the United Church of Christ; 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 religious groups such as the Baha'i Association, the New Haven Zen Center, the Yale Vedanta Society and Yale Hindu Council, and the Muslim Student Association. Additional information is available at [www.yale.edu/chaplain](http://www.yale.edu/chaplain).

Established in 1949, the International Center of New Haven is a nonprofit community-based organization. The Center's programs are based on the idea that both the international community in Greater New Haven and the local community can benefit from each other. The Center is located at 442 Temple Street, and the office is open from 9 a.m. to 4.30 p.m., Monday through Friday. The work of the International Center is carried out by a small professional staff and by many volunteers in the community. The Center organizes lectures and special events, as well as offering English as a Second Language (ESL) classes, in addition to a number of programs including the International Community Friendship Program, 'Round The World Women, and the International Classroom Project. The International House, a large Tudor mansion located at 406 Prospect Street in New Haven, is the venue of most of the International Center's activities and the home of fifteen students and scholars. Rooms are available for the academic year and summer. For more information on any of these programs, or on the International House, telephone 203.432.6460, fax 203.432.6462, e-mail [info@icnh.org](mailto:info@icnh.org), or visit the Web site at [www.icnh.org](http://www.icnh.org).

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. Kiphuth 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, martial arts, aerobic exercise, and sport skills are offered throughout the year. Graduate and professional school students may use the gym at no charge during the academic year and for a nominal fee during the summer term. Academic and summer memberships at reasonable fees are available for faculty, employees, postdoctoral and visiting fellows, and student spouses.

The David S. Ingalls Rink, the Sailing Center in Branford, the Outdoor Education Center (OEC), the tennis courts, and the golf course are open to faculty, students, and employees of the University at established fees. Ingalls Rink has public skating Monday through Thursday from 11.30 a.m. to 12.45 p.m. and on weekends as the training schedule permits. Up-to-date information on hours is available at 203.432.0875. Skate sharpening is available daily; however, skate rentals are not available.

Approximately thirty-five club sports and outdoor activities come under the jurisdiction of the Office of Outdoor Education and Club Sports. Many of the activities, both purely recreational and instructional, are open to graduate and professional school students. Faculty, staff, and alumni, as well as groups, may use the Outdoor Education Center (OEC). The center consists of two thousand acres in East Lyme, Connecticut, and includes cabins, campsites, pavilion, dining hall, swimming, boating, canoeing, and picnic groves beside a mile-long lake. 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 celebrating the Yale Tercentennial in 2001, President Richard C. Levin gave special weight to “Yale’s intention to become a truly global institution” by building on existing relationships and international activity. Since that time, the University has made great strides to intensify and broaden its efforts in the international arena. Exchanges of students, faculty, researchers, and fellows have grown significantly. Programs of study and research across the University increasingly incorporate international subject matter. To enhance all its initiatives in this direction, the administration has created a number of organizations and other specialized resources.

The most recently established organizational unit, inaugurated in 2003–2004, is the Office of International Affairs, which 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 Office of International Affairs joins a range of other institutional resources, including:

Yale Center for International and Area Studies (YCIAS), the University's principal agency for encouraging and coordinating teaching and research on international affairs, societies, and cultures; [www.yale.edu/ycias](http://www.yale.edu/ycias).

Yale Center for the Study of Globalization, which 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, which hosts twelve to eighteen Fellows from outside the U.S. 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: "Yale and the World" is a compilation, on the Yale Web site, 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. OISS issues the visa documents needed to request entry into the United States under Yale's immigration sponsorship and processes requests for extensions of authorized periods of stay in the United States, 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 monthly international coffee hours, daily English conversation programs, and orientation receptions for newly arrived graduate students and postdocs, provide an opportunity to meet members of Yale's inter-

national community and become acquainted with the many resources of Yale University and New Haven.

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 graduate students, postdocs, and visiting scholars can get connected with OISS by subscribing to one or both of the OISS e-mail lists. OISS-L is the electronic newsletter with important information for Yale's international community. YaleInternational E-Group is an interactive list through which over 1,000 international students and scholars keep each other informed about events in the area. Check the Web site for more information. To subscribe to either list, send a message to [oiss@yale.edu](mailto:oiss@yale.edu).

Spouses and partners of international students and scholars will want to know about ISPY—International Spouses and Partners at Yale. Information about ISPY and other OISS programs can be found on the OISS Web site.

The Office of International Students and Scholars, located at 246 Church Street, Suite 201, 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.

## 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 1. 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 College Street 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)

Associate Research Scientist

C. Rahner

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. Braveman, J. G. Collins, J. Ehrenwerth, N. M. Greene (Emeritus), R. L. Hines (Chair), Z. Kain, L. M. Kitahata (Emeritus), C. J. Kopriva (Emeritus), C. LaMotte (Neurosurgery), R. H. LaMotte, P. Miller, T. H. Oh, T. D. Rafferty, S. Rosenbaum, W. Rosenblatt, D. Silverman, R. Sinatra

### Associate Professors

S. Garwood, P. Langevin, B. C. McClain, G. McCloskey, P. Nadkarni, A. Perrino, Jr., C. Rinder, K. Ruskin, R. Schultz (Child Study Center), J. Schwartz (Director of Medical Studies), K. Shelley, R. Shiffman (Pediatrics), S.-M. Wang

### Assistant Professors

S. Akhtar, D. Anca, R. Aouad, C. Brandt, A. M. Bustos, K.-H. Cheung, J. H. Chung, S. Dabu-Bondoc, J. Drummond-Lewis, D. Gaal, M. Gonzalez, K. Gyarteng-Dakwa, A. Haddadin, T. M. Halaszynski, L. Helgeson, S. Khan, A. M. Lobo, I. Maranets, K. Marschall, R. Modak, W. Norfleet, M. Punjala, R. Ramani, R. Romero, H. Saadat, V. Salgar, R. Schoenfelder, R. Stout, N. Vadivelu, I. Vaitkeviciute, D. Vaughn, J. M. Watkins-Pitchford, Q. Zhu

### Instructor

N. Bhawal

### Research Scientist

F. Sayward

### Associate Research Scientists

A. Caldwell-Andrews, S. Frawley, C. Ma, L. Marenco, M. Shifman, K. Sun

### Clinical Professor

J. Katz

### Associate Clinical Professors

K. S. Chung, B. Kosarussavadi, A. Mandel, E. Prokop, A. Pschirrer, Jr., S. Stone, A. Weinstock

### Assistant Clinical Professors

M. S. Afifi, C. Ayoub, J. P. Escandon, S. Hanson, P. Heller, M. Lomanto, S. Puri, K. T. Watson, J. Weinberg

### Lecturers

A. Deshpande, T. Handler, B. Kaplan

**Anesthesiology 103, Clinical Clerkship.** Four students are assigned throughout the year to either Yale-New Haven Hospital or to the VA Connecticut Healthcare System, West Haven, for basic introduction to clinical anesthesiology, including preoperative evaluation of patients, selection of anesthetic technique, and administration of anesthetics under supervision. Instruction in airway management and endotracheal intubation, monitoring techniques, and clinical pharmacology and physiology is emphasized. Three-week full-time clinical clerkship for two students. J. Schwartz.

**Anesthesiology 104, Advanced Clinical Clerkship.** Individualized program of instruction in anesthesia subspecialties, including cardiovascular, neurosurgical, obstetrical, and pediatric anesthesia. Two- or three-week full-time clinical clerkship throughout the year for two students. J. Schwartz.

**Anesthesiology 132, Pain: Diagnosis and Treatment.** Management of chronic pain in pain clinic setting. Psychophysiology of pain diagnostic techniques, including nerve blocks, and therapeutic modalities, such as neurally applied opiates and other new advances. Part-time elective; hours to be arranged, for one or two students. J. G. Collins.

**Anesthesiology 141, Clinical Research.** Participation in ongoing research by departmental faculty involving clinical responses to drugs affecting cardiopulmonary and central nervous systems. Development of individual research projects encouraged as well. Hours to be arranged for one or two students. R. L. Hines, D. Silverman, R. Sinatra.

**Anesthesiology 142, Basic Research within Anesthesiology.** Laboratory research training in autonomic, cardiopulmonary, or neurophysiological effects of drugs. Hours to be arranged for one or two students. J. G. Collins, R. H. LaMotte.

**Anesthesiology 143, Topics and Research in International Health Issues.** A one- or two-term elective for M.D., masters, and doctoral candidates with an interest in international medicine. The student is assigned reading and research work with a member of the Department of Anesthesiology who participates in direct international medical care or administration. Hours to be arranged. P. Barash, D. Gaal, R. L. Hines, W. Rosenblatt, J. Schwartz.

## cell biology

Office: SHM C207, 785.4320

### Professors

N. Andrews (Microbial Pathogenesis), R. Baron (Orthopaedics and Rehabilitation), M. Caplan (Cellular and Molecular Physiology), L. Cooley (Genetics), P. Cresswell (Immunobiology), P. De Camilli, S. Ferro-Novick, J. Galán (Chair, Microbial Pathogenesis), J. Jamieson (Director of Medical Studies; Director of M.D./Ph.D. Program), T. Lentz (Vice Chair; Associate Dean for Admissions, School of Medicine), V. Marchesi (Pathology), I. Mellman (Chair), M. Mooseker (Molecular, Cellular, and Developmental Biology), M. Nathanson (Chief, Internal Medicine/Digestive Diseases), P. Novick (Director of Graduate Admissions), E. Ullu (Internal Medicine/Infectious Diseases), G. Warren

### Associate Professors

C. Hashimoto, G. Miesenböck, S. Wolin

### Assistant Professors

K. Reinisch, P. Takizawa, D. Toomre

### Research Scientists

M. Pypaert

### Associate Research Scientists

C. Chalouni, H. Chen, X. Chen, L. Delamarre, G. Di Paolo, L.-W. Gong, A. Satoh, E. S. Trombetta, Y. Wang, B. Zemelman

**Cell Biology 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. J. Jamieson, T. Lentz, F. Gorelick, and staff.

**Cell Biology 503, Histology Laboratory.** A laboratory in microscopic anatomy to be taken in conjunction with CBIO 502. T. Lentz and staff.

**Cell Biology 601, The Molecular and Cellular Basis of Human Disease.** Given in parallel to CBIO 502. The course comprises an exploration of primary literature and critical assessment of the data that form a basis for understanding human disease. A series of human genetic diseases, whose mechanisms have been identified as a result of sequencing of the human genome, are explored. Students are required to search out supportive data, discuss it with the section leader, and present it to the group. P. De Camilli, F. Gorelick, and staff.

**Cell Biology 602/MB&B 602/MCDB 602, Molecular Cell Biology.** A comprehensive introduction to the molecular and mechanistic aspects of cell biology for graduate stu-

dents in all programs. Emphasizes fundamental issues of cellular organization, regulation, biogenesis, and function at the molecular level. S. Wolin, T. Pollard, G. Warren, M. Mooseker.

**Cell Biology 603/MCDB 603, 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, T. Pollard, G. Warren, M. Mooseker.

**Cell Biology 727, 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 3–6 sessions, starting with an introductory overview and followed by detailed analysis of key papers. Topics to be announced. S. Ferro-Novick, P. Novick.

**Cell Biology 900 and 901/Genetics 900 and 901/MCDB 900 and 901, First-Year Introduction to Research.** Lab rotations, grant writing, and ethics for Molecular Cell Biology, Genetics, and Development track students. C. Hashimoto, F. Slack, M. Stern.

## cellular and molecular physiology

Office: SHM B147, 785.2989

### Professors

P. S. Aronson (Internal Medicine/Nephrology), H. J. Binder (Internal Medicine/Digestive Diseases), W. F. Boron, E. L. Boulpaep (Director of Medical Studies; Director of Graduate Studies), T. H. Brown (Psychology), M. J. Caplan, W. K. Chandler, L. B. Cohen, A. B. DuBois (Epidemiology and Public Health), B. Ehrlich (Pharmacology), B. Forbush III, J. P. Geibel (Surgery), G. H. Giebisch (Emeritus), S. C. Hebert (Chair), J. F. Hoffman (Emeritus), L. Kaczmarek (Pharmacology), W. M. Saltzman (Biomedical Engineering), S. Segal, G. I. Shulman (Internal Medicine/Endocrinology), F. J. Sigworth, C. L. Slayman, C. W. Slayman (Genetics), F. S. Wright (Internal Medicine)

### Associate Professors

C. M. Canessa, L. Cantley (Internal Medicine/Nephrology), M. Egan (Pediatrics), R. M. Fitzsimonds, P. D. Neuffer, V. Pieribone, G. Richerson (Neurology), T. Wang

### Assistant Professors

A. Bordey (Neurosurgery), S. I. Dworetzky (Adjunct), M. Nitabach, D. Zenisek, Y. Zhou

### Research Scientist

D. Zecevic

### Associate Research Scientists

B. Baker, S. Bian, P. Bouyer, S. Cheng, D. Chester, B. Davis, K. Dong, Z.-P. Du, C. Falk, K. Klemic, S. Krueger, M. Lu, G. MacGregor, Y. Yang, P. Zhang, Y. Zhou

### Postdoctoral Fellows

S. An, Y. Asaka, J. Bergsman, J. Brekke, G. Crambert, T. Giraldez, M. Harrisingh, M. Lal, Q. Leng, J. Lu, T. Ludwig, P. Ounjai, P. Piermarini, E. Prescott

### Postdoctoral Associates

M. Arteaga, R. Aziz, C. Bertuccio, L. Chen, T. Coric, B. Dowd, C. Fulton, R. Homma, Y. Hu, M. Kelly, T. Kimura, A. Kolar, E. Kosmidis, F. Laiwalla, L. Markovic, M. Parker, A. Rivetta, L. Tang, D. Wang, L. Wang, Y. Wu, Q. Yan, S. Yohannan, A. Zatti

### Lecturer

R. Mahnensmith (Internal Medicine)

**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 twelve modules: Cell Physiology/Membrane Transport, Nerve, Muscle, Cardiovascular, Blood, Respiratory, Kidney, Gastrointestinal, Endocrine, Metabolism, Reproduction, and Homeostasis. 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 52oa, 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 exercise physiology 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 systems, to behavior and disease. R. Fitzsimonds, D. Zenisek.

**C&MP 55oa/ENAS 55oa/MCDB 55oa, Physiological Systems.** We develop a foundation in human physiology, the regulation of homeostasis, 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. Regulation of cardiac output, blood flow, and vascular exchange are integrated in light of exercise performance. Respiratory physiology explores the mechanics of ventilation, gas diffusion, and acid-base balance. Renal physiology explores the formation and composition of urine and the regulation of electrolyte, fluid, and acid-base balance. Organs of the digestive system are developed from the perspective of substrate metabolism and energy balance. Hormonal regulation is applied to metabolic control and to calcium, water, and electrolyte balance. The special senses are considered in light of signaling processes inherent to the nervous system. 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. M. Saltzman, E. Boulpaep.

**C&MP 56ob/MCDB 56ob, 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. M. Caplan, E. Boulpaep, M. Mooseker, F. Sigworth.

**C&MP 71ob/MB&B 71ob4, 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 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 (Associate Dean), S. Kagan (Adjunct), Z. Kain (Anesthesiology), A. Kazdin (Psychology), R. A. King, J. Leckman, M. F. Leonard (Emeritus), J. Leventhal (Pediatrics), M. Lewis (Emeritus), P. Lombroso, R. Makuch (Epidemiology and Public Health), L. Mayes, D. F. Musto, R. Rosenheck (Psychiatry), J. E. Schowalter (Emeritus), B. Shaywitz (Pediatrics), S. Shaywitz (Pediatrics), J. Singer (Psychology; Emeritus), D. L. Snow (Psychiatry), S. Southwick (Psychiatry), S. Sparrow (Emeritus), F. R. Volkmar, J. Woolston, H. Zhang (Epidemiology and Public Health), E. F. Zigler (Psychology)

### Associate Professors

B. Forsyth (Pediatrics), E. Grigorenko, S. Horwitz (Epidemiology and Public Health), J. Kaufman (Psychiatry), A. Klin, D. Lipschitz (Psychiatry), S. Marans, A. Martin, T. McMahon (Psychiatry), L. Scahill, D. Schonfeld (Pediatrics), R. Schultz, M. Schwab-Stone, D. Stubbe, J. Tebes (Psychiatry), F. Vaccarino, M. Westerveld (Neurosurgery)

### Assistant Professors

S. Berkowitz, K. Chawarska, N. Close, W. Gilliam, V. Maholmes, L. Schilling, M. State, L. Thomas, V. R. Weersing, C. Weitzman (Pediatrics)

### Senior Research Scientists

M. F. Leonard, J. E. Schowalter, D. Singer

### Research Scientists

G. M. Anderson, V. R. Seitz

### Associate Research Scientists

M. Akbar, P. Britto, F. Brown, L. Cardona, E. Culler, C. Emmons, D. Findley, M. Finn-Stevenson, M. Goyette-Ewing, F. Gregory, H. Hahn, C. Klaiman, K. Koenig, M. A. Levett-Lowe, J. Lewis III, L. Maayan, Y. Ohkubo, S. Paul, C. Rowland, V. Ruchkin, C. Saulnier, W. W. Simmons, A. Slade, S. Stahl, C. S. Stover, D. Sukhodolsky, L. Tay

### Research Affiliates

J. Alsobrook, M. Ben-Avie, D. V. Cicchetti, P. L. Delgobbo, R. Feldman, M. Kohorn, R. Lord, R. Mayo, M. Mercadante, J. Naegele, S. Nash, T. Shriver, V. Sperry, R. Vermeiren, R. Weissberg, L. Wood, A. Zohar

### Clinical Professors

T. W. Downey, R. W. Evans, A. Kaufman, N. Laor, S. R. Levy (Pediatrics), D. O. Lewis, K. Pruett (Director of Medical Studies), S. Ritvo, H. S. Sacks

### Associate Clinical Professors

J. Adnopoz, R. Angoff (Pediatrics), P. Armbruster, S. Boltax-Stern, C. R. Canny (Pediatrics), A. Carter, P. M. Cohen, K. Dahl, L. Deutsch, J. B. Ferholt, N. Haynes, D. M.



Koenigsberg, E. L. Loewald, J. Narad, E. A. Perlswig, J. D. Saccio, A. H. Schwartz, E. L. Stone (Pediatrics), A. Thies, L. Vitulano, T. Zanker

#### Assistant Clinical Professors

H. A. Allen, A. J. Avni-Singer (Pediatrics), M. Berkman (Social Work), J. Bregman, K. Brody, P. Cantor, L. Cariaga-Lo, P. Chappell, J. Charney (Psychiatry), J. T. Collins, A. B. Colonna, E. Dykens, H. Edelson-Costa, G. Epstein Wilf, C. Gallo, G. D. Gammon, M. Gladstone, R. M. Greenbaum, W. L. Hill, Jr. (Psychiatry), E. O. Jennings, I. R. Jennings, E. Joyner, H. Kahn, M. Kaplan, R. G. King, P. Leebens, D. Lowell (Pediatrics), A. Lustbader, M. Lustick, N. Lustman, J. Madigan, J. P. Marachi, R. McWilliam, J. Meyers, S. Migdole (Psychiatry), E. Millman, N. Moss, S. Nagler, R. Nikolov, F. J. Ninivaggi, B. Nordhaus (Social Work), J. F. Poll, M. Powers, G. Racusin (Psychiatry), C. Ripple, W. W. Roosen, D. Rotnem (Social Work), H. L. Sacks (Social Work), M. Schaefer, L. Siegel, A. Smaller, R. Sotsky, F. J. Streets (Social Work), P. J. Van Wattum, S. L. Werblood, H. Wetstone, C. P. Wiles, Jr., P. Yeung, L. D. Zimmerman

#### Clinical Instructors

J. C. Allen, R. Avni-Singer (Social Work), B. Barile, K. Barrett (Social Work), E. Becker-Dunn (Psychiatry; Social Work), L. Budnick (Social Work), A. Caracansi, U. Chock (Social Work), K. Clougherty (Social Work), J. Connell (Social Work), M. de-Naclerio, V. DeVarenes (Social Work), S. Dobuler (Social Work), D. Dodge (Social Work), L. Donovan, K. Dubois-Walton, J. Evans (Social Work), L. Ewing (Social Work), C. Fahy (Social Work), S. Fleming (Social Work), J. A. Gallalee, J. Goldblum (Social Work), S. Gossart-Walker (Social Work), L. Hayden, P. Hetherington, C. Hogan (Social Work), K. Holdt (Social Work), B. Houser (Social Work), S. Jani (Social Work), B. Keyes, B. Kleine (Social Work), A. Kravitz (Social Work), E. Kressley, J. Landau, M. Lassalle (Social Work), W. Levine, M. Lyons (Social Work), W. Marans, B. Mason, M. McCarthy, P. McGreen, C. Migdole, L. Monaco, J. Muleiro, S. Newgass (Social Work), R. Nunes, R. Plant, T. Pride (Social Work), R. Pugliese, D. Rager (Social Work), A. Rains, B. Rickler, S. Ritz, P. Rockholz (Social Work), M. Rodriguez (Social Work), E. Rodriguez-Keyes (Social Work), M. C. do Rosario-Campos, M. Rowe (Social Work), P. Sadowitz, C. Schaefer (Social Work), B. Schmaling (Social Work), A. Schuessler, M. B. Sutter (Social Work), B. Taggart, G. Weiss, C. White, G. Winn (Social Work), M. Y. Yazgan

#### Lecturers

D. Bella, L. Booth, K. P. Carlson, C. Cooper, E. Ennis, D. Esserman, J. Gillette, S. Goldstein, J. Gruendel, M. Gunsalas, D. P. Hauser, S. Heidmann, C. Horwitz, N. Kaufman, B. Kerman, S. W. Levy, K. Lustman-Findling, L. Nash, C. Olson, R. Paul, D. Pauls, B. Peterson, J. Platner, C. Reberkenny-Frisketti, D. Rosen, B. Rourke, B. Sherman, V. Shiller, D. Smolover, J. Stoneman, K. Tsatsanis, E. C. Wolff

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.** The concept of development serves as a unifying idea for this course. The major cognitive and emotional developmental tasks and behavioral characteristics at each stage of development in infancy, childhood, and adolescence are described and illustrated in part by the child's reactions to illness, hospitalization, dying, and death at different stages of development. Developmental contributions to the understanding of psychopathology in childhood are also outlined. The course offers live interviews of children and their families. First year, spring term, weekly one-hour lectures, and one and one-half hour seminars. K. Pruett and Child Study Center 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 Child Study Center 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 testings 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, L. Cardona.

**CHLD 323, The Child Psychiatry Track.** This track is offered to four students (two each, either at the Child Study Center or Riverview Hospital) per six-week rotation on the Psychiatry Clerkship. It provides an opportunity to observe and practice the process used to evaluate and diagnose and to plan the treatment of the child and his or her family. Additionally, it completes the basic requirements of the Adult Psychiatry Clerkship, including writing reports on three adult patients. The track has three components: (a) a set of mandatory core experiences, (b) a group of optional selective experiences, and (c) Practicums and Readings. The practicum includes interviewing, working up, and writing a report on two child patients at either the Children's Psychiatric Inpatient Service or Riverview Hospital 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. Psychiatry clerks are based at both the Child Study Center and the Children's Psychiatric Inpatient Service (Winchester I, Y-NHH) and at Riverview Hospital. J. Woolston, J. A. Gallalee, G. D. Gammon, R. King, L. Siegel.

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**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. J. Leckman and Child Study Center 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. Teaching methods include seminars, conferences, field observations, ward rounds, and practica selected by the student following consultation with the director of medical studies, Child Study Center. Open to fourth-year students throughout the year (except July and August). 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.

## comparative medicine

Office: 375 Congress Avenue, LSOG 117, 785.2525

Professor

R. O. Jacoby (Chair)

Associate Professor

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

Assistant Professors

C. J. Booth, G. J. DeMarco, M. J. Harding, J. D. Reuter, P. C. Smith

Research Scientists

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

Associate Research Scientists

L. J. Ball-Goodrich, T. P. Nottoli, M. Shlyankevich, S. R. Wilson, L. Zhang

Research Affiliate

P. N. Bhatt

Assistant Clinical Professor

J. W. Streett

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## dermatology

Office: LCI 501, 785.4092

### Professors

J. Bologna (Vice Chair, Clinical Affairs), H. K. Bottomly (Immunobiology), I. M. Braverman, P. Cresswell (Immunobiology), R. L. Edelson (Chair; Director of the Yale Cancer Center), P. Heald (Director of Medical Studies; Vice Chair for Medical Students and Postgraduate Medical Education Programs), D. Leffell (Director, Yale Medical Group, YSM; and Senior Associate Dean for Clinical Affairs), A. B. Lerner (Emeritus), L. Milstone, J. S. Pober (Pathology), R. E. Tigelaar (Vice Chair, Academic and Research Affairs; Director, Skin Disease Research Center)

### Associate Professor

M. Girardi (Director, Residency Program), E. Glusac (Pathology), R. Lazova, J. McNiff, L. Wilson (Therapeutic Radiology)

### Assistant Professors

S. Aasi, R. Antaya, S. Cowper, C. Herrick, A. Subtil

### Instructors

L. Fox, D. Kaplan, B. Pennington

### Senior Research Scientists

R. Halaban, A. B. Lerner

### Research Scientists

C. Berger, A. Chakraborty

### Associate Research Scientists

P. Clark, D. Hanlon, M. Kluger

### Clinical Professors

I. Dvoretzky, M.-L. T. Johnson, R. C. Savin

### Associate Clinical Professors

A. Bronin, F. Castiglione, Jr., I. S. Cohen, D. Davidson, L. D'Onofrio, J. Dover, J. Edelglass, S. Imaeda, R. S. Kahan, T. P. Kugelman, R. Langdon, E. B. Milstone, P. Schneiderman, P. Shapiro, L. A. Sibrack, K. Watsky

### Assistant Clinical Professors

J. Alter, S. Barrett, S. H. Bender, P. Bevilacqua, D. Bilinski, S. Book, C. Carroll, C. Chess, K. A. Cohen, L. Daman, K. M. Diette, S. Dietz, D. Duke, G. Federman, D. Feinberg, B. Goldberg, M. Goldstein, D. Greene, W. Jacoby, M. Kaminer, S. Kolenik III, L. Kugelman, J. C. Lehrman, S. Lerner, L. Luck, E. Markstein, B. McGrath, E. Mirrer, E. Naidorf, M. Noonan, W. Notaro, R. Oshman, B. Richter, J. G. Sansing, Jr., N. Sherline, N. R. Silverman, A. Zalka, J. Zirn

Clinical Instructors

M. Alexiades-Armenakas, A. Atton, J. Grant-Kels, V. Gross, J. Knispel, E. Marsh, D. R. Miller, M. Oestreicher, J. B. Sabetta, J. Wilder, B. Zubkov

Postdoctoral Fellows

P. Bhattacharjee, J. Meyerle, K. Taraszka, M. Tomayko

**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 Yale Physicians Building and at the VA Connecticut Healthcare System, West Haven. Inpatient rounds are made at Yale-New Haven Hospital. Didactic sessions are held with staff three to five times a week. 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. Bologna, I. M. Braverman, S. Cowper, R. L. Edelson, M. Girardi, E. Glusac, P. Heald, C. Herrick, S. Imaeda, R. Lazova, D. Leffell, J. McNiff, L. Milstone, J. Schechner, A. Subtil, R. E. Tigelaar.

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## diagnostic radiology

Office: TE-2, 785.6938

### Professors

J. J. Abrahams, J. A. Brink (Interim Chair), R. A. Bronen, M. I. Burrell, A. M. Curtis, J. S. Duncan, M. G. Glickman (Emeritus), R. Gusberg (Surgery), P. B. Hoffer, L. Katz, E. L. Kier, J. P. Lawson (Emeritus), C. H. Lee-French, S. M. McCarthy, B. L. McClennan, I. Prohovnik (Adjunct), A. T. Rosenfield, D. L. Rothman, L. M. Scouff, C. Shaw, B. Sumpio (Surgery), G. Sze, N. Talner (Pediatrics; Emeritus), I. Tocino, F. J. Wackers, J. Weinreb, R. I. White, Jr., B. Zaret (Internal Medicine)

### Associate Professors

R. T. Constable, E. A. Cornelius (Emeritus), H. P. Forman (Vice Chair), R. Fulbright, F. Hyder, M. Johnson, W. Kubal, G. Mason (Psychiatry), C. Miller, L. Philpotts, J. Pollak, T. Price (Adjunct), A. J. Sinusas (Internal Medicine), L. H. Staib, J. Sunshine (Adjunct), H. Tagare, C. R. Taylor, S. Woods (Psychiatry), I. G. Zubal

### Assistant Professors

A. Amar (Neurosurgery), J. Aruny, S. Bokhari, T. Catanzano, D. W. Cheng, R. de Graaf, N. Denbow, J. Digiorgianni (Adjunct), T. R. Goodman, A. Haims, R. Hooley, L. J. Horvath, E. L. Kelley (Surgery), R. Kent, X. Papademetris, E. Reiner, S. Saluja, M. Tal, P. Varma

### Instructors

C. Baratti, J. Cheema, P. Kuo, M. Spector

### Senior Research Scientist

R. G. Shulman

### Associate Research Scientists

S. Chelikani, N. Driesen, M. Hampson, M. Jackowski, P. Mutalik, V. Neklesa, A. Patel, K. Purushothaman, M. Qiu, N. Rajeevan, J. Wang, F. Xu

### Research Scientist

P. Skudlarski

### Research Affiliate

G. Gindi, H. Yildirim

### Clinical Professors

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

### Associate Clinical Professors

G. Berg, V. Caride, D. Colley, D. Denny, G. Fishbone, G. Freedman, L. Hammers, E. Hyson, L. Russin

Assistant Clinical Professors

J. Crowe, H. M. Dey, J. Fan, W. Friedman, H. Gahbauer, R. Gonzalez, L. Greenwood, B. Griffith, B. Jay, K. Johnson, A. Kalyanpur, A. Kaye, J. Klein, H. Lustberg, N. Mandell, T. McCauley, S. Nadel, J. Neitlich, G. Novick, Z. Protopapas, E. Ragaza, J. Richter, M. Rosenblatt, R. Sadar, Y. Safriel, J. Seibyl, B. Simonds, G. R. Spiegel, M. Straub, S. Sullivan, S. Ulreich, G. Vahjen, M. Zawin

Clinical Instructors

S. Berger, T. Berkmen, M. Carino, L. Gold, S. Gupta, C. Kubiak, F. Mele, S. Messana, N. Tishkoff, J. Yi

Clinical Fellows

R. Ashton, K. Bochenek, J. Chen, A. Daftary, P. Day, S. Herman, N. Huang, Y. E. Lin, R. Maimon, N. Malguria, H. Mojibian, L. Moss, A. Pathak, E. Salik, J. Sapire, J. Thomas, J. Wu

Postdoctoral Associates

H. Chahboune, E. Hadidemetriou, P. Herman, L. Jiang, H. Kim, M. Negishi, A. Pinus, P. V. Rekkas, R. Schafer, J. Watzl

Lecturers

J. Arora, J. Bhawnani

**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. 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 clerkship is intended to serve as an introduction to catheter directed angiography and radiologic guided therapies. This includes transluminal revascularization (e.g. balloon angioplasty) in the peripheral, renal, and visceral circulations, embolization of vascular abnormalities, vena cava filter placement, and a variety of other vascular interventions. Exposure to percutaneous management of biliary and renal disease includes external drainage procedures, internal stents, and biopsies. Percutaneous catheter treatment of fluid collections is also performed. Students participate in the interventional radiology admitting service including interviewing patients in an outpatient clinic. Electives are tailored to three to six weeks. Hours to be arranged. Limited to one student, three to six weeks throughout the year. J. Pollak 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 fellows, 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.

## epidemiology and public health

Office: LEPH 210, 785.2867

### Professors

S. Aksoy, W. A. Andiman (Pediatrics), R. S. Baltimore (Pediatrics), M. Barry (Internal Medicine), F. L. Black (Emeritus), M. B. Bracken, L. M. Brass (Neurology), K. D. Brownell (Psychology), M. Cullen (Internal Medicine), V. T. DeVita, Jr. (Internal Medicine), A. B. Du Bois, E. Fikrig (Internal Medicine), D. Fish, G. H. Friedland (Internal Medicine), W. J. Hierholzer (Internal Medicine; Emeritus), T. R. Holford, R. I. Horwitz (Internal Medicine; Emeritus), S. C. Jacobs (Psychiatry), J. F. Jekel (Emeritus), E. Kaplan (School of Management), S. V. Kasl, H. M. Krumholz (Internal Medicine), B. P. Leaderer (Interim Chair), L. S. Levin (Emeritus), R. W. Makuch, L. E. Marks, S. T. Mayne, R. McCorkle (School of Nursing), D. McMahon-Pratt, M. H. Merson, I. G. Miller (Pediatrics), A. M. Ostfeld (Emeritus), C. L. Patton, P. N. Peduzzi (Adjunct), W. E. Reifsnnyder (School of Forestry and Environmental Studies; Emeritus), H. A. Risch, R. A. Rosenheck (Psychiatry), D. S. Rowe (Pediatrics; Emeritus), N. H. Ruddle (Interim Vice Chair and Director of Graduate Studies), P. Salovey (Psychology), M. J. Schlesinger, E. D. Shapiro (Pediatrics), G. A. Silver (Emeritus), J. L. Sindelar, D. Snow (Psychiatry), J. T. Stitt (Emeritus), J. A. Stolwijk (Emeritus), M. E. Tinetti (Internal Medicine), C. White (Emeritus), D. Yach, D. Zelterman, H. Zhang

### Associate Professors

E. H. Bradley, M. Cappello (Pediatrics), E. B. Claus, D. C. Cone (Surgery), L. C. Degutis (Surgery), L. M. Dembry (Internal Medicine), R. A. Desai (Psychiatry), L. DiPietro, N. E. Groce, P. Hartigan (Adjunct), R. Heimer, S. M. Horwitz (Emeritus), J. Ickovics, B. Levy, P. A. Nadkarni (Anesthesiology), M. K. Olson, A. D. Paltiel, H. G. Prigerson (Psychiatry), M. B. Russi (Internal Medicine), C. Scott (Pediatrics), K. Sikkema (Psychiatry), J. K. Tebes (Psychiatry), G. H. Tignor (Emeritus), C. Tschudi, H. Yu, H. Zhao, L. Zheng, T. Zheng

### Assistant Professors

L. Alexander, S. H. Busch, M. Desai (Psychiatry), J. Dubin, B. Emir (Adjunct), A. Epstein, A. Galvani, R. Gueorguieva, J. Hoh, K. Hudmon, M. L. Irwin, B. Jones, T. S. Kershaw, K. Khoshnood, D. L. Leslie (Psychiatry), J. H. Lichtman, H. Lin, X. Ma, L. M. Niccolai, M. M. Pettigrew, J. Ruger, A. N. Sofair (Internal Medicine), N. Stachenfeld, H. Wang, Y. Zhu

### Senior Research Scientists

M. Y. K. Armstrong (Emeritus), J. S. Douglas

### Research Scientists

K. D. Belanger, B. Cartmel, L. E. Munstermann, E. Triche

## Associate Research Scientists

N. Abdala, K. M. B. Balestracci, K. M. Blankenship, M. Briggs-Gowan, T. A. Falba, W. T. Gallo, J. Gent, L. Grau, L. M. Grosso, K. Kurtenbach, S. Mitchell, T. A. Olmstead, P. Rosenberger, N. Sun, R. Sundaram, N. Tarakeshwar, M. Ulcickas Yood

## Research Affiliates

T. H. G. Aitken, L. Beati, M. Berwick, J. Childs, D. V. Cicchetti (Child Study Center), D. J. Cunningham, J. Dickson-Gomez, M. E. Ganotti, V. H. Hodgkinson, G. Jacobsen, T. S. Jones, J. Kelsey, W. Lesslauer, J. Li, L. Magnarelli, K. Merikangas, S. Milan, S. Plesset, J. Robison, D. Saila-Ngita, N. Saravia, S. Shaw, H. Swede, R. B. Tower, B. Travi, L. V. Vaccarino, D. M. Wild

## Clinical Professors

M. G. Curnen, J. C. Niederman

## Associate Clinical Professors

J. B. Borak (Internal Medicine), R. D. Dubrow, J. L. Hadler, D. L. Katz (Director of Medical Studies), W. L. Krinsky

## Assistant Clinical Professors

M. L. Cartter, R. V. Durvasula, K. Hartwig, K. S. Kronebusch, M. V. Roberto

## Lecturers

S. S. Addiss, R. Alderslade, S. Allegretto, H. M. Allen, E. P. Anderson, J. F. Anderson, T. G. Andreadis, S. G. Austin, D. D. Aye, I. M. Birnbaum, F. L. Black, A. L. Boissevain, E. A. Bortnichak, A. Brown, D. Bruce, P. F. Canny, G. L. Capozzallo, B. Cartmel, P. A. Charpentier, S. M. Chemerynski, K. H. Clark, S. Compton, M. Connolly, J. Culhane, A. Darefsky, D. K. Diers (School of Nursing), J. S. Douglas, H. G. Dove, S. Dube, J. D. Dunn, A.-M. Foltz, B. A. Fontes, E. J. Gandsman, S. D. Geballe, W. A. Gillespie, G. L. Ginsberg, K. Gondek, C. H. Grantham-Millman, B. H. Gray, N. Hirschhorn, D. Humphries, J. F. Jekel, B. Jennings, R. V. Katz, S. L. Katz, B. D. Kerker, R. Lavelly, M. A. Lee, L. S. Levin, J. Mande (Pediatrics), R. Marcus, A. Molinaro, E. W. Mood, G. S. Moore, D. E. Morse, L. M. Mueller, J. M. Mullen, D. Pendry, W. P. Quinn, D. Richardson, B. Schachtel, B. Seck, J. Solomon, S. Spangler, J. A. Sparer (Internal Medicine), D. Stevens, J. A. Stolwijk, M. Stowe (Internal Medicine), J. Stuber, V. Sutton, W. J. Thomas, P. H. Van Ness (Internal Medicine), J. T. Wack, J. A. Wasserman, C. White, A.-L. Williams, K. Yonkers (Psychiatry), J. A. Zaccagnino, 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 I310, 785.2649

### Professors

E. A. Adelberg (Emeritus), N. Berliner (Internal Medicine), D. Brash (Therapeutic Radiology), W. R. Breg, Jr. (Emeritus), L. Cooley, D. DiMaio, J. M. Eisenstadt (Emeritus), B. G. Forget (Internal Medicine), P. Glazer (Therapeutic Radiology), A. Horwich, P. B. Kavathas (Laboratory Medicine), K. K. Kidd, R. P. Lifton (Chair), M. J. Mahoney, C. M. Radding (Emeritus), G. S. Roeder (Molecular, Cellular, and Developmental Biology), L. Rosenberg (Adjunct), M. R. Seashore (Director of Medical Studies), C. W. Slayman, S. Somlo (Internal Medicine), K. Tanaka (Emeritus), P. Tattersall (Laboratory Medicine), S. M. Weissman, T. Xu, T. Yang-Feng (Adjunct)

### Associate Professors

A. Bale, S. Baserga (Molecular Biophysics and Biochemistry), M. Qumsiyeh, M. J. Stern (Director of Graduate Studies), H. Sun, J. Sweasy (Therapeutic Radiology), K. White, H. Zhang, H. Zhao (Epidemiology and Public Health)

### Assistant Professors

C. Garganta, V. Reinke, M. W. State (Child Study Center), Z. Sun

### Senior Research Scientist

P. J. Flory

### Research Scientists

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

### Associate Research Scientists

B. Bi, A. Canaan, G. Farr, W. Ji, Y. Kohn, D.-M. Li, T.-R. Li, Z. Lian, M.-M. Liu, Y. Lu, M. Mahajan, A. Mason, E. Matloff, Y. Nakayama, D. Nguyen, X. Pan, V. Petrov, R. Poddar, P. Rabinovich, A. Szekely, Y. Yasukochi, H. Z. Zhang

### Research Affiliate

M. Weiner

### Postdoctoral Fellows

L. Brailey, L. Freeman-Cook, Y. Gilad, T. Igaki, M. Kauer, N. Kishimoto, R. Klein, R. Li, S. Mazzalupo, T. Morgan, P. Paschou, A. Sahin, A. Srivastava, X. Yang

### Postdoctoral Associates

G. Boyapty, L. Boyden, M. B. Davis, A. P. Gaeth, A. Holoubek, A. Hudson, S. K. Kim, Y. Kim, N. Koya, M. D. Lalioti, S. Lecchi, J. Lian, B. Lin, Y. Luo, M. R. Madura, H. Oota, H. Qin, J. Radhakrishnan, H. R. Toka, S. Wang, M. Wu, Z.-J. Ye

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

**GENE 603/IBIO 603, Teaching in Science Education Outreach Program (SEOP).** Students are mentored in teaching special projects for high school and junior high school science classes. The major project involves organizing and teaching seventh graders in the New Haven schools as part of the Science Education Outreach Program (SEOP). Additional assignments may include working with students on Science Fair projects, being a Science Fair judge, or developing a new project. Students must also take the course "Science Teaching 101," which is offered by the McDougal Graduate Teaching Center. Please contact the course director, P. Kavathas, at 785.6223.

**GENE 620a, Topics in Medical Genetics.** This course covers a variety of topics in the fields of biochemical genetics, DNA diagnostics, cytogenetics, prenatal genetics, and general clinical genetics and is of particular interest to graduate students, medical students, postdoctoral clinical fellows, and laboratory fellows who wish to broaden their background in the basic principles as well as the clinical applicability of medical genetics. Prerequisite: introductory course in human genetics (e.g., Genetics 500) or permission of the instructor. J. McGrath.

**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, M. Koelle, R. Lifton, M. Stern, K. White.

**GENE 642a/EMD 642a/MB&B 642a/MBIO 642a/MCDB 642a, Roles of Microorganisms in the Living World.** This topical course explores the biology of microorganisms. Emphasis is placed upon mechanisms underlying microbial adaptations and how they influence biological systems. L. N. Ornston and staff.

**GENE 675, Graduate Student Seminar.** Students gain experience in preparing and delivering seminars and in discussing presentations by other students. Required for all second-year students in Genetics. Graded Sat/Unsat. J. Sweasy.

**GENE 705a/MB&B 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. Grindley, P. Sung, J. Sweasy.

**GENE 734a/MBIO 734a, Molecular Biology of Animal Viruses.** Lecture course with emphasis on mechanisms of viral replication, oncogenic transformation, and virus-host cell interactions. D. DiMaio.

**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, A. Pyle, 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.

**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 weekly discussions and written summaries critically analyzing primary literature, and a final research proposal term paper. L. Cooley, V. Reinke, X.-W. Deng, F. Slack, S. Holley, M. Stern.

[**GENE 810a, Human Molecular Genetics.** This course focuses on molecular genetics of single gene and multifactorial human traits. About one-half of the lectures cover strategies and methodologies for human genetics research as well as resources developed by the Human Genome Project. The remainder of the course gives examples of applications of molecular genetics in medicine and industry. Seminars devoted to reviews of primary literature and workshops lead to rigorous treatment of a limited set of topics and emphasis on a “how to” approach. This course is intended for students with a good background in genetics and a strong interest in research. A. Bale. Not offered in 2004–2005.]

**GENE 840a,b, Medical Genetics.** Clinic Rotation. This clinical rotation offers 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, grant writing, methods in MCGD, and ethics for Molecular Cell Biology, Genetics, and Development (MCGD) track students. F. Slack, S. Baserga.

**GENE 920a/b, Reading Course.** A directed reading period designed for second-year students preparing for the qualifying examination. M. Stern.

**GENE 921a/b, Reading Course in Genetics and Molecular Biology.** Directed reading with faculty. Term paper required. By permission of director of graduate studies and arrangement with faculty.

## history of medicine

Office: SHM L132, 785.4338

### Professors

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

### Associate Professors

S. E. Lederer, N. Rogers (Women's, Gender, and Sexuality Studies)

### Assistant Professor

C. Connolly (School of Nursing)

### Visiting Assistant Professor

S. Lanzoni

### Senior Research Scholar

J. S. Fruton

### Research Affiliates

T. Appel, M. Craven, I. Modlin (Surgery), G. Mora, C. A. Morgan III (Psychiatry), G. Robinson

Yale College and Graduate School courses open to medical students:

**HSHM 177a/677a/HIST 177a/939a, Biology and Society in the Twentieth Century.** A history of modern biology, especially evolution, genetics, and molecular biology, within its social, economic, legal, and cultural context. Topics include eugenics and sterilization, the Scopes trial, contraception and abortion, the new reproductive technologies, medical genetics, the Human Genome Project, and human cloning. D. Kevles.

**[HSHM 205/678/AMST 323/HIST 175, 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. Not offered in 2004–2005.]

**HSHM 215a/HIST 140a, 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 230/HIST 125, A History of American Bodies.** A survey of the search for the healthy body in American culture in the nineteenth and twentieth centuries. Topics include the changing American food supply and the rise of “fast foods,” diets and dieting, medicine and nutrition science, cosmetic surgery, and the role of gender, race, and class in shaping expectations about the body. Not offered in 2004–2005.]

**HSHM 235b/HIST 234b, Epidemics and Society in the West since 1600.** A study of the impact of epidemic diseases such as bubonic plague, cholera, malaria, and AIDS on society, public health, and the medical profession in comparative and international perspective. Topics include popular culture and mass hysteria, the mortality revolution, urban renewal and rebuilding, sanitation, the germ theory of disease, the emergence of scientific medicine, and the debates over the biomedical model of disease. F. Snowden.

**HSHM 238b/627b/HIST 179b/927b, History of Psychiatry and Psychology 1800–2000: The Making of the Modern Mind.** Examination of the ways the mind has been studied, analyzed, and represented in European and American contexts across a variety of disciplines. Topics include experimental and evolutionary psychology, mesmerism and phrenology, the romantic and Freudian unconscious, trauma and pathologies of the mind, computer and cognitive models, and contemporary neuro-imaging. Psychological, philosophical, psychiatric, and aesthetic sources, including literature and film. S. Lanzoni.

**HSHM 320b/676b/HIST 176b/938b/LAW 20332/21441, The Engineering and Ownership of Life.** The development of biological knowledge and control in relation to intellectual property rights in living organisms. Topics include agribusiness, medicine, biotechnology, and patent law. D. Kevles.

**[HSHM 321/631/HIST 233, 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. Not offered in 2004–2005.]

**[HSHM 322/622/HIST 239, Introduction to the History of the Life Sciences.** A study of landmark investigations in the life sciences, from antiquity to the mid-twentieth century. Not offered in 2004–2005.]

**[HSHM 335/645/HIST 178, Medical Ethics in America since 1847.** Not offered in 2004–2005.]

**[HSHM 420/620/WGSS 332, Gender, Science, and Sexuality.** Examination of the history of the scientific study of sexuality. Primary and secondary sources covering the nineteenth and twentieth centuries are used in considering the anatomic, taxonomic, psychoanalytic, sociobiological, physiological, and molecular approaches to the study of sexuality and sexual orientation. Special attention paid to how these studies both reflect and construct gender ideology. Not offered in 2005–2005.]

**HSHM 424b/HIST 436b, Science, Invention, and the Visual Arts.** An examination of the impact of scientific theories and technology on the visual arts in the twentieth century. Theories and technologies considered include relativity quantum mechanics, interior images of the human body to the level of DNA, and images of space travel. Focus on the works of individual artists and art movements in Europe and the United States. B. Kevles.

**HSHM 425a/HIST 444a, Exploring Space: From Fantasy to Reality, 1615–2002.** The history of human space flight traced from its origins in science fiction in the seventeenth century, to the first practical suggestions for sending vehicles into orbit at the end of the nineteenth century, through the development of space travel in the twentieth century. Topics include social and political responses to Cold War politics and the portrayal of space travel in science fiction. B. Kevles.

**HSHM 428a or b/619a or b/HIST 439a or b, Methods and Literature in the History of Medicine and Science.** Introduction to recent literature in the history of science, medicine, and public health; to historiography issues; and to the methods used in historical research and writing. Members of the faculty in the Program in the History of Medicine and Science visit on a rotating basis to introduce the variety of approaches in the field. O. Molvig (F), S. Lanzoni (Sp).



**[HSHM 430/HIST 434, The Age of the Gene.** Examination of origins of the gene and its changing meaning over the past century. Particular attention to the role of gene as abstract entity in classical genetics and its identification as sequences of DNA with the emergence of molecular biology. Readings include classical primary texts and historical interpretations. Not offered in 2004–2005.]

**[HSHM 433/637/AFST 424/HIST 441, Race and Medicine in America, 1800–2000.** An examination of the history of race and medicine in the United States, primarily but not exclusively focused on African Americans' encounters with the health-care system. Topics include slavery and health; doctors, immigrants, and epidemics; the Tuskegee syphilis study and the use of minorities as research subjects; and race and genetic disease. Not offered in 2004–2005.]

**HSHM 439a/626a/HIST 443a/924a, Bodies and Machines in Medicine and the Mind Sciences.** This seminar examines the varied ways bodies and machines have been imagined and represented in the modern period in Europe and the United States, with examples from biology, medicine, psychiatry, psychology, and computer science. Using primary materials from a variety of scientific and cultural sources, including literature and film, topics include the organism in nineteenth-century biology and romanticism; standardized and mechanized bodies; prosthetics, body enhancements, and movement technologies; machine models of the mind and their critics; the cyborg as technological and cultural icon; and virtual bodies in cyberspace. S. Lanzoni.

**[HSHM 443/643/HIST 440, Nuclear America.** A history of the nuclear enterprise from its pre-World War II origins to recent times, covering its military and civilian uses and its impact on scientific research, health and the environment, regional economies, and American politics and culture. Not offered in 2004–2005.]

**[HSHM 445/625/HIST 438/WGSS 435, 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. Not offered in 2004–2005.]

**[HSHM 446/HIST 445/WGSS 436, The Women's Health Movement and American Society in the 1970s.** A critical examination of the strengths, weaknesses, and legacy of the American women's health movement of the 1970s, placed in its social and political context. Topics include struggles to legalize birth control and abortion, establishment of alternative health and birthing centers, and links between feminist health activism and the civil rights and gay rights movements. Not offered in 2004–2005.]

**[HSHM 447/680/HIST 482, History of Chinese Science.** A study of the major themes in Chinese scientific thinking from antiquity to the twentieth century. Emphasis on non-Western concepts of nature and the development of science in China, East-West scientific exchanges, and China's role in modern science. Not offered in 2004–2005.]

**HSHM 451a/635a/HIST 433a/945a/INTS 340a, Science, Arms, and the State.** A history of chemical, nuclear, and biological weapons in the twentieth century, focusing on the integration in the United States of national security policy making, scientific research, and military innovation. Topics include consequences of weapons development for the scientific community and the civilian economy, public attitudes toward weapons of mass destruction, and political movements to control such weapons. D. Kevles.

**HSHM 453b/624b/HIST 442b/944b/WGSS 447b, Science, Feminism, and Modernity.** This seminar examines scientists and science in post-1800 Europe and North

America, with a particular focus on interpretations of the transformation and “progression” of the natural world, drawing on recent feminist and science studies theorists including Donna Haraway, Sandra Harding, Evelyn Fox Keller, Londa Schiebinger, and Bruno Latour. Questions include: Has feminism changed science? Is there a feminist science? Is science multicultural? And were we ever modern? With an emphasis on biology, genetics, anthropology, and physics, we discuss the work and lives of women scientists, including an analysis of their representations in popular culture. N. Rogers.

**[HSHM 492/HIST 492, Science, Public Health, and Agriculture in Latin America.** An examination of national and international programs in public health and agriculture from the late nineteenth to the mid-twentieth century in Latin America, with particular attention to Mexico and Brazil. Exploration of how scientists and scientific knowledge influenced these programs. Topics include imperialism, national identity, and the notion of Green Revolution. Not offered in 2004–2005.]

**HSHM 601a and 602b/HIST 930a and 931b, Introduction to the History of Medicine and Science.** A core seminar required for first-year graduate students in the history of science and history of medicine. The seminar, which extends through the full academic year, is a foundational introduction to the history and historiography of the history of medicine and public health, the history of the physical sciences, the history of chemistry, and the history of the life sciences. Staff.

**[HSHM 642, Plagues, Old and New.** Through contemporary accounts of older as well as modern epidemics, an attempt to understand the historical setting in which a given epidemic disease occurred, the social and medical responses to it, its demographic and long-term consequences, and the possible relevance of events connected with one epidemic to those of subsequent epidemics. Critical examination of the notion of major epidemics as one of the key contingencies of history. Not offered in 2004–2005.]

**[HSHM 712/AMST 874/HIST 936, The Social and Cultural History of American Medicine.** Reading and discussion of recent scholarly literature with special attention to the medical marketplace, gender, and alterity in constructions of professionalism, performance, and identity in medical cultures. Not offered in 2004–2005.]

**[HSHM 713/AMST 872/HIST 794, The History of Disease and Public Health in America.** Reading and discussion of recent scholarly literature on the social and cultural history of disease and public health in the United States. Topics include the role of ethnicity, gender, class, region, and religion in the construction and experience of illness; state and individual responsibility for health; and representations of disease and public health in educational, propaganda, and feature films. Not offered in 2004–2005.]

**[HSHM 714/HIST 933, Science and Technology in the Twentieth Century.** An examination of the development of the scientific and technological enterprise in Europe and the United States, including its major intellectual achievements, academic and industrial institutions, relationship to war and the state, and standing in general culture. Among topics that might be considered are atomic, nuclear, and particle physics, genetics and molecular biology, microelectronics and computers. Not offered in 2004–2005.]

**[HSHM 718, Performance, Identity, and the Making of American Medicine.** An exploration of the shaping of American medical culture, especially during the late nineteenth and early twentieth centuries, focusing on the ways that healers' identities were constructed, perceived, and contested. Themes include conceptions of orthodoxy and alterity; the relationship between European and American notions of the moral, social, political, technical, and epistemological grounding of professional identity; struggles over the place and meaning of “science” in the healer's identity; and medicine and modernity. Case studies examine the fashioning of identities for the medical marketplace

and more private constructions of self, with attention to gender ethnicity, race, religion, and region. Readings engage the recent historiography of the field and explore self-representations of practitioners in primary texts ranging from diaries to prescriptive literature, as well as popular depictions in novels and visual media. Not offered in 2004–2005.]

**[HSHM 719/AMST 877/HIST 932, Readings in the History of American Medicine.** An examination of the variety of approaches to the social and cultural history of medicine and public health, taking as a focus nineteenth- and twentieth-century America. Readings are drawn from recent literature, sampling writings on health care, illness, experiences, and medical cultures in the United States. Topics include the role of gender, class, ethnicity, race, region, and religion in the experience of sickness and health care; the multiple meanings of science in medicine; the intersection of lay and professional understandings of the body; and the role of the marketplace in shaping professional identities and patient expectations. Not offered in 2004–2005.]

**[HSHM 720, Germ Theories, Spontaneous Generation, and Origin of Life Debates, 1530–1953.** A study of major ideas relating to the origin of life, spontaneous generation, contagion, infection, fermentation, and the origins of biological molecules starting with Fracastoro's poem on syphilis and ending with the Miller-Urey experiments on biogenesis of amino acids. Readings are a mix of primary documents and recent historical analyses. Not offered in 2004–2005.]

**[HSHM 723/HIST 941, Making the Modern Body.** An examination of the ways in which the human body has become both a site for medical and surgical practices and a source of tissues and tools for therapeutic purposes in twentieth-century America. Topics include the scientific developments and social and cultural implications of such technologies as organ transplantation, plastic surgery, and in vitro fertilization, with attention to gender, race, religion, and cultural representations of the body—male and female, living and dead, animal and human. Not offered in 2004–2005.]

**[HSHM 725/HIST 942, History of Disease and Public Health in Western Societies.** An exploration of recent approaches to understanding the history of disease and public health in Western societies. Topics in this reading seminar, which focuses on the nineteenth and twentieth centuries, include bodies and cities; contested definitions of disease, contagion, and pollution; illness, healing, and popular culture; medicine and empire; health care, the state, and charity; health education; and industrial disease and health policy. Not offered in 2004–2005.]

**[HSHM 726/HIST 934, Medicine, Public Health, and Colonialism, 1750–1950.** A reading seminar on recent historical works dealing with medicine, healing, public health, and body politics in various colonial settings from 1750 to 1950, including Hong Kong, India, the Philippines, Mali, South Africa, Brazil, Mexico, and regions in North America. Not offered in 2004–2005.]

**HSHM 733a/AMST 880a/HIST 926a, The Grounding of Modern Medicine.** An introductory exploration of the shaping of modern medical culture, focusing on the United States in the late nineteenth and early twentieth centuries. Readings engage recent historiography. Themes include struggles over the place and meanings of "science" and the intersection of lay and professional understandings of the body; shifting conceptions of purity and danger in the social and physical environments, with attention to region, gender, class, ethnicity, race, and religion; orthodox and alternative professional identities and consumer expectations in the medical marketplace; the role of imperialist ventures and European impulses in fashioning American biomedicine and public health; the medicalization of American society; antimodernist currents, and the ethical,

epistemological, and aesthetic choices that were constitutive of medical modernity. A reading seminar that may be taken as a research seminar with permission of the instructor. J. Warner.

**HSHM 734a/HIST 948a, Readings in the History of Psychology, Psychiatry, and Psychotherapy.** This seminar examines the history of psychiatry, psychology, and psychotherapy with special emphasis on epistemological, moral, and therapeutic views of empathy and social cognition in the late nineteenth and twentieth centuries. Topics include aesthetic theories of empathy; empathy as a source of knowledge and healing in psychotherapy and in the doctor-patient relationship; empathy as a gendered capacity in the mother-infant bond; and the psychopathology of autism. We also engage broader cultural and normative views of empathy and the understanding of others in photography, film, and popular culture. S. Lanzoni.

**HSHM 735a/NURS 737a, Nursing, Health, and Social Welfare in American History.** A historical examination of the relationship between nursing and social reform in the United States between 1860 and 1992. The goal is to explore themes related to change and reform throughout nursing's history, both chronologically as well as thematically. Specifically, this elective focuses on the ways in which nurses have challenged and/or collaborated with prevailing social structures and ideologies across time and the results of those efforts. The course also considers the many variables (including race, ethnicity, class, and gender) that influenced particular events in which nursing played a role. C. Connolly.

[**HSHM 785a/HIST 785a, Science and Technology in American Society.** The growth of science and technology in the United States and their integration into the overall national narrative. Topics include the American scientific community and its roles in exploration, agriculture, industry, national defense, religion, culture, and social change. Not offered in 2004–2005.]

[**HSHM 912a, Reading Seminar in the History of Disease and Public Health in America.** Not offered in 2004–2005.]

[**HSHM 913b, Reading Seminar in the History of the Life Sciences.** Not offered in 2004–2005.]

**HSHM 914 a or b, Research Tutorial I.** By arrangement with faculty.

**HSHM 915 a or b, Research Tutorial II.** By arrangement with faculty.

[**HSHM 919b, Research Seminar in the History of Medicine and Science.** An exploration of research methods and the craft of writing in the history of medicine and science. Participants are expected to produce full-length research papers, and these individual research programs are the central focus of the group's discussions. Not offered in 2004–2005.]

**HSHM 920a or b, Independent Reading.** By arrangement with faculty.

**HSHM 930a or b, Independent Research.** By arrangement with faculty.

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. During the second term 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 offers a Ph.D. program in the History of Medicine and the Life Sciences. In addition it offers 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. Bender (Internal Medicine), A. Bothwell, H. K. Bottomly, J. Craft (Internal Medicine), P. Cresswell, R. Flavell (Chair), S. Ghosh, P. Kavathas (Laboratory Medicine), R. Medzhitov, I. Mellman (Cell Biology), J. Pober (Pathology), N. Ruddle (Epidemiology and Public Health), D. Schatz, M. Shlomchik (Laboratory Medicine), R. Tigelaar (Dermatology)

### Associate Professor

F. Lakkis (Internal Medicine)

### Assistant Professors

T. Chi, A. Iwasaki, S. Kaech

### Research Scientist

E. Eynon

### Associate Research Scientists

D. Amsen, G. Barton, J. Blander, M. Bynoe, H. Chi, O. Henegariu, I. Kawikova, K. Kobayashi, E. Kopp, Y. Laouar, G. R. Lee, D. Pflugh, M. Wan, P. Wearsch, D. Zhang

### Lecturer

L. Zheng

**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. H. K. Bottomly and staff.

**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. R. Medzhitov and staff.

**IBIO 536b, Advanced Immunology Seminar: Immunological Memory and Lymphocyte Homeostasis.** In this seminar course we review classical and recent papers that have shed light on immunological memory. Topics include the generation of memory lymphocytes, factors that control their survival and longevity (relative to naïve cells), the unique differentiation state of the memory cell, and the function of memory cells and how they contribute to memory immune responses. CD4 and CD8 T cells as well as B cells are covered, with emphasis on similarities and differences among these different lymphocyte types. In addition, it is clear that there is functional and phenotypic heterogeneity within these major types of lymphocyte memory populations, and this is consid-

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ered throughout the course. The format is discussion of several assigned papers in an approximately two-hour weekly session. Near the end of the term, students write and review a mini-grant on a relevant topic. M. Shlomchik, F. Lakkis, S. Kaech.

**IBIO 539a, Advanced Immunology Seminar: Innate Immunity.** The innate immune system has received broad attention in the past few years because of increasing understanding of its fundamental role in all aspects of host defense as well as in inflammatory and autoimmune diseases. This seminar course covers basic and advanced topics related to innate immunity, including the most recent findings in these areas. Specifically, the following aspects of innate immunity are covered in detail: innate immune recognition, cell types and tissues of the innate immune system, effector mechanisms of innate immunity, host-pathogen interactions, cytokines and chemokines, the inflammatory response, innate control of adaptive immunity, Toll-like receptors, NK cells, anti-viral and anti-bacterial immunity, innate immune system and disease. The course focuses on fundamental concepts of innate immunity and primary literature that lead to these concepts. Students in the course are required to actively participate in discussions and presentations. R. Medzhitov, J. Bender, A. Iwasaki.

**IBIO 600a, Introduction to Research.** Introduction to the research interests of the faculty. Required for all first-year Immunology Track students. P. Kavathas and staff.

## internal medicine

Office: LMP 1072, 785.4119

### Professors

R. J. Alpern, J. Amatruda (Adjunct), V. A. T. Andriole, P. S. Aronson, P. W. Askenase, E. Atkins (Emeritus), C. E. Atterbury (Emeritus), M. Barry, W. P. Batsford, J. R. Bender, N. Berliner, F. J. Bia, M. J. Bia, H. J. Binder, P. K. Bondy (Emeritus), J. L. Boyer, A. E. Broadus, R. Bucala, G. N. Burrow (Emeritus), H. S. Cabin, H. Chase, E. Chu, M. W. Cleman, L. S. Cohen, D. L. Coleman, H. O. Conn (Emeritus), L. M. Cooney, Jr., D. L. Cooper, J. Costa (Pathology), J. E. Craft, M. R. Cullen, G. V. Desir, V. DeVita, Jr., T. P. Duffy, A. Ebbert, Jr. (Emeritus), S. Edberg (Laboratory Medicine), J. A. Elias, E. Fikrig, R. L. Fisher, B. G. Forget, J. N. Forrest, Jr., G. H. Friedland, G. Garcia-Tsao, J. B. Gee (Emeritus), R. H. Gifford (Emeritus), J. A. Goffinet (Emeritus), F. S. Gorelick, R. J. Groszmann, J. P. Hayslett, S. Hebert (Cellular and Molecular Physiology), W. J. Hierholzer (Emeritus), N. J. Holbrook, R. I. Horwitz (Emeritus), S. K. Inouye, K. L. Insogna, S. E. Inzucchi, C. C. Jaffe, F. S. Kantor, C. R. Kapadia, J. P. Kassirer (Adjunct), H. M. Krumholz, F. A. Lee, R. J. Levine, H. Levitin (Emeritus), R. Lifton (Genetics), R. L. Mahnensmith, S. E. Malawista, J. C. Marsh (Emeritus), R. A. Matthay, P. McPhedran (Laboratory Medicine), V. Mohsenin, M. H. Nathanson, P. W. Noble, P. G. O'Connor, R. J. Papac, V. J. Quagliarello, J. M. Rapoport, A. Rastegar, C. A. Redlich, F. F. Richards (Emeritus), S. H. Rosenbaum (Anesthesiology), R. S. Sherwin, G. I. Shulman, N. J. Siegel (Pediatrics), B. R. Smith (Laboratory Medicine), S. Somlo, R. Soufer, H. M. Spiro (Emeritus), M. E. Tinetti, E. Ullu, F. Wackers (Diagnostic Radiology), S. Weissman (Genetics), A. B. Williams (School of Nursing), F. S. Wright, L. H. Young, B. L. Zaret

### Associate Professors

A. K. Abu-Alfa, F. Altice, D. J. S. Beardsley (Pediatrics), L. Bockenstedt, S. T. Bogardus, Jr., J. J. Brennan, B. A. Burtness, C. Canessa (Cellular and Molecular Physiology), L. Cantley, K. L. Cohen, L. E. Cohn, J. P. Concato, S. T. Crowley, L. M. Dembry, M. P. DiGiovanna, M. A. Drickamer, R. I. Enelow, J. Evans, D. G. Federman, D. A. Fiellin, L. Fraenkel, T. R. Fried, R. S. Galvin (Adjunct), T. M. Gill, F. J. Giordano, M. Green, C. P. Gross, P. Hebert, J. B. Henrich, J. S. Hughes, S. J. Huot, P. A. Jamidar, A. C. Justice, S. D. Katz, W. N. Kernan, Jr., J. Lacy, F. Lakkis, M. Mamula, R. A. Marottoli, C. A. McPherson, P. K. Mistry, J. Murren, A. J. Peixoto, M. A. Perazella, K. Petersen, S. Pfau, W. M. Philbrick, G. Pizzorno, D. D. Proctor, M. J. Radford, M. Remetz, M. O. Rigsby, H. Rinder (Laboratory Medicine), M. E. Robert (Pathology), C. Rochester, L. E. Rosenfeld, D. M. Rothstein, M. Russi, J. F. Setaro, M. D. Siegel, A. J. Sinusas, L. Tanoue, C. Tschudi (Epidemiology and Public Health), B. Wong, J. Wysolmerski

### Assistant Professors

J. V. Agostini, S. R. Akhtar, N. Angoff, H. R. Aslanian, E. Bahceci, T. J. Balcezak, L. Bell (Adjunct), G. K. Berland, D. G. Bermudes (Adjunct), D. Biemesderfer, J. S. Bogan, D. Bravata, K. Brown, H. Cain, R. V. Chilakamarti, C. Chung, G. G. Chung, G. L.



Chupp, J. F. Clancy, G. W. Cline, J. A. Dranoff, M. S. Ellman, J. M. Foody, R. Formica, D. S. Geller, D. R. Goldstein, B. Gulanski, K. Gupta, S. G. Haskell, S. Hay, E. H. Holt, C. J. Howes, E. A. Jonas, I. Kang, S. S. Kashaf, B. I. Kazmierczak, C. S. Kim (Pediatrics), J. K. Kim, H. Kluger, R. Koski (Adjunct), M. J. Kozal, J. D. Kravetz, R. Krishnamurthy, R. J. Lampert, C. G. Lee, P. Lee, Y. Liu, F. M. Lobo, C. M. Macica, A. Mani, J. R. McArdle, K. McKenzie, R. L. McNamara, W. Z. Mehal, J. P. Moriarty, D. G. Morris, V. A. Morris, A. Nagar, V. Nakaar (Adjunct), M. A. Pisani, D. Psyrrri, P. Rabinowitz, A. B. Reisman, J. Ren (Adjunct), W. D. Rifkin, M. Rose, J. A. Rosenbaum, F. J. Roux, C. B. Ruser, K. Russell, R. Russell, M. M. Sadeghi, J. R. Satchell-Jones, S. M. Schnittman (Adjunct), S. E. Seropian, A. C. Shaw, W. Shlomchik, A. N. Sofair, J. M. Stein, L. E. Sullivan, O. Taiwo, K. G. J. Vanasse, S. Vignesh, K. Wagner, L. M. Walke, D. Wencker, M. S. Wilson, A. V. Wisniewski, S. Wongcharatrawee, R. Yavari (Adjunct), Z. Yin

#### Instructors

W. C. Becker, U. C. Brewster, K. A. Crothers, J. P. Curtis, S. L. Fultz, C. G. Gunderson, S. Hardy, F. Jadbabaie, D. L. Kansagara, J. C. Munson, D. Negoianu, D. E. Rifkin, J. N. Rogart, U. Siddiqui, S. M. Snelgrove, S. A. Springer, P. B. Tabereaux, J. M. Tetrault, A. Vashist, H. K. Yaggi

#### Senior Research Scientists

R. R. Montgomery, V. M. Rajendran

#### Research Scientists

D. I. Baker, Z. Dai, R. E. G. Hendler, A. Khanna-Gupta, C. J. Soroka, H. Velazquez, C. Viscoli, L. Wen

#### Associate Research Scientists

S. Agarwal, H. G. Allore, G. Arhin, M. Aslan, M. Bartkiewicz, D. E. Befroy, A. A. Belperron, S.-Y. Cai, Y. Cai, D. Cao, G. Chalasani, S. Chapoval, X. Chen, J.-Y. Choi, M. Collinge, H. A. Doyle, J. Dziura (Pediatrics), H. Foellmer, A.-R. Gallagher, L. Geng, J. L. Goulet, S. Goyal, W. K. Gurr, C. H. He, J. A. Hodge, Y. Huang, Y. Iwakiri, D. Jiang, V. F. Kalb, A. K. Karihaloo, D. C. Koay, T. C. Kyriakides, L. Leng, G. Li, J. Li, Y. Y. Li, J. L. Liu, B. Ma, R. Mamillapalli, Y. Mao, B. A. Martell, G. J. McAvay, M. T. McIntosh, E. C. McNay, R. J. McCrimmon, S. Narasimhan, M. Okam (Pediatrics), U. Pal, T. E. Quan, L. B. Rogozinski, M. R. Silva, M. H. Stowe, B.-H. Sun, N. Tai, V. Thomas, R. B. Thomson, E. C. Thrower, X. Xian, J. N. Van Houten, P. H. Van Ness, L. Wang, T. Wang, W. Wang, J. Xu, L. Xu, K.-P. Yu, J. Zhang, J. Zhang, X.-M. Zhang, X. Zhang, H. Zheng

#### Research Affiliates

C. Da Silva, A. Hoque, H.-R. Kang, P. Mentzelopoulos, M. Yamasaki

#### Clinical Professors

J. Alexander, J. Belsky, J. M. Boyce, M. H. Brand, T. N. Byrne (Neurology), N. Dainiak, J. W. Dobbins, L. R. Farber, F. O. Finkelstein, D. S. Fischer, M. H. Floch, L. Friedman,

M. Gordon, E. D. Hendler, P. N. Herbert, P. B. Iannini, J. D. Kenney, A. S. Kliger, S. D. Kushlan, J. S. Loke, N. J. Marieb, M. Moser, S. Nair, R. T. Schoen, M. H. Schoenfeld, C. B. Sherter, R. J. Vender, S. M. Winter

Associate Clinical Professors

J. R. Anthony, S. A. Atlas, M. Bender, M. C. Bennick, O. J. Bizzozero, Jr., S. N. Bobrow, J. B. Borak, S. D. Brenner, B. V. Caldwell, E. Citkowitz, J. P. Cleary, F. Comite, E. L. Cooney, D. L. Copen, G. M. Dillard, C. A. Disabatino, Jr., E. L. Etkind, R. Fearon, J. D. Gaines, H. B. Garfinkel, D. I. Geisser, R. A. Gelfand, T. J. Godar, R. S. Gordon, A. V. Granata, J. M. Grant, L. E. Grauer, R. G. Haddad, F. D. Haeseler, E. Hankin, G. J. Hutchinson, R. M. Jarrett, D. M. Kaminsky, M. H. Kaplan, S. W. Kingsley, A. Kotch, S. J. Kra, M. J. Krauthamer, B. Lahiri, A. Lebowitz, A. L. Levy, C. R. Libertin, E. Littman, W. B. Lundberg, Jr., R. J. Mangi, C. A. Manthous, P. Marignani, A. M. Marino, D. B. Melchinger, D. J. Miller, M. A. Miller, S. S. Milles, D. Moll, E. D. Moritz, S. J. Moses, S. N. Novack, J. J. O'Connell, J. Perlotto, J. F. Pezzimenti, D. Podell, C. A. Polnitsky, G. V. Reid, J. L. Renda, J. H. Revkin, I. M. Roberts, J. R. Sabetta, M. Sadigh, K. V. Schwartz, M. L. Schwartz, C. B. Seelig, M. F. Simms, D. S. Smith, J. D. Smith, N. Spinelli, G. A. Spreccace, J. F. Sullivan, H. L. Taubin, M. J. Taylor, F. J. Troncale, S. Wolfson, J. G. Wong, B. J. Wu

Assistant Clinical Professors

R. M. Aaronson, A. J. Accomando, R. Ahmadi, F. D. Alfano, Y. Amoateng-Adjepong, J. F. Andrews, C. W. Andrias, S. J. Angelo, E. Anhalt, C. E. Apaloo, J. A. Appiah-Pippim, C. A. Arnold, S. Aronin, E. Atlas, J. Banatoski, R. J. Barse, L. Berman, R. D. Black, J. M. Blumberg, N. A. Bonheim, R. S. Borrus, G. R. Brescia, H. M. Brett-Smith, L. Bridger, M. L. Brines, E. Y. Brown, C. M. Brunet, L. V. Buckley, M. M. Burg, L. L. Burgo-Black, K. E. Calia, K. D. Carr, J. P. Chandler, C. L. Cherney, J. Cho, S. Z. Chowdhury, J. J. Chuong, M. E. Chute, C. A. Clyne, G. M. Cohen, M. Cohen, W. Cohen, J. D. Cooper, R. B. Cooper, J. A. Culpepper-Morgan, A. J. Cusano, L. J. Cuzzone, L. J. Davis, M. A. Demetrius, D. Desir, V. C. Dicola, E. J. Dill, B. R. Doolittle, A. B. Douglass, A. Drakonakis, K. S. Dufour, D. W. Dunne, R. M. Echols, W. F. Eckhardt, Jr., D. J. Eilbott, T. D. Eisen, S. M. Epstein, J. J. Ernstoff, W. J. Farrell, B. A. Feigenbaum, I. Feintzeig, M. K. Fikrig, S. M. Fink, W. Fischer, J. F. Flint, A. H. Fortin, B. C. Fox, J. E. Gage, V. Gassman, P. N. Geimer, P. Genecin, J. Gerber, B. J. Gerstenhaber, A. E. Ghanthous, V. E. Ghanthous, H. C. Gift, E. M. Ginsberg, G. S. Gladstein, J. A. Godley, M. P. Golden, S. M. Gordon-Dole, D. I. Grayer, J. A. Green, M. S. Grogan, T. K. Gupta, K. A. Haedicke, C. M. Hamill, J. H. Hansson, H. L. Haronian, J. K. Henchel, D. G. Hill, R. G. Hindes, C. F. Hollander, D. Hollister, F. Homayounooz, K. J. Hunt, R. G. Huntley, Jr., D. G. Huskins, J. Iannarone, S. Jacoby, E. J. Jimenez, S. Jones, H. P. Kaplan, M. E. Katz, R. E. Kaufman, R. D. Kayne, K. Kefalos, A. M. Keller, R. Kinstlinger, H. Knight, C. R. Kramer, H. M. Kramer, M. L. Kraus, M. J. Kunkel, S. H. Kunkes, S. P. Lagarde, S.-H. Lam, W. H. Landschulz, R. A. Lanzi, J. D. Lawrason, P. Lebowitz, R. E. Lebson, R. L. Leff, R. J. Lewis, A. T. Licciardello, H. M. Likier, M. Litchman, W. S. Long, J. A. Magaldi, A. R. Malina,

M. E. Mann, E. P. Mardh, M. A. Marieb, S. Mark, R. Martell, U. Masiukiewicz, B. P. Mathur, A. B. Mayerson, S. W. McCalley, R. J. McDonald, R. M. McLean, C. C. McNair, Jr., T. P. Meehan, J. A. Merritt, K. Michels-Ashwood, I. D. Mickenberg, S. P. Mickley, D. T. Miller, B. H. P. Mobo, Jr., R. F. Morrison, S. K. Mukherjee, R. J. Nardino, H. Nawaz, E. A. Nolfo, F. C. Pannill, L. A. Panzini, B. Peck, W. Petit, D. Phanumas, P. F. Pierce, H. L. Quentzel, C. R. Reed, N. I. Riegler, B. Ringstad, S. G. Rosen, A. Rosenberg, R. T. Sadock, S. L. Saunders, J. A. Schmierer, H. M. Schwartz, W. Y. Shih, A. L. Silber, R. S. Silverman, M. L. Skluth, L. F. Smaldone, M. J. Smith, H. B. Soletsky, P. A. Soukas, J. F. Sproviero, R. M. Stark, R. H. Stember, B. C. Swirsky, M. Sznol, T. Taylor, J. G. Teeter, I. R. Ternouth, B. S. Thomas, D. G. Tobin, J. Toksoy, R. Torres, K. J. Twohig, J. G. Uberti, R. Umashanker, C. V. Venero, H. R. Vikram, M. D. Virata, H. Ward, W. S. Warren, D. A. Weinshel, M. L. Whitcomb, L. M. Whitman, D. M. Wolfsohn, R. P. Wong, K. H. Yang, M. Zain, S. W. Zarich, J. S. Zesk, F. R. Zwas

#### Clinical Instructors

E. Agin, P. Asiedu, H. H. Atkins II, A. M. Bekui, R. D. Bruce, J. P. Caeiro, E. M. Carlson, D. L. Casey, M. A. Ciampi, T.-A. M. Clarke, S. Dey, A. Fisher, G. Gangu, K. S. Hanley, K. T. Hartmann, M. A. Kazakoff, L. Knoll, T. H. Liao, A. Liebling (Pediatrics), R. A. Martinello, H. C. Nolasco, L. Rome, J. F. Shea, K. S. Sinusas, M. A. Stehney, D. Thomas, D. J. Van Rhijn, O. G. Weis

#### Lecturers

D. Acampora, M. Barnes, J. G. Carroll, A. B. Deangelo, E. Grant, M. Knobf (School of Nursing), L. H. Newton, J. A. Sparer, Y. Wang, M. Warner, 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, Clinical Epidemiology and Biostatistics.** The course objectives are to (1) understand basic principles of clinical epidemiology and biostatistics; (2) recognize the sources and limitations of evidence and strategies used by physicians in the

care of patients; and (3) appreciate the concept of the “science underlying the art” of medicine. Students learn about the types of clinical questions that are central to patient care; the source and quality of clinical and other information used to answer questions; the methods in design and analysis employed in clinical research; and the application of data (derived from research and physician-patient interactions) to individual decision making in clinical care. The strategy of the course includes 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 105, Pre-Clinical Clerkship.** This course, extending throughout the first two years, is intended to teach medical students skills in medical interviewing, history taking and physical examination, and their application in clinical reasoning. The format of the course involves a few large group sessions for the purpose of demonstrating or modeling interview technique and many small group sessions in which students get a chance to see and practice the skills in question. An integral part of the Pre-Clinical Clerkship is the tutorial program in which groups of four students meet with one or two tutors weekly over a two-year period to practice the skills they are learning on patients in the hospital or clinic.

During the formal sessions and the clinical tutorials in the first year, students learn the basics of interviewing patients. Emphasis is placed on a patient-centered approach to interviewing. Students also begin to learn how to perform a complete physical examination in structured, supervised sessions in which they examine one another. Other activities include developing end-of-life care skills, understanding the care of the newborn in the Newborn Special Care Unit, understanding how to assess a geriatric patient in a nursing home, and learning observation skills in an art museum.

The second year includes learning more sophisticated skills in obtaining a medical history, how to write it up in a prescribed format, and how to present it orally. Students are evaluated on their ability to perform a complete history and physical examination at the assessment unit at UConn utilizing standardized patients. Standardized patients are used for teaching breast, pelvic, and scrotal and rectal exams. Students pass the Pre-Clinical Clerkship if they have attended all the skill building sessions; demonstrated an ability to perform a complete history and physical exam from memory (at UConn); and are considered to be ready for the wards according to their tutor. Limited to medical students. M. Bia.

**Internal Medicine 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 pre-clinical 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 integrated discrete modules that present disease processes from various disciplinary perspectives. The components include pathology, laboratory medicine, diagnostic radiology, preventive medicine, 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; Gastroin-

testinal 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.

**Internal Medicine 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.

**Internal Medicine 108, Integrative Clinical Medicine.** This three-work course is required of fourth-year students in the spring term. Each week's sessions center on the evolution of a complex case using intensive small-group formats under the supervision of experienced clinical faculty. The course involves significant student research and peer presentations surrounding the salient clinical, social, and behavioral issues presented by the unknown case itself, followed by a final grand rounds with considerable patient participation and student interaction. The afternoon sessions include an emergency medicine lecture series conducted by faculty in that discipline in preparation for internship, and approximately 10–12 sessions covering advanced medical informatics, human sexuality, or current social and ethical issues in medical practice. Director: F. J. Bia.

**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 (supervisor), K. L. Cohen, B. Gulanski, R. G. Hendler, E. H. Holt, K. L. Insogna, S. Inzucchi, U. Masiukiewicz, 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. 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, N. Fiengo, J. Foody, F. Giordano, D. Goldstein, H. Haronian, P. Hebert, C. Howes, S. Katz, H. M. Krumholz, R. Lampert, F. A. Lee, Y.-H. Liu, R. McNamara, S. E. Pfau, M. Radford, M. Remetz, L. Rosenfeld, K. Russell, R. Russell, M. Sadeghi, J. F. Setaro, A. J. Sinusas, R. Soufer, F. J. Wackers, D. Wencker, 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. Stu-

dents 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, R. J. Papac, 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 a third-year 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, Mehal, Mistry, and Nathanson) or the VA Connecticut Healthcare System, West Haven (Drs. Groszmann, Garcia-Tsao, Nagar, Vignesh, and Wongcharatrawee). 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, pancreaticobil-



ary, 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 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.

**Internal Medicine 158-1, Primary Care Evening Clinic.** The ambulatory care experience in the Primary Care Center is designed to provide longitudinal experience in the management of adult outpatients. Students are responsible for the health-care needs of their own patient panel over one calendar year or more. These are weekly pre-clinic conferences which include Journal Club and primary care topics presented by students or specialty attendings. The clinic is held each Wednesday evening, 5–9 p.m. 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.

**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 in areas relating to airway pharmacology, lung cell biology, and lung immunology (respiratory cells, immunologic reactions, etc.). S. Akhtar, H. Cain, G. Chupp, L. Cohn, R. Enelow, P. Lee, R. Matthay, J. McArdle, V. Mohsenin, D. Morris, P. Noble, M. Pisani, C. Redlich, C. Rochester, F. Roux, M. Siegel, L. Tanoue.

**Internal Medicine 180, Rheumatology.** Students participate in the inpatient Rheumatology consult service at both Yale-New Haven Hospital and the VA Connecticut Healthcare System, West Haven. Students attend two general arthritis clinics at the VA Connecticut Healthcare System, West Haven, one general arthritis clinic in the Primary Care Center, Yale-New Haven, and spend two afternoons per week with an attending rheumatologist in a private practice setting. Students 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 8:15 a.m., and a Case Conference at 9 a.m. Optional conferences include a Rheumatology research-in-progress meeting, and a weekly research journal club held on Fridays at noon. If interested, students may opt to combine Rheumatology and Allergy and Clinical Immunology. Limited to two students for each period of four to six weeks throughout the year.

L. Bockenstedt, R. Bucala, J. E. Craft, J. Evans, E. Fikrig, L. Fraenkel, I. Kang, S. E. Malawista, M. Mamula, R. Montgomery.

**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 2o9, 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, H. Vikram, 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 192, Physical Medicine and Rehabilitation.** The Hospital of St. Raphael has developed an elective that is designed to offer students a wide range of clinical exposure to the diagnosis and management of patients with rehabilitation problems. Students are actively involved with in-hospital patients and outpatients as well as EMGs. Focus is on thorough musculoskeletal and functional examination. Common diagnoses seen include neck and back pain, amputees, post-traumatic nonsurgical orthopaedic disorders, and electrodiagnostics/EMGs. This elective results in an increased awareness of the complete evaluation of musculoskeletal and neurological disorders and how they impact daily function. S. George, J. O'Brien.

**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 medical emergencies such as pulmonary edema, DKA, GI bleeding, acute respiratory failure, renal failure, coma, overdoses, metabolic acidosis, hypertensive emergencies, and myocardial infarctions. Students are expected to learn about the pathophysiology and treatment of these disorders, in this nonsubinternship setting. Basic cardiac life support training is expected. All students must obtain approval in advance to take this elective, based on performance in Medicine I and/or II clerkships, from the supervising MICU Medical Director, 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, clinical epidemiology, qualitative research methods, and data processing and management. The fall term contains more advance statistics and research methods, as well as several sessions on health policy, environmental assessment, and community-based research. The spring term contains the remaining topics in research methods and community-based research 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 5o1, 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 5o2, 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 5o4, 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 62o/Investigative Medicine 62o, Translational Research and Molecular Tools, Part I.** In week one of this two-week course, the student becomes familiar with both the underlying theory and the practical application of genetic sequence analysis. Lectures are supplemented with computer laboratory sessions to reinforce the ideas and provide practical experience. The ideas presented in this course are critical for molecular experimental design, interpreting results of sequencing projects, inferring gene function from primary genetic sequence data, and managing molecular biology data. In week two, students learn the underlying principles in structure-based drug design. Lectures are supplemented with computer laboratory sessions devoted to practical learning of basic principles in protein structure determination, analysis, and relationship to molecular drug design. Clinically relevant examples of this approach are considered. Offered in July. Prerequisite: consent of the instructor. K. Anderson and staff.

**Internal Medicine 625/Investigative Medicine 625, Principles of Clinical Research.** The purpose of this two-week intensive course is to provide an overview of the objectives, research strategies, and methods of 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, challenges in using statistics in clinical research, causal inference, and decision analysis. Sessions include lectures and discussion of readings distributed in advance. Offered in July or August. Prerequisite: consent of the instructor. E. Shapiro and staff.

**Internal Medicine 630a/Investigative Medicine 630a, Practical and Ethical 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. Prerequisite: consent of the instructor. H. Binder and staff.

**[Internal Medicine 64o/Investigative Medicine 64o, Seminars in Molecular Medicine.** This two-term (fall–spring) seminar course focuses on the details of the basic investigation of the biochemistry, cell biology, genetics, immunology, and molecular biology of human disease from a sophisticated perspective. At each session, articles on the basic laboratory investigation of a disease or disease process (which is well understood at the molecular level) are selected by the faculty. Faculty provide a didactic session, followed by discussion and student presentations on topics selected jointly with the conveners. Prerequisite: consent of the instructor. Not offered in 2004–2005.]

**Internal Medicine 65o/Investigative Medicine 65o, Seminars in Clinical Investigation.** This two-term (fall–spring) seminar course explores the interface between clinical strategies and the methodologies used to investigate these topics. A variety of topics are covered in an interactive seminar format. Articles are selected by the faculty, and students review and discuss the articles at each session. In addition, students gain experience in critical evaluation of study designs and protocol development (in the fall term), and grant writing and reviewing (in the spring term). Attendance and active participation are required. The course gives new clinical investigators the tools to conduct their own research project. Prerequisite: consent of the instructor. E. Shapiro and staff.

## Humanities in Medicine

The courses listed below are offered through the Program for Humanities in Medicine for 2004–2005. For further information, call Dr. Thomas Duffy or Clara Gyorgyey at 203.785.6102. Schedules of courses are flexible. If you are interested in any (or all) of the following courses, or have other interests that could be addressed through this program, please so indicate on the sign-up sheet. No obligation even if you sign up.

**Internal Medicine 5o5, Literature and Medicine.** Hope, courage, devotion, anguish, pain, illness, and death—the substance of all great literature is also fundamental to medicine. Literature and Medicine, a five-session elective, introduces students to short works of fiction, illuminating the ethical, moral, and psychological issues continually confronting their profession. The course helps students develop an understanding of the ways in which interpreting a literary narrative enhances their interactions with patients and clarifies the ethical dimensions of their work. Course schedule: six meetings at a mutually determined time. T. Duffy, W. Maye.

**Internal Medicine 5o6, Hungarian Literature and Medicine.** A five-session elective designed to introduce students to a rather unfamiliar culture: five highly gifted and severely impaired early twentieth-century Hungarian authors and their literary works that feature universal issues central to medicine anywhere. Students read the short stories and poetry of outstanding Hungarian authors in new English translation. The main focus is on how their diseases (brain tumor, syphilis, cancer, manic depression, and schizophrenia) altered their creative consciousness and their works. Course schedule: five meetings at a mutually determined time. C. Gyorgyey.

**Internal Medicine 5o9b, 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.

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# laboratory medicine

Office: CB 407, 688.2446

## Professors

A. Baumgarten (Emeritus), F. J. Bia (Internal Medicine), J. Booss (Neurology), J. R. Bove (Emeritus), R. K. Donabedian (Director of Medical Studies), S. C. Edberg, P. I. Jatlow (Chair), P. B. Kavathas, M. Landry, S. Marchesi, P. McPhedran, D. Seligson (Emeritus), M. Shlomchik, J. Sklar (Pathology), B. Smith (Vice Chair), E. L. Snyder (Associate Chair, Clinical Affairs), P. J. Tattersall (Associate Chair, Research and Academic Affairs)

## Associate Professors

D. Krause, C. Rinder (Anesthesiology), H. Rinder, G. Stack

## Assistant Professors

S. Campbell, M. Hodsdon, J. G. Howe, Y. Y. Wu

## Senior Research Scientist

S. Cotmore

## Research Scientists

G. Anderson (Child Study Center), W. McMurray

## Associate Research Scientists

L. Devine, J. Grove, A. Haberman, C. Keeler, X.-Y. Ma, M. Ripps

## Research Affiliates

S. Chattopadhyay, L. Kieffer

## Clinical Professors

B. Griffith, R. A. Levine, S. Wardlaw

## Associate Clinical Professors

D. Mayo, I. Nash, T. J. Tinghitella

## Assistant Clinical Professors

S. Gray, H. Malkus, R. R. Rathbone, C. Rauch, N. Shafi, M. Velleca

## Lecturers

S. Cohen, N. Drew, D. Ferguson, W. Gross

**Laboratory Medicine 1o2b.** 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. R. K. Donabedian 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 acquaint the student with techniques and procedures used in the laboratory detection and identification of the various groups of microorganisms, and employ a case-based approach to tie the laboratory findings to clinical illness and management. In laboratory, the student learns the histochemical, immunological, biochemical, and tissue culture techniques used for identification of microbes. In addition to learning some of the more complex laboratory procedures such as tissue culture in virological diagnoses, the student becomes proficient in simpler yet critically important bedside tests such as the Gram stain. Problem-based learning sessions in clinical infectious disease are offered in the last half of the course to bridge the science of the microbe to the management of infected patients. Second-year course. S. Campbell, F. Bia, S. Edberg, M. Landry, T. Tinghitella, and associates.

**Laboratory Medicine 131.** This is an in-depth experience in the field of laboratory medicine. The various diagnostic tests available in a large university hospital clinical laboratory are examined in terms of basic technology, theory, clinical indications for ordering, and specificity for disease process. Emphasis is on clinical laboratory correlation. The student participates in the various departmental teaching conferences such as Journal Club, Research Seminar, and Clinical Rounds. The students can select rotations through the various laboratories or concentrate in one area (blood bank, clinical chemistry, hematology, microbiology, immunology). Three days per week, for two or three weeks, given three times per year. Limited to two students per session. R. K. Donabedian and associates.

**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.



## microbial pathogenesis

Office: 295 Congress Avenue, Room 336B, 737.2404

### Professors

N. W. Andrews, E. Fikrig (Internal Medicine), J. E. Galán (Chair), M. K. Hostetter (Pediatrics)

### Associate Professor

C. R. Roy

### Assistant Professors

H. Agaisse, B. I. Kazmierczak (Internal Medicine), J. D. MacMicking, W. H. Mothes

### Associate Research Scientist

C. Huynh

### Postdoctoral Fellows

D. Hofreuter, C. Huynh

### Postdoctoral Associates

Y. Akeda, L. Andrade, R. Arantes, C. G. Briones, E. Cambronne, K. Carey, L. Chesnel, C. Czibener, F. Du, K. Hueffer, M. Lara-Tejero, M. Lehmann, A. Luhrmann, S. McGrath, T. Murata, S. Ninio, C. Nogueira, J. Patel, S. Spano, M.-P. Stein, P. Uchil, J. Ugalde, O. Walton-Rossanese, J. Wilson, D. Zamboni

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. McMahon-Pratt.

**MBIO 664b/EMD 664b, Parasitic Protozoa and Helminths.** Human diseases caused by eukaryotic parasites are the most prevalent in the world. They are important causes of mortality. Malaria alone is the leading killer of children under the age of five. This course focuses on the epidemiology, developmental biology, and cellular and molecular biology of the major eukaryotic parasites. We discuss the impact of these organisms on health in developing countries and also touch on the role of selected parasites on disease burden in the United States. The format consists of two one-hour lectures a week and a total of three laboratory demonstrations. S. Aksoy, C. Patton.

**MBIO 670a,b, Laboratory Rotation.** Rotation in three laboratories. Required for all first-year graduate students. J. Sweasy.

**MBIO 680b, Advanced Topics in Molecular Parasitology.** A broadly based seminar course on current research topics in cell and molecular parasitology, with topics chosen from the current literature. D. McMahon-Pratt, C. Tschudi, C. Patton.

**MBIO 684a/EMD 684a, Molecular and Cellular Processes of Parasitic Eukaryotes.**

An introductory graduate-level lecture and seminar course in modern parasitology. The class is focused on the reading and critical evaluation of papers and reviews from the current literature in cellular and molecular mechanisms of parasitism. Permission of the instructor required. D. McMahon-Pratt, C. Patton, 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.

**[MBIO 700, Seminal Papers on the Foundations of Modern Microbiology.** A required course for Microbiology first- and second-year students; not for credit. 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 had a major impact in current biomedical research. Offered every other year. N. Andrews, P. Tattersall. Not offered in 2004–2005.]

**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 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.

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## molecular biophysics and biochemistry

Offices: JWG 304, 432.2077; SHM C106, 785.4246

### Professors

C. Brudvig (Chemistry), D. M. Crothers (Chemistry; Emeritus), D. M. Engelman, J. Fruton (Emeritus), A. Garen, S. Ghosh (Immunobiology), N. D. F. Grindley (Chair), A. Hamilton (Chemistry), M. Hochstrasser, W. H. Konigsberg, P. Lengyel (Emeritus), R. Lifton (Genetics), I. G. Miller (Pediatrics), S. G. J. Mochrie (Physics), P. B. Moore (Chemistry), T. Pollard (Molecular, Cellular, and Developmental Biology), A. M. Pyle, C. M. Radding (Genetics; Emeritus), L. Regan, F. M. Richards (Emeritus), G. L. Schmir (Emeritus), R. G. Shulman (Emeritus), S. Simmonds (Emeritus), O. Sinanoglú (Chemistry; Emeritus), M. Snyder (Molecular, Cellular, and Developmental Biology), D. Söll, J. A. Steitz, T. A. Steitz, S. Strobel (Director of Undergraduate Studies), J. M. Sturtevant (Chemistry; Emeritus), W. C. Summers (Therapeutic Radiology), P. Sung

### Professor (Adjunct) of Research

K. Williams

### Associate Professors

S. Baserga (Director of Medical Studies), M. Gerstein, M. Koelle, A. Koleske (Director of Graduate Admissions), A. Miranker, M. Solomon (Director of Graduate Studies), S. Wolin (Cell Biology)

### Assistant Professors

T. Biederer, J. Cabral, E. De La Cruz, L. Heginbotham, V. Unger

### Senior Research Scientists

C. Joyce

### Research Scientists

E. Davidov, Z. Hu, K. Tycowski, J. Wang

### Visiting Research Scientists

S.-T. Kwon, L. Lewis, Y. Ma, I. Shcherbakova, L. Wang

### Associate Research Scientists

R. Albright, S. Balasubramanian, J. Burton, D. Chase, A. Cheng, C. Colangelo, J. Countryman, A. R. Curran, B. Ding, J. Elliott, L. Feng, E. Folta-Stogniew, E. Gulcicek, E. J. Hager, K. Hager, J. B. Jewell, Z. S. Juo, S. Kamtekar, L. Krejci, T. Lam, I. Lomakin, S. Mane, D. Ostapenko, T. Ravid, J. Rozowsky, B. Ruan, X. Song, Y. Sun

### Postdoctoral Fellows

S. Bailey, R. Beran, G. Blaha, W. Cao, G. Clayton, N. Conrad, A. Dixon, O. Emanuelsson, O. Fedorova, C. Fok, C.-S. Goh, S. Granneman, A. Henn, S.-L. K. Huang, T. Kajander, A. Kasmierczyk, D. Klimenko, I. Laurenzi, U. Lehnert, R.-N. Li, A. Lopez Cortajarena, J. R. Lytle, T. Magliery, J. McMurry, R. Milton-Fry, E. Myers,

M. Pelletier, J. Sachs, D. Schwartz, M. Sfakianos, W. Silverman, M. Simonovic, J. L. Vazquez Ibar, C. Waldsich, Y. Xia, Y. Xiong, J. Ye

Postdoctoral Associates

P. Adams, A. Ambrogelly, I. Bany, H. Bihler, P.-J. Chang, L.-W. Chen, C.-N. Chin, M. Deng, A. El-Guindy, J. Gehman, S. Gülich, M. Hohn, K. (S.-L.) Huang, S. Hunter, C. Innis, A. Jalilian, O. Kerscher, W. Kong, S. Kreft, M. Y. Kwon, Y. Kwon, X. Li, Y. Liu, L. J. Lu, N. Luscombe, M. Macris, T. Marlovits, D. Milburn, S. Namgoong, M. Nandineni, M. Okabe, A. Paccanaro, B. Pan, E. Pfund, C. R. Polycarpo, I. Pozdnyakova, J. Rinehart, Y. Reshetnyak, G. Rosas-Sandoval, A. Sachpatzidis, J. C. Salazar, J. San Filippo, T. M. Schmeing, M. Sehorn, V. Serebrov, S. VanKomen, I. Velichutina, S. J. Venkatraman, C. Wilson, F. Yi, J. Yu, E. Zakharova, Z. Zhang, D. Zheng, M. Zhong, M. Zhu

Postgraduate Associates

J. T. Hannich, S. Helgadottir, E. Kutluay, A. Sauerwald

Lecturers

A. Belperron (Internal Medicine), S. Bhaduri-McIntosh, H. Doyle (Internal Medicine), E. Herzog (Internal Medicine), J. Kahn (Pediatrics), A. Pawashe, V. Samuel (Internal Medicine), E. Thrower (Internal Medicine)

**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, S. Bhaduri-McIntosh, H. Doyle, J. Kahn, E. Herzog, V. Samuel, E. Thrower.

**MB&B 600a, Principles of Biochemistry I.** A rigorous introduction to the major concepts of biochemistry and to the process of discovery in this discipline, with emphasis on macromolecular conformation and physical processes in biochemistry. 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, D. Engelman, T. Biederer.

**MB&B 601b, Principles of Biochemistry II.** The chemistry and metabolism of nucleic acids, the mechanism and regulation of protein and nucleic acid synthesis, and selected topics in macromolecular biochemistry. S. Strobel, J. Steitz.

**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, T. Biederer, T. Pollard, G. Warren, and others.

**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 molecu-

lar genetics courses emphasize molecular biology, this course focuses on the concepts and logic underlying modern genetic analysis. T. Xu, M. Koelle, R. Lifton, M. Stern, K. White.

**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, and others.

**MB&B 650a and 651b, Laboratory Rotation for First-Year Students.** Required for all first-year graduate students. M. Solomon.

**MB&B 675, Seminar for First-Year Students.** Required for all first-year graduate students. L. Heginbotham, A. Miranker, and staff.

**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 during the spring term, run in a seminar/discussion format. Required for all first-year graduate students. V. Unger 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, J. Sweasy.

**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 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. 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, D. Engelman, 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, J. M. Cabral, E. De La Cruz, A. Miranker, L. Regan.

**MB&B 730b, 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, Advanced Eukaryotic Molecular Biology.** 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.

**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, E. De La Cruz, M. Hochstrasser, A. Miranker, L. Regan.

**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. V. Unger, T. Biederer, L. Heginbotham.

**MB&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. D. Söll, M. Gerstein.

**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. J. M. Cabral, T. Steitz.

**MB&B 765a, Enzyme Mechanisms.** An advanced course on the structure, function, and reaction mechanisms of protein and nucleic acid enzymes. Topics include the classic metabolic enzymes; molecular motors, polymerases, and machines; electron transfer, redox enzymes, and their higher-order complexes; ribozymes and DNA enzymes; allosteric regulation in protein and RNA enzymes; and the design and selection of novel enzymes. These topics are integrated with discussion of catalytic strategy by enzymes, and enzymological analysis using steady-state kinetics, pre-steady-state kinetics, and single-molecule methods. Prerequisites: physical chemistry (may be taken concurrently) and biochemistry. E. De La Cruz, G. Brudvig, A. Pyle, T. Steitz, S. Strobel.

**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 bio-

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chemistry, gene expression, and virology. Prerequisite: a prior course in biochemistry. This course accompanies the lectures in MB&B 550a. M.D. and M.D./Ph.D. students only. S. J. Baserga, W. Konigsberg.

**MB&B 900a or 901b, Reading Course in Biophysics.** Directed reading course in biophysics. Term paper required. By arrangement with faculty.

**MB&B 902a or 903b, Reading Course in Molecular Genetics.** Directed reading course in molecular genetics. Term paper required. By arrangement with faculty.

**MB&B 904a or 905b, Reading Course in Biochemistry.** Directed reading course in biochemistry. Term paper required. By arrangement with faculty.

## neurobiology

Office: SHM C300, 785.4323

### Professors

C. J. Barnstable (Ophthalmology and Visual Science), B. S. Bunney (Psychiatry), N. W. Daw (Ophthalmology and Visual Science), C. Greer (Neurosurgery), R. H. LaMotte (Anesthesiology), C. Leranath (Obstetrics, Gynecology, and Reproductive Sciences), D. A. McCormick, P. Rakic (Chair), J. Santos-Sacchi (Surgery), I. R. Schwartz (Surgery), G. M. Shepherd, S. Strittmatter (Neurology), S. G. Waxman (Neurology)

### Associate Professors

M. Alreja (Psychiatry), A. Arnsten (Director of Graduate Studies), C. Bruce, N. deLanerolle (Neurosurgery), R. Fitzsimonds (Cellular and Molecular Physiology), T. Horvath (Obstetrics, Gynecology, and Reproductive Sciences), A. Koleske (Molecular Biophysics and Biochemistry), M. Picciotto (Psychiatry), V. Pieribone (Cellular and Molecular Physiology), M. L. Schwartz (Director of Medical Studies), F. Vaccarino (Child Study Center), C. van Dyck (Psychiatry)

### Assistant Professors

H. Blumenfeld (Neurology), S. Castner (Psychiatry), W. Chen, M. Donoghue Velleca, M. Laubach (J. B. Pierce Laboratory), R. Matthews, J. Mazer, N. Sestan, N. Tian (Ophthalmology and Visual Science), G. Williams (Psychiatry), M. Yeckel

### Research Scientist

L. D. Selemon

### Associate Research Scientists

J.-G. Chen, C. Crasto, H. Friedman, W.-J. Gao, V.-R. Gazula, V. Gluncic, M. Migliore, Y. Shu, E. Sybirska, W. Xiong

### Research Affiliates

S. Gary, D. Stock

### Postdoctoral Associates & Fellows

E. S. B. C. Ang, C. Aptowicz, A. Ayoub, C. Baker, J. Bergsman, C. Broberger, M. Dino, A. Duque, J. Fitzpatrick, K. Hashimoto-Torii, S. Janusonis, N. Kabbani, T. Koos, Y. Morozov, T. Morse, S. Nagayama, M. R. Rasin, M. Sarkisian, M. Viapiano, M. Wang, X. Wang, D. Willhite, S. Zeng

**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. P. Rakic, M. Schwartz, 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 seminar/lecture 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. Faculty of the Department of Neurobiology.

**NBIO 507b/Neurology 108b/NSCI 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. S. Strittmatter, S. Waxman, D. Navaratnam.

**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. G. Shepherd.

**NBIO 510, 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 and hours to be arranged with individual faculty or staff members of the Department of Neurobiology.

**NBIO 511, Introduction to Techniques Used in Electrophysiological Analysis at the Cellular Level.** Includes practical training in *in vivo* and *in vitro* nervous system preparations, extracellular and intracellular recordings, sensory stimulation, dye injections, and selected neuropharmacological procedures. Choice of techniques and hours to be arranged with individual faculty or staff members of the Department of Neurobiology.

**NBIO 524b/NSCI 514b, The Regulation of Cell Fate During CNS Development.** 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. M. Vaccarino.

**[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. C. Bruce and faculty. Next offered in 2004–2005.]

**NBIO 601, Topics in Olfactory Physiology.** Advanced tutorial course. G. Shepherd.

**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. V. Pieribone, F. Sigworth. Next offered in 2004–2005.]

**NBIO 720a/MCDB 720a/Neuroscience 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.

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## neurology

Office: LCI 708, 785.5947

### Professors

T. Allison (Emeritus), J. Booss, M. B. Bracken (Epidemiology and Public Health), L. M. Brass, G. H. Glaser (Emeritus), B. Jabbari, R. D. Kerns, Jr. (Psychiatry), J. D. Kocsis (Director of Postdoctoral Studies), R. H. Mattson (Emeritus), W. I. McDonald (Visiting), L. R. Ment (Pediatrics), J. W. Prichard (Emeritus), P. Rakic (Neurobiology), B. A. Shaywitz (Pediatrics), S. S. Spencer, S. M. Strittmatter, S. G. Waxman (Chair)

### Associate Professors

R. B. Duckrow, J. M. Goldstein, F. Hisama, E. Novotny, Jr. (Pediatrics), H. Patwa (Director, Neuroscience Clerkship), O. A. C. Petroff, G. B. Richerson (Director, Neurology Residency Program)

### Assistant Professors

J. Baehring, H. Blumenfeld (Director of Medical Studies), M. Carrithers, M. Eisa, M. Gorman, A. Lo, D. Navaratnam, S. Novella, J. Preiningerova, P. K. Stys (Visiting), D. Tkeshelashvili

### Senior Research Scientist

R. H. Mattson

### Research Scientists

J. A. Black, S. Dib-Hajj

### Associate Research Scientists

S. Agulian, O. Hadjimichael, B. Hains, A. Hudmon, K. Lankford, E. A. Markakis, A. Rush, A. Szekely (Genetics), H. A. Tokuno, W. Wang, Y.-M. Wu, S.-H. Yang, H. Zaveri

### Clinical Professors

T. N. Byrne, R. L. Lesser (Ophthalmology and Visual Science), L. Levy, S. Levy (Pediatrics), K. Marek, F. Testa (Pediatrics), T. J. Walsh (Ophthalmology and Visual Science)

### Associate Clinical Professors

R. C. Delaney, J. C. Moench, K. N. Sena, R. S. Young (Pediatrics)

### Assistant Clinical Professors

A. R. Bobowick, S. L. Bridgers II, J. B. Butler, W. A. Camp, J. B. Guarnaccia, B. B. Haak, M. Hasbani, A. Katz, M. W. Kremenitzer, J. H. Mashman, J. C. McVeety, F. K. Nahm, R. A. Novelty, R. M. Poole, D. S. Russell (Psychiatry), M. J. Stransky, S. Tepper, J. S. Tucker, N. Werdiger

### Clinical Instructors

T. E. Conley, R. P. Einbinder, B. Greenspan, S. Patel, D. J. Shiling, D. Story, M. Tolar, E. S. Tucker, P. Wade, D. Wirz

## Postdoctoral Fellows

E. Fertig, N. Harel, O. Hope, P. Joshi, E. Koziorynska, B. Liu, H. Sami, E. Wittmack

## Postdoctoral Associates

J. S. Choi, A. Diez-Sampedro, C. Dohle, M. Hodges, F. Hu, B. Li, A. McGee, M. Sasaki, U. Schridde, H. Togashi, X. Wang, K. Yu, P. Zhao

## Lecturers

O. Avitzur, L. Bangalore, V. Shen

**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 Y-NHH, the VA Connecticut Healthcare System, West Haven, or St. Raphael's Hospital, unless special or unusual circumstances justify taking the course at some other academic institution. H. Patwa, L. Ment, C. Duncan, H. Blumenfeld, T. N. Byrne.

**Neurology 103, Clinical Neurology Elective.** Assignments for the clinical neurology elective are to the Y-NHH neurology consultation service, a rotation consisting of all outpatient clinics; or to the Y-NHH 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.

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**Neurology 1o8b/NBIO 5o7b/NSCI 5o7b, Cellular and Molecular Mechanisms of Neurologic Disease.** Molecular and cellular neuroscience has recently developed many novel and powerful techniques for understanding nervous system function. This 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. 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. T. N. Byrne.

**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. Bronen (Diagnostic Radiology), W. F. Collins, Jr. (Emeritus), C. C. Duncan, C. A. Greer, C. LaMotte, J. Persing (Surgery/Plastic), J. M. Piepmeier, D. E. Redmond, Jr. (Psychiatry), D. D. Spencer (Chair), S. Spencer (Neurology), A. Van den Pol

### Associate Professors

R. T. Constable (Diagnostic Radiology), N. deLanerolle, A. C. de Lotbinière, R. B. Duckrow (Neurology), M. Gunel, J. T. King, E. J. Novotny, Jr. (Pediatrics), K. J. Ruskin (Anesthesiology), M. Westerveld, A. Williamson

### Assistant Professors

A. Amar, J. M. Baehring (Neurology), H. Blumenfeld (Neurology), A. Bordey, I. Cavus (Psychiatry), V. Chiang, D. J. Gaal (Anesthesiology), M. J. Gorman (Neurology), K. Stoddard, J. Strugar, D. Tkeshelashvili (Neurology), K. Vives

### Associate Research Scientists

T. Eid, P. K. Ghosh, C. Livsey, A. Louvi, R. Mann, M. Stoffman, H. Treloar, K. Wu

### Visiting Research Scientists

H. Hetherington, J. Pan

### Clinical Professors

T. N. Byrne (Neurology), L. M. Davey

### Associate Clinical Professors

I. Goodrich, D. E. Nijensohn

### Assistant Clinical Professors

T. J. Arkins, G. M. Bloomgarden, P. S. Dickey, K. Firlik, Z. Ghogawala, E. Kornel, J. Kveton (Surgery), T. Lansen, J. K. Sabshin, J. Stern

### Clinical Instructors

E. Akeyson, J. Gorelick

### Postdoctoral Fellows

B. Guclu, A. Domingo, C. Iwema, A. G. O'Shea

### Postdoctoral Associates

H. Beckstrom, A. J. Bolteus, L.-Y. Fu, H. Huang, Y. Li, X. X. Liu, D. Rodriguez-Gill, G. Wollman

### Lecturer

E. M. Ogle

**Neurosurgery 1o1, 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. J. Baehring, V. Chiang, W. F. Collins, A. de Lotbinière, R. B. Duckrow, C. C. Duncan, M. Gorman, M. Gunel, J. King, J. M. Piepmeier, D. D. Spencer, J. Strugar, K. Vives.

**Neurosurgery 1o2, 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. de Lanerolle); 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); role of the gene Notch in neoplastic CNS tumors (K. Vives); characterization of ensheathing cells in promoting axonal elongation (C. A. Greer). Clinical research includes neurotrauma (V. Chiang), neuropsychological studies (M. Westerveld, K. Stoddard), spine disease (J. Strugar), epilepsy surgery (D. Spencer, K. Vives), pediatric neurosurgery outcomes (C. Duncan), neuro-oncology (J. Piepmeier, J. Baehring), basic mechanisms in CNS lymphoma (J. Baehring), and stereotactic radiosurgery (A. de Lotbinière). Available throughout the year. Arrangements made with C. A. Greer.

## obstetrics, gynecology, and reproductive sciences

Office: FMB 339, 785.4002

### Professors

A. Arici, H. R. Behrman, M. B. Bracken (Epidemiology and Public Health), F. Braveman (Anesthesiology), J. Cohen, J. Copel, R. A. Ehrenkrantz (Pediatrics), I. Gross (Pediatrics), J. Hayslett (Internal Medicine), R. B. Hochberg, E. E. Jones, E. I. Kohorn (Emeritus), C. Leranth, C. J. Lockwood (Chair), M. Mahoney (Genetics), N. Maihle, S. McCarthy (Diagnostic Radiology), F. Naftolin (Molecular, Cellular, and Developmental Biology), P. Patrizio, P. M. Sarrel (Emeritus), P. E. Schwartz

### Associate Professors

A. J. Duleba, C. N. Epperson (Psychiatry), E. F. Funai, F. Galerneau, S. Guller, J. Henrich (Internal Medicine), T. Horvath, J. Li (Visiting), U. Magriples, G. Mor, E. Norwitz, M. Paidas, A. Parsons, T. Rutherford, D. Sakkas, E. Sze, H. Taylor

### Assistant Professors

V. Abrahams, M. Azodi, R. Bercik, C. Buhimschi, K. Connell, S. Diano, Q. Gao, X.-B. Gao, Y. Huang, J. Illuzzi, D. Neale, J. Reiter, S. M. Richman, E. Seli, M. Small, C. Stocco, D. Wells

### Instructors

M. O. Bahtiyar, B. Hamar, S. D. Julien, C. B. Kallen, M. Kelly, L. Magloire, J. McAlpine, D. M. O'Malley, C. Pettker, B. Rackow, A. Sfakianaki, A. Wold

### Senior Research Scientist

G. Huszar

### Research Scientists

H. Kliman, G. Krikun, F. Schatz

### Associate Research Scientists

I. Buhimschi, E. Borok, G. Daftary, S.-T. Huang, D. Labaree, J. Liao, A. A. F. A. Metwaly, E. Neuber

### Research Affiliates

H. Cakmak, L. Cole, T. Draca, H.-H. Lee, Y. Luo, G. Martinez, T. Ornek, R. Pais, F. Parikh, S. Rotmensch, S. Shahabi, O. Tan, M. Urso, P. Whitten

### Clinical Professors

M. Berman, S. Lavietes, V. Lynch, M. Minkin, J. Silidker, S. Spangler, L. Wartel

### Associate Clinical Professors

H. Blanchette, C. Cassin, R. Cwik, D. Greenfeld, T. Hanson, R. Kaump, W. Lieber, C. McCarthy, N. Ravski, H. Simon, R. Stiller, V. Stuermer, R. Vidone, J. Whetham, K. Williams, L. Zamore



## Assistant Clinical Professors

F. Boozarjomehri, P. Brines, S. Casper, E. Chang, A. Chelouche, R. Chosak, I. Cohen, P. Coppola, E. Fine, S. Fleischman, P. Fleming, K. Fletcher, D. Fox, G. Foye, M. Gillette, C. Kandall, E. Karlovsky, T. Kumarasamy, S. Laifer, P. Lamastra, D. Lima, E. Luchansky, E. Manske, S. Mark (Internal Medicine), B. McDowell, L. Plisic, B. Rigney, S. Rosenman, D. Russell, A. Strong, H. Suesserman, E. Topran, O. Vincent, T. Zreik

## Clinical Instructors

A. Asis, M. Asis, K. Aversa, E. Berry, U. Bhuvanesh, F. Cohn, S. Flaherty, J. Grosso, C. Huttler, J. Kaczmarek, A. Landry, R. Lubell, B. Maloy, J. McGrade, R. Moscarelli, H. Nusbaum, E. Palluotto, A. Petruzzelli, R. Pringle, K. Rath, M. Rhee, A. Ross, D. Roth, R. Samuelson, M. Speranza, J. Stadalnik, A. Tirado, D. Tonzola, M. Tse, M. Wise

## Postdoctoral Fellows

A. Alvero, Z. Cai, W. Chen, N. Demir, Z. Liu, Y. Rao, J. Wilken

## Postdoctoral Associates

A. Abzaid, Z. Andrews, A. Coppola, I. Da Silva, H. Du, N. Foyouzi Yousefi, T. Hajszan, H. Kwon, P. Piotrowski

## Lecturers

R. D. Auerbach, B. Forbis, S. Girona, M. Haney, F. Haseltine, G. Johnson, N. Kellett, E. Kuczynski, N. Martina, L. Mosley, A. Moss, M. Reault, J. Reinshagen, T. Santos, C. Szejik, J. Vulte

**Obstetrics, Gynecology, and Reproductive Sciences 103, Core Inpatient Clerkship.** This core clerkship is a four-week rotation in which students serve as clinical clerks on both the obstetrics (two weeks) and the gynecology services (two weeks). At our affiliate sites, which include Bridgeport Hospital, Hospital of St. Raphael, and Danbury Hospital, the clerk functions as part of a team that participates in both gynecologic and obstetrical care. During the obstetrics portion of the rotation at Yale-New Haven Hospital, the clinical clerk is assigned to the labor floor 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 labor and delivery, write notes during the intrapartum period, participate in the delivery, 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. 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, review pelvic and abdominal anatomy, and become familiar with the basics of major gynecological cancer treatment including surgical management as well as chemotherapy and radiation therapy management. The clerk is expected to interview, examine, and follow patients assigned in rotation. The student is also expected to participate in operative procedures, particularly as relates to those patients that they are responsible for following. E. E. Jones.

**Obstetrics, Gynecology, and Reproductive Sciences 104/Psychiatry 107, Shared Clerkship in Medical Psychiatry.** This clerkship, administered jointly with the Department of Psychiatry, is 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 in patients with co-morbid and psychiatric illness. Special emphasis is placed on evaluation of psychiatric emergencies and competency to make informed medical decisions. R. Rohrbaugh and Department of Psychiatry faculty.

**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 obstetric elective for fourth-year medical students. Ideally, only one student should be on the service at any time. In addition to doing high-risk obstetric rounds with the team and admitting emergency patients, the student is expected to attend perinatal ultrasound sessions that are held every day from 9 a.m. to 4 p.m. These are several rounds for students that include all obstetric rounds held in the department and the daily high-risk obstetric rounds. The student is on call with the high-risk chief resident and should come in at least on every third to fourth night to take part in the management of high-risk patients during labor and delivery. The evaluation of the student is based primarily on the clinical performance as well as participation at rounds and presentation of cases. J. Copel and staff.

**Obstetrics, Gynecology, and Reproductive Sciences 108, Reproductive Endocrinology and Infertility Elective.** A clinical elective in reproductive endocrinology and infertility. Students gain a basic knowledge of reproductive endocrine function including the physiology of the menstrual cycle and ovulation, male reproductive events, and the physiology of the climacteric and menopause. They also are introduced to disruptions in physiology and function leading to endocrine and infertility problems. Some of the common clinical problems to which students are introduced are polycystic ovarian disease and other symptoms of androgen excess, hyperprolactinemia, anovulatory syndromes, various genetic abnormalities that affect fertility, endometriosis and its sequelae, and tubal disease and its ramifications for surgery. In addition, students are exposed to the new reproductive technology such as in-vitro fertilization and the embryo transfer procedure. By the end of the elective, students are expected to be knowledgeable in all of the aforementioned areas through both reading and interaction with patients, faculty, and fellows. Suggested reading for the elective is Speroff, Glass, and Kase, *Clinical Gynecologic Endocrinology and Infertility*, 6th edition, Williams and Wilkins, publishers. In addition to being conversant with the aforementioned clinical situations, students on elective are expected to see endocrine and infertility patients in the office with faculty and fellows. Patients are interviewed and presented to the faculty member working with the students, and the cases are discussed. If appropriate, students also participate in physical examinations. Students are also expected to participate in surgical procedures on endocrine and infertility patients. Students take histories and perform physical examinations on major surgical cases at the time of hospital admission. They are expected to be present in the operating room during the surgery with the consent of the patient and follow the patients during the postoperative recovery period. Students also have the opportunity to assist in outpatient surgical procedures done in the one-day surgical center and to observe procedures in in-vitro fertilization and the embryo transfer program. A full range of conferences and teaching sessions including the Obstetric and Gynecologic Grand Rounds are also available for students in the elective. A. Arici and staff.

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**Obstetrics, Gynecology, and Reproductive Sciences 109, Oncology Elective.** The purpose of the oncology elective is to enhance the student's knowledge of the diagnosis and management of women with gynecologic malignancies. The elective is offered to one student at a time for three to 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, 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 clinic and the colposcopy clinic. A multiple-discipline tumor conference including faculty members from the divisions of Radiation Oncology and Gynecologic Pathology is held weekly. The student is also expected to attend a weekly gynecologic oncology conference and participate in the discussion. P. E. Schwartz and staff.

## ophthalmology and visual science

Office: BB 110, 785.2020

### Professors

C. Barnstable, M. Coca-Prados, N. Daw, C. Gonzalez, W. H. Miller (Emeritus),  
M. L. Sears (Adjunct), M. B. Shields (Chair)

### Associate Professors

B. DeBroff, L. J. Rizzolo (Surgery), J. Sinard (Pathology), K. M. Stoessel, C. Zeiss (Com-  
parative Medicine)

### Assistant Professors

R. Adelman, Z. Klett, G. Shafranov, N. Tian

### Instructors

B. Ford, M. Gershon, C. L. Hagedorn

### Associate Research Scientists

S. Ghosh, S.-M. Zhang

### Research Affiliates

S. Cheema, V. Kanade, H. Lu, J. Silverman

### Clinical Professors

I. W. Abrahams, A. A. Khodadoust, R. L. Lesser, D. E. Silverstone, T. J. Walsh,  
A. S. Wong

### Associate Clinical Professors

S. Forster, P. Haffner, A. J. Levada, D. W. Parke, A. D. Rose, R. A. Wiznia

### Assistant Clinical Professors

P. Branden, G. Bullwinkel, N. Chaudhry, A. Daccache, L. Doctor, J. Elman, P. Falcone,  
A. J. Fezza, K. Gagnon, P. Gaudio, S. B. Hersh, W. Larrison, E. Lim, J. Martone, A.  
Mead, M. Milner, J. Olson, P. Palmisano, A. D. Pearlstone, E. A. Petrelli, R. L.  
Petrelli, A. Romania, C. Sierra, C. Sklar, S. M. Soloway, D. Tom, M. L. Weitzman,  
B. D. Zuckerman

### Clinical Instructors

D. Bacal, J. Q. Brooks, S. Castracane, V. de Luise, P. A. Ecker, J. Geffin, P. Guida, P.  
Masi, A. Musto, M. R. Shapiro, D. Shore, J. Silbert, J. Sokol, S. C. Thornquist, J.  
Weisz

### Postdoctoral Associates

B. Chen, L. Chen, Q. Fischer, Q. He, Y. Li, S. B. Patil, Y. Rao, R. Reddy, M. Salvador-  
Silva, H. Xu, Y. Yang

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**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.

## orthopaedics and rehabilitation

Office: YPB 133, 785.2579

### Professors

R. Baron, G. Friedlaender (Chair), C. Gundberg, M. Horowitz, P. Jokl, L. Katz (Diagnostic Radiology), M. Panjabi, R. Pelker, T. Renshaw, W. Southwick (Emeritus)

### Associate Professors

M. Baumgaertner, J. Cholewicki, J. Slade, A. Vignery

### Assistant Professors

J. Grauer, A. Haims (Diagnostic Radiology), D. Lindskog, M. Medvecky, J. Yue

### Instructors

S. Dodds, D. Grosser, D. Husted, G. Ortega, R. Shah

### Research Scientist

W. Horne

### Associate Research Scientists

S. Balasubramanian, A. Bruzzaniti, M. Kacena, A. Sanjay

### Research Affiliates

Q. Hammouri, H.-Y. Qian

### Clinical Professors

P. Brown, K. Keggi, J. Lynch, U. Weil

### Associate Clinical Professors

H. Bradburn, R. Margolis, E. Sella

### Assistant Clinical Professors

M. Altman, J. Aversa, A. Axtmayer, R. Bernstein, P. Blume, D. Caminear, J. Daigneault, P. DeLuca, D. Gibson, G. Gorecki, J. Irving, J. Kelley, K. Kramer, J. Lieponis, M. Luchini, P. Luchini, J. Marsh, R. Mayor, M. Murphy, D. Novicki, M. Pressman, J. Raycroft, A. Reznik, D. Rosenblum, J. Shine, A. Sicklick, M. Silver, J. Sumner, C. Swigart, C. Wahl, L. Weis, J. Wu

### Clinical Instructors

D. Bindelglass, D. Brittis, M. Clain, R. Dawe, R. Deponite, R. Diana, R. Feldman, R. Hendrikson, H. Hermele, M. Kaplan, N. Kaplan, J. Mangieri, J. McCallum, T. Moran, M. Morrison, P. Naiman, J. Perlman, A. Rice, K. Schmitt, R. Stanton, P. Stovell, S. Tomak, R. Zell

### Postdoctoral Fellows & Associates

W. Cui, O. Destaing, A. Ghosh, C. Itzstein, F. Morvan, A. Nakajima, Y. Tominaga

### Lecturers

J. Fulkerson, R. Johnson, M. Parisi

**Orthopaedics and Rehabilitation 1o2, 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 subspecialty 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 postoperative 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 1o4, 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 Kathryn Umlauf.

**Orthopaedics and Rehabilitation 1o8, 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. (Y-NHH 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 Kathryn Umlauf.

**Orthopaedics and Rehabilitation 11o, 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. M. Panjabi.

**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, heterotropic 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.



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# pathology

Office: LH 108, 785.2759

## Professors

P. W. Askenase (Internal Medicine), R. Bucala (Internal Medicine), Y. Choi (Co-Vice Chair), J. Costa (Co-Vice Chair), S. E. Downing (Emeritus), S. D. Flynn, N. Holbrook (Internal Medicine), M. Kashgarian, J. H. Kim, P. Lizardi, M. Lorber (Surgery), J. A. Madri (Director of Medical Studies), V. T. Marchesi, M. Mooseker (Molecular, Cellular, and Developmental Biology), J. S. Morrow (Chair), J. S. Pober, J. K. Rose, J. Sklar, D. F. Stern (Director of Graduate Studies), F. Tavassoli, R. Yesner (Emeritus)

## Associate Professors

J. Brandsma (Comparative Medicine), E. Glusac, R. Homer, D. Krause (Laboratory Medicine), R. Lazova (Dermatology), J. M. McNiff (Dermatology), W. Min, A. Perkins, M. Reyes-Mugica, D. Rimm, M. E. Robert, J. Sinard, W. Zheng

## Assistant Professors

S. Bannykh, C. Bifulco, D. Braddock, M. Chacho, S. Cowper (Dermatology), L. Hao, P. Hui, D. Jain, D. Kowalski, M. Krauthammer, T. Kyriakides, M. Martel, R. Means, I. Ocal, M. Pinto, L. Qin, P. Ravichandran, A. Riba, M. Robek, A. Subtil (Dermatology), D. Tuck, Z. Walther, E. Zambrano

## Instructor

C. Angeletti

## Research Scientists

C. Howe, D. Pradhan

## Associate Research Scientists

R. Camp, G. Chatterjee, J. Czyzyk, P. Gershkovich, M. Gilmore-Hebert, A. Jackson-Fisher, N. Kirkiles-Smith, S. Lang, J. Li, M. Liu, T. Manes, M. Mattie, N. Rose, M. Stankewich, A. Stortchevoi, L. Tsvetkov, T. Welte, B. Yatsula, Z. Zhang

## Clinical Professors

G. L. Davis, D. M. Lowell, G. Reynoso

## Associate Clinical Professors

R. Beckett, P. Fiedler, N. E. Herrera, S. H. Lee, D. F. Miller, I. Nash (Laboratory Medicine), D. J. Nelligan, R. Tennant (Emeritus), I. M. Weisbrot

## Assistant Clinical Professors

T. E. Ciesielski, E. M. Clayton, M. T. Cronin, G. Golenwsky, S. Hahn, V. Lopez

## Postdoctoral Associates

J. Choy, C. Cianci, A. D'Alessio, J. Esparza, A. Golan, M. Harigopal, J. Lage, H. Li, Q. Li, X. Li, D. Luo, A. McCabe, K. Okuma, E. Ramsburg, C. Wang, Y. Wu, Y. Xiao, H. Zhang, J. Zhang, S. Zhang, W. Zhang

## Postdoctoral Fellows

O. Fadare, M. Ghofrani, A. Juliane, K. Lezon-Geyda, T. Manes, E. C. Marginean, A. Neto, B. Ramhanie, B. Shepherd, S. Tandon, R. Torres, C. Zito

**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 65ob, 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 A. S. Perkins.

**Pathology 67ob, 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 68oa, Seminar in Pharmacology and Molecular Medicine.** Readings and discussion in topics relevant to cell biology, signal transduction, and molecular medicine. The overall theme of the papers discussed is mitochondrial dysfunction, apoptosis, and human disease. The class emphasizes analysis of the primary research literature and development of presentation skills. G. Shadel, W. Min.

**Pathology 69oa, Molecular Mechanisms of Disease.** The objective of this course is to equip future investigators in the life sciences with some understanding of the fundamental mechanisms that underlie human disease. Lectures and discussion sessions explore, within the context of specific diseases, the cellular and molecular bases of inflammatory reactions, immune injury, degenerative processes, selected infectious diseases, genetic and metabolic defects, and disorders of cell proliferation. V. T. Marchesi, J. Sklar.

## pediatrics

Office: LMP 4085, 785.4638

### Professors

W. A. Andiman, W. R. Anyan, Jr., M. D. Baker, R. S. Baltimore, G. P. Beardsley, W. R. Breg, Jr. (Genetics; Emeritus), S. Caprio, T. Carpenter, J. A. Copel (Obstetrics, Gynecology, and Reproductive Sciences), F. Daum, T. F. Dolan, Jr. (Emeritus), C. C. Duncan (Neurosurgery), R. A. Ehrenkranz, M. Genel (Emeritus), I. Gross, J. Gryboski (Emeritus), A. Horwich (Genetics), M. K. Hostetter, Z. Kain (Anesthesiology), D. M. Komp (Emeritus), J. Leckman (Child Study Center), M. F. Leonard (Child Study Center; Emeritus), J. M. Leventhal, M. Lewis (Child Study Center; Emeritus), M. J. Mahoney (Genetics), L. Mayes (Child Study Center), P. L. McCarthy, L. R. Ment, I. G. Miller, H. A. Pearson (Emeritus), J. Perry, S. Rivkees, S. Rooney, D. S. Rowe (Emeritus), J. E. Schowalter (Child Study Center; Emeritus), J. H. Seashore (Surgery; Emeritus), M. R. Seashore (Genetics), E. D. Shapiro, B. A. Shaywitz, S. E. Shaywitz, N. J. Siegel, B. Smith (Laboratory Medicine), N. Talner (Emeritus), W. V. Tamborlane, R. J. Touloukian (Surgery), F. Volkmar (Child Study Center), J. Woolston (Child Study Center)

### Associate Professors

M. Apkon, A. Bazyz-Asaad, D. Beardsley, C. Bogue, M. Brueckner, M. Cappello, D. Donnelly, M. Egan, J. Fahey, B. Forsyth, A. H. Friedman, P. Gallagher, J. Gruen, L. Jacobsen (Psychiatry), B. McClain (Anesthesiology), R. L. Moss (Surgery), E. Novotny, Jr., G. Pizzorno (Internal Medicine), M. Reyes-Mugica (Pathology), L. Rosenfeld (Internal Medicine), K. Santucci, D. Schonfeld, R. Shiffman, J. Van Hoff, M. Westerveld (Neurosurgery), Y. Xia

### Assistant Professors

R. Antaya (Dermatology), L. Arnold, C. Baum, K. Bechtel, S. Bhargava, D. Bockenbauer, P. Bowers, C. Breuer (Surgery), L. Brown, R. Chapman, E. Colson, A. Golioto, N. Kadan-Lottick, C. Kim, M. McKee (Surgery), G. Porter, L. Simon, B. Sleight, D. Spiro, J. M. Stein (Internal Medicine), M. Vasquez, S. Weinzimer, P. Weiss, C. Weitzman

### Instructors

V. Annamalai, A. Esmail, A. Fenick, D. Goldberg, I. Lazar, M. Seli, J. Talwalkar

### Research Scientists

J. McGrath (Comparative Medicine), K. Pugh

### Associate Research Scientists

H. Barbhaiya, V. Bhandari, R. Bungiro, T. Burgert, B. Chen, J. Dziura, A. Esquibies, K. Freudigman, R. Fuleihan, F. Ghassemi, S. Ghatpande, S. Husain, J. Kahn, S. Kar, S. Lakhani, K. Marchione, H. Meng, M. Okam, E. Pinter, K. Schneider, S. Smith, C. Wendler, H. Yan, P.-X. Zhang

## Research Affiliates

E. Kennedy, Jr., I. Ertem

## Clinical Professors

M. Curnen (Epidemiology and Public Health), J. R. Gallagher (Emeritus), B. Goldberg, P. S. Goldstein, H. Jacobs, T. Kennedy, D. Kohn (Surgery), L. S. Krassner, M. Kresch, R. G. LaCamera, S. Levy, B. M. McDonald, J. McNamara, M. Mercurio, A. C. Mermann, H. Sacks (Child Study Center), M. Sklaire, F. Testa, M. A. Wessel, J. Zelson

## Associate Clinical Professors

F. P. Anderson, R. Angoff, A. S. Beasley, K. Berkwits, J. Blanton, Jr., S. Boltax-Stern (Child Study Center), H. D. Bornstein, Jr., K. A. Bradford, M. Browne, C. Canny, R. Chessin, S. Danoff, M. Engel, J. Federico, J. D. Ferholt (School of Nursing), J. B. Ferholt (Child Study Center), H. D. Fink, T. Flynn, J. Fong, R. Freedman, C. Goff, H. Goldenring, F. L. Gruskay, J. Gundy, J. Hen, Jr., R. Herzlinger, A. Jamshidi, L. S. McIntosh, S. Nallainathan, C. R. Palm, S. Peterec, C. Randolph, R. Shelling, S. Spiesel, E. L. Stone, S. Updegrove, R. Young

## Assistant Clinical Professors

R. J. Anderson, A. J. Avni-Singer, R. Berning, A. Bhargava, R. M. Biondi, S. Boulware, N. Brown, J. Burger, C. Butler, J. Calderon, D. Cheromcha, J. T. Combs, N. Condulis, N. Czarkowski, N. Deleuchtenberg, S. Dibs, C. Dorfman, D. Dreyfus, A. Driggers, D. Durante, G. Dworkin, A. R. Enriquez, S. Escalera, T. Etkin, P. Fadakar, K. Fearn, C. A. Fischbein, M. Gaeta, M. Galal, G. Germain, E. H. Gleich, D. Griffin, J. Gruskay, R. Halperin, J. Hamilton (Social Work), R. Hobbie, M. Hommel, M. Ikeda, S. Iragorri, W. D. Irving, R. Johnson, S. Kayani, L. Lasley, S. Lavietes (Social Work), M. Lee, D. Lowell, C. Mann, E. Marmer, A. Meyers, J. Morgan, C. Morrison, M. Pardi, M. Robert, H. Romanowitz, M. Sanyal, R. Scalettar, G. Schare, M. Schneider, C. Scott, L. Semeraro, L. Shader, R. Shea, M. Siev, W. Silberberg, M. Silverman, C. Summers, S. Theofanidis, S. Tsalbins, J. Tuggle III, J. Walterspiel, G. Wanerka, N. Weinberger, N. Weinstein, R. F. Whelan, E. Wiesner, R. D. Windom, C. Wood, C. Woods, J. Wynne

## Clinical Instructors

P. Alvino, S. Baum, L. Berlin, M. Birmingham, K. Burke, A. Cameron, R. Carroll, J. Cersonsky, A. Coughlin, M. Dilorenzo, R. Dorr, M. Flaherty-Hewitt, W. Flynn, B. Freeman, G. Ganea, B. Gardner, M. A. Glenn, K. Goldberg, L. Gray, M. Groth, J. Harwin, A. Hoefler, F. Holmes, D. Idelson, T. V. Jackson, L. Jayanthi, B. Jubelirer, M. Kim, H. Kipperman, M. Legris, S. Leib, A. Liebling, R. Lockhart, R. Martinello (Internal Medicine), A. Matczuk, C. Menzies, N. Naran, C. Nicolosi (Social Work), M. Pouliot, U. Puranik, D. Richards, O. T. Rose, S. Simon, E. Springhorn, J. Stein, S. C. Stein, D. Torres, A. Vaezy, M. Vincent, L. Waldman, M. Willers

## Postdoctoral Fellows and Associates

A. Adefeyisan, I. Al-Ammouri, L. Ardeshirpour, B. Baker, A. Benin, S. Bhaduri-McIntosh, M. Bizzarro, S. Breitenstein, M. Busovsky-McNeal, M. Canarie, D. Chao,

H. Chen, L. Chen, R. Cong, E. Dokmeci, K. Dorsey, R. Doyle, N. Dunbar, W. Eppich, F. Esper, E. V. Faustino, J. Goodwin, A. S. Gork, S. Gyax, M. Held, M. Hunter, J. Jiang, B. Jones, T. Kelly, K. Kevill, J. Khan, J. Kim, H. Kocinsky, A. Knorr, M. Kuniyasu, M. Langhan, D. Learsy-Cahill, A. Masud, C. Miliarsis, S. Mootien, T. Murray, E. Paintsil, H. Qian, M. Riordan, D. Robinson, A. Roth, J. Sangerman, S. Sehgal, A. Shetty, M. Soltis, R. Sreedharan, K. Swan, K. Tan, S. Walsh, B. Weeks, S. Weiner, R. Weiss, C. Wildens, A. Wu, C. Yeckel, J. Zhu

#### Lecturers

C. Cook, K. Feiden, P. Killeen, J. Mande, J. J. Roney

**Pediatrics 103, Third-Year Clerkship.** The Pediatric Clerkship consists of three different clinical experiences and a core curriculum. One clinical experience is a two-week ambulatory rotation in an academic primary care setting. Another two-week rotation allows students to join a pediatrics subspecialty team or to work in a private pediatric practice. The third clinical experience consists of a four-week rotation on the inpatient service at the Yale-New Haven Children's Hospital or a Bridgeport hospital. One afternoon each week is devoted to pediatric grand rounds and teaching conferences in which the core curriculum is presented. At each venue, adequate time is allotted to read about relevant clinical problems, present cases to an attending or resident, examine children of various ages, and attend didactic or case-review conferences. W. A. Andiman.

**Pediatrics 104, Outpatient Clerkship.** Students assume responsibility, under supervision, for comprehensive care of children. They evaluate children referred to the clinic with diagnostic problems. Special emphasis is placed on problems related to the ambulatory patient. Senior students only. One student, full time, for three weeks. P. L. McCarthy and staff.

**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 three or more weeks, throughout the academic year. J. Van Hoff 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, M. Engel, S. Levy, F. Testa.

**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. J. H. Seashore, R. J. Touloukian, L. Moss.

**Pediatrics 144, Clinical Clerkship in Pediatric Cardiology.** Developmental aspects of cardiovascular function as applied to infants and children in both a clinical and a laboratory setting. Students are assigned to various members of the pediatric cardiology staff. Emphasis on physical diagnosis, use of noninvasive methods, and clinical physiologic correlates. Up to two students every four weeks throughout the year. P. Bowers, M. Brueckner, J. Fahey, A. H. Friedman, J. Perry, G. Porter.

**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 hyperlipidemia/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, M. Genel, M. Kim, S. Rivkees, W. V. Tamborlane, S. Weinzimer.

**Pediatrics 152, Subinternship.** Senior students serve as advanced clinical clerks 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, under the supervision of resident and attending physicians. Subinternships are served for four-week periods on one of the inpatient teams or in the Pediatric Intensive Care Unit in the Department of Pediatrics at the Children's Hospital at Yale-New Haven. A. Friedman 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, three weekly clinics, 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. Escalera, F. Daum, S. Husain, D. Pashankar.

**Pediatrics 154, Pediatric Respiratory Medicine.** During the elective, students are exposed to a range of activities in the Section of Respiratory Medicine. These include the evaluation of respiratory and pulmonary function in a variety of disease conditions, and care of infants and children with respiratory diseases such as asthma, cystic fibrosis, bronchopulmonary dysplasia, pneumonia, aspiration syndromes, and obstructive sleep disorders. Emphasis is on physical diagnosis. Rotations through the pulmonary function laboratory and the Children's Sleep Center. Laboratory experience can be arranged. Participation in seminars, journal club, and patient rounds and clinics. One student, every two weeks, throughout the academic year. A. Bazy-Asaad, S. Bhargava, M. Egan, A. Esquibies, P. Weiss.

**Pediatrics 155, Pediatric Emergency Medicine.** Senior students have the opportunity to evaluate and manage a broad range of acute pediatric illnesses under direct attending supervision. Participation in daily teaching conferences, "mock" codes, and clinical practice exercises is encouraged. Clinical duties are distributed over five six-hour clinical shifts per week. Up to two students every four weeks, throughout the academic year. A four-week rotation is recommended. M. D. Baker and staff.

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# pharmacology

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## Professors

G. K. Aghajanian (Psychiatry), K. S. Anderson (Director of Medical Studies), G. P. Beardsley (Pediatrics), H. R. Behrman (Obstetrics, Gynecology, and Reproductive Sciences), B. S. Bunney (Psychiatry), E. S. Canellakis (Emeritus), Z. N. Canellakis (Emeritus), Y. C. Cheng, E. Chu (Internal Medicine), J. R. Cooper (Emeritus), P. S. Dannies, R. S. Duman (Psychiatry), B. E. Ehrlich, R. E. Handschumacher (Emeritus), L. K. Kaczmarek, A. Nairn (Psychiatry), W. H. Prusoff (Emeritus), J. M. Ritchie (Emeritus), S. C. Rockwell (Therapeutic Radiology), R. H. Roth, Jr. (Psychiatry), G. Rudnick (Vice Chair), A. C. Sartorelli, J. Schlessinger (Chair), W. Sessa (Director of Graduate Studies), S. G. Waxman (Neurology)

## Associate Professors

A. Bennett, C. M. Crews (Molecular, Cellular, and Developmental Biology), M. P. DiGiovanna (Internal Medicine), R. Heimer (Epidemiology and Public Health), J. Howe, E. Lolis, M. Picciotto (Psychiatry), G. Pizzorno (Internal Medicine)

## Assistant Professors

D. Calderwood, Y. Ha, I. Lax

## Senior Research Scientist

W. H. Prusoff

## Research Scientist

D. Stagg

## Associate Research Scientists

R. P. Baumann, Jr., A. Bhattacharjee, M. Bordonaro, H. Chen, V. Eswarakumar, C. Furdui, R. Hu, K. Ishiguro, D. Johnson, S. Kolli, W. Lam, D. Lazarova, Z. P. Lin, S.-Y. Park, P. Penketh, A. Pivazyan, A. M. Rice, K. Rice, K. Shyam, G. Sowa, M. Stephan, G. Yang, J. Yu, Y. Zhang, Y.-L. Zhu

## Research Affiliates

M. Belcourt, Z. Jiang, P. Klein, S.-H. Liu, J. Mei, R. F. Tilton

## Postdoctoral Fellows

L. Acevedo, S. Bergaya, P. Bernatchez, P. Burch, G. Crichlow, C. Doan, H. Henn, Q. Miao, T. Murata, J. Murphy, F. Ozcan, P. Uhlen, M. Vargo, A. Varshney, L. Wang, J. Wu, B. Yang, S. Yuzawa

## Postdoctoral Associates

J. Bae, R. Desai, M. Estrada, W. Gao, Y. Gao, K. Jin, Y. Kim, Y. Lad, Y. Lee, C. H. Leung, X. Mei, W. Pinto, A. Roberts, A. Sau, H. A. Seow, P. Song, C.-J. Wang, Y. Wang, Ya. Yang, Yu. Yang, C. Ying, W. Zhang, Y. W. Zhang

Lecturers

J. G. Collins (Anesthesiology), L. M. Dembry (Internal Medicine), G. E. Gardiner, R. J. Levine (Internal Medicine), A. Scriabine

**PHAR 5o2a/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 5o4a, 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 5o4b, Pharmacology II: Interfering Selectively.** Lectures cover antibiotics, immunotherapy, and chemotherapy. E. Lolis and staff.

**PHAR 5o6a/b, Methods in Pharmacological Research (Rotations).** Students work in laboratories of faculty of their choice. The period spent in each laboratory is one term. Hours to be arranged. W. Sessa.

**PHAR 5o8b, 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 51ob, Life Science Business.** Exploration of where the life sciences intersect with finance and the law from a variety of perspectives including those of industry, academia, and the communication media. G. Gardiner.

**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

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## Professors

G. K. Aghajanian, M. Bell, S. J. Blatt, M. B. Bowers, Jr. (Emeritus), B. S. Bunney (Chair), K. M. Carroll, J. P. Comer (Child Study Center), R. S. Duman, M. H. Ebert, M. Edelson (Emeritus), P. L. Errera (Emeritus), J. Ford, J. E. Gelernter, E. Griffith, C. Grilo, G. Heninger (Emeritus), R. E. Hoffman, M. A. Hoge, S. C. Jacobs, P. Jatlow (Laboratory Medicine), M. Johnson (Psychology), R. D. Kerns, Jr., K. K. Kidd (Genetics), R. A. King (Child Study Center), T. R. Kosten, J. H. Krystal, M. Lewis (Child Study Center; Emeritus), G. F. Mahl (Emeritus), J. W. Mason (Emeritus), C. M. Mazure, T. H. McGlashan, D. Musto (Child Study Center), A. C. Nairn, S. S. O'Malley, G. Pearlson, D. M. Quinlan, D. E. Redmond, Jr., M. Reiser (Emeritus), R. Rosenheck, R. H. Roth, Jr., B. J. Rounsaville, R. Schottenfeld, J. E. Schowalter (Child Study Center; Emeritus), M. J. Sernyak, Jr., M. Sheard (Emeritus), W. H. Sledge, D. L. Snow, S. Southwick, J. S. Strauss (Emeritus), F. R. Volkmar (Child Study Center), B. Wexler, S. W. Woods, H. V. Zonana

## Associate Professors

M. Alreja, K. Avants, S. A. Ball, R. Belitsky, H. Blumberg, N. Boutros, A. Buchanan, N. L. Cooney, L. Davidson, R. A. Desai, E. Diaz, D. C. D'Souza, C. N. Epperson, T. George, E. Giller (Adjunct), K. Hawkins, L. Jacobsen, J. Kaufman, D. Lipschitz, R. Malison, S. Marans (Child Study Center), A. Martin (Child Study Center), S. Martino, G. Mason, T. McMahon, C. A. Morgan III, A. Neumeister, D. Oren (Adjunct), I. L. Petrakis, M. Picciotto, S. Powsner, H. Prigerson, M. Pruett, R. Rohrbaugh, M. I. Rosen, W.-X. Shi, K. J. Sikkema, R. Sinha, M. Sofuoglu, J. L. Steiner, J. Taylor, J. K. Tebes, C. van Dyck, K. A. Yonkers

## Assistant Professors

W. Abi-Saab (Adjunct), P. B. Allen, L. Anez Nava, M. Assaf (Adjunct), R. S. Astur (Adjunct), S. Axelrod, C. B. Baker, R. D. Beech, D. Brunner (Adjunct), S. A. Castner, I. Cavus, M. Chawarski, L. Chwastiak, C. Connell, C. Crusto, M. Desai, P. Desan, C. Doebrick, C. Easton, C. Edelen, D. Fehon, L. M. Frantsve, G. Gonzalez-Haddad, H. Gunduz-Bruce, N. G. Hurwitz, M. Jean-Baptiste, J. Kaufman, S. Krishnan-Sarin, S. D. Kruger, J. A. S. Lappalainen, W. T.-S. Lee, D. Leslie, P. Maciejewski, R. Masheb, D. Mathalon, S. McKee, B. Moore, P. T. Morgan, M. Mouratidis, D. Northrup, M. V. Pantaloni, E. Perry, Jr., J. Poling, M. Potenza, M. L. Randall, A. Rasmusson, G. Sanacora, C. Sanislow III, M. E. Savage, G. Shahar, G. Sirugo (Adjunct), J. Staley-Gottschalk, T. Styron, N. Suchman, G. Tamagnan (Adjunct), R. Tampi, D. Vojvoda, N. Ward, G. V. Williams, W. A. Williams, Z. Zimolo

## Instructor

I. Harpaz-Rotem

## Senior Research Scientists

J. D. Elsworth, J. W. Mason

## Research Scientists

K. Behar, T. Kosten, A. Margolin, B. Morrow, R. W. Robin

## Associate Research Scientists

D. J. Abi-Saab, R. M. Arnold, D. Barry, L. Bedregal, M. Beitel, G. J. Bryson, J. Choi, J. Cramer, C. M. D'Sa, L. Fenton, J. M. Fiszdon, T. C. Greig, D. D. Hawkins, A. A. Heapy, W. Kaspro, O. Korzyukov, C.-S. Li, J.-L. Li, R.-J. Liu, C. Lozano, X. Luo, W. Lynch, L. Maccarelli, D. Martin, J. L. Meiselman, S. S. Nicholls, M. J. O'Connell, T. Z. O'Connor, J. P. Olausson, E. Ralevski, K. A. Sacco, J. R. Saks, S. N. Sathyanesan, K. Scrimenti, D. J. Sells, H. R. Steinberg, F. Struve, T. Sullivan, B. A. Toll, L. C. Vanderwerker, M. Wu, X.-Y. Zhang, W. Zito

## Research Affiliates

J. S. Auerbach, J. Bombace, D. V. Cicchetti (Child Study Center), L. Frisman, M. Gordon, S. Luthar, M. Miserendino, J. Miwa, M. J. Shulman, J. H. Zhang

## Clinical Professors

D. Berg, D. Carlson, T. W. Downey (Child Study Center), G. H. Flamm, D. G. Greenfeld, D. Laub, E. Prelinger (Psychology), L. W. Reiser, C. E. Riordan, H. L. Ruben, H. S. Sacks (Child Study Center), L. D. Siggins, J. Young

## Associate Clinical Professors

J. Allison, V. Altshul, R. Balsam, D. Bialos, S. Boltax-Stern (Child Study Center), E. Brett, C. Chiles, J. Ciarcia, J. De Figueiredo, A. Evans, J. B. Ferholt (Child Study Center), L. B. Fierman, J. Geller, R. L. Goettsche, K. Grady, L. Harkness, O. Hills, R. J. Hoffnung, D. Johnson, P. Kirwin, J. A. Kleeman, R. Klein, C. C. Kovel, K. O. Liebmann, J. Lustman, B. McKee, L. J. Micheels, D. C. Moore, M. Norko, R. Ostroff, H. R. Pearsall, D. Perlick, R. Peters, Jr., J. Phillips, S. H. Phillips, Jr., S. G. Possick, M. Rowe, M. A. Rubenstein, E. R. Ryan, J. Schnitt, S. J. Schreiber, A. H. Schwartz (Child Study Center), A. Siegal, E. W. Snyder, R. Stern, T. Stewart

## Assistant Clinical Professors

A. Adis, V. Agnihotri, R. Ahrens, A. Almai, P. Amble, S. Atkins, A. Balter, M. Baranoski, L. C. Barr, M. Barrios, B. Becker, F. Begum, R. Behrends, C. Bemis, S. Bender, D. Bendor, E. Berger, R. L. Bergeron, T. Bergherr, S. J. Bittner, H. C. Blue, T. Brown, A. Brownlow, L. V. Calabrese, V. D. Calhoun, G. W. C. Calvin, C. Carlson, R. Casey, L. I. Chaikovsky, J. Charney, J. Check, D. Ciancimino, J. C. Cline, J. T. Collins (Child Study Center), V. Coric, C. Cottrol, L. W. Cross, W. F. Dailey, G. H. Davis, K. Degen, M. E. Delphin, C. E. Desmond, C. Dike, N. Donegan, D. B. Douglas, V. Dreisbach, M. T. Dreyfus, L. K. Driscoll, J. Erdos, P. Falzer, J. Fickes, S. Finkelstein, G. J. Firman, S. Fitzpatrick, F. G. Fortunati, P. A. Fountain, P. Fox, E. R. Frazer, D. Fried, R. Giebisch, T. Glinberg, P. B. Goldblatt, L. Goldstein, K. Gonsai, D. Gordon, C. Gottschalk, C. Greene, K. Grimmell, E. Grottole, C. S. Grove, L. Grunebaum, K. F.

Hall, F. A. Hameedi, N. Hansen, J. C. Harland, S. Hill, W. L. Hill, Jr., M. Hillbrand, K. Holtzman, S. Horowitz, S. Houlding, J. M. Jackson, D. D. Jacobson, H. G. Jarecki, C. Jean, A. Kaner, K. Kennedy, S. Khan, K. Kiehl, B. A. Klink, B. Knox, F. E. Koerner, R. Kravitz, J. L. Kurt, M. M. Kurtz, A. Lamba, H. Lankenau, D. Lapaglia, K. Lazzarini, B. Lee, S. Lee, N. E. Legow, L. Levenson, S. Lewis, E. Littman, H. Lizcano, D. London, K. Long, H. Lubin, M. Mandelkern, B. Marcus, C. A. Markle, C. Maynard, S. M. McCants, R. McCleary, B. B. McConnell, B. Meandzija, A. Meisler, A. Miano, D. W. Mickley, S. J. Migdole, T. Miller, R. M. Milstein, F. Minichiello, A. Mitra, V. Morrow, F. C. Mueller, P. V. Mulinski, J. Murray, E. Nasper, J. Nields, D. Nudel, K. Nuro, A. M. Oberkirch, M. S. Okasha, N. Olson, A. Oren, R. Ownbey, A. Papsun, C. Pearson, L. Perone, W. Phillips, D. Pilkey, M. L. Prevey, G. Racusin, J. Rakfeldt, I. Rathbone, A. Resnick, J. Robbins, L. Robertson, J. Robinson, J. L. Rosen, C. T. Rotenberg, B. S. Rothchild, M. Roy, N. Roy, R. Rubin, D. S. Russell, J. A. Sabbatino, J. K. Sadowitz, K. Salisbury, C. Sanders, A. Sawyer, B. E. Scanley, J. Schechter, R. Schreibman, J. Scott, Jr., S. R. Segall, J. P. Seibyl (Diagnostic Radiology), J. K. Shepard, D. Sholomskas, S. Sreenivasan, D. Stayner, M. C. Stevens, W. A. Stewart, M. Stitelman, G. E. Sturges, D. C. Tate, A. Tessler, B. Tobin, J. L. Tondora, P. Torop, S. E. Tressel, L. Trevisan, M. Tupper, S. H. Tworkowski, D. Vuppalapati, D. Wallington, S. D. Wayne, Jr., R. Weingarten, R. S. White, C. Wiseman, S. Zimmerman

#### Clinical Instructors

T. Alford, M. Bailey, J. Beauvais, E. Becker-Dunn, C. Camp, J. F. Chapman, V. Coggshall, J. F. Collins, I. M. Dineen, D. Fisk, D. Flanigan, C. Grazia, M. C. Grenough, S. Kendell, W. Levy-Massarani, M. McCarthy, M. Nicholas, J. N. Rascati, S. J. Rathi, D. R. Rau, S. H. Rodrigues, S. J. Sokol, M. F. Sperrazza, D. J. Suscovich, H. Temporini, M. Vollmar, E. Weiss

#### Lecturers

J. D. Alvaro, L. Ameen, B. Backus, D. Berv, K. Berv, E. Bialek, A. Blank, Jr., W. Boutelle, L. Brauer, J. Bristol, C. G. Burns, E. Coley, C. Conrad, H. Crabbe, D. Davis, A. Demac, P. J. Dileo, A. Dworetz, W. G. Farcalas, N. R. Gluck, M. L. Glucksman, S. Goodson, J. Gordon, G. Greenberg, E. G. Halstead, M. Kalaczniak, A. Kalafa, D. R. Klein, A. Koleszar, A. Labruzzo, L. Lager, R. Lenoci, N. Lifton, R. Makover, K. Marcus, A. Mares, J. H. Meyer, M. Mitchell, I. Moses, R. L. Munich, J. I. Novick, M. J. Orlosky, K. Owen, R. Phillips, J. M. Pisciotta, S. A. Quinlan, M. Rego, W. Reich, B. G. Rifkin, D. Rightmer, A. Rodriguez, J. A. Roth, E. B. Rubin, S. L. Satel, K. D. Schultz, D. Schwartz, A. Sholomskas, G. H. Sirkin, R. Z. Solomon, W. Spear, C. Tesluk, P. Thomas, M. Vythilingam, G. J. Watstein, R. 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, Core Clinical Clerkship.** Skills and knowledge needed for the general practice of medicine are acquired in a clinical psychiatric setting. These include the ability to conduct a competent screening interview in order to identify symptoms of a psychiatric or substance abuse disorder; to perform a complete mental status examination of a patient who is emotionally disturbed or mentally ill; to make a differential diagnosis, and to plan for further evaluation and tests that would be useful in deciding among various diagnostic possibilities; to make recommendations for biological, psychosocial, and/or social treatment interventions; to assess whether or not dangers to or from a patient exist; and to understand indications and procedures for lawful involuntary commitment of a patient to a mental hospital for treatment. R. Rohrbaugh and Department of Psychiatry faculty.

**Psychiatry 107/Obstetrics, Gynecology, and Reproductive Sciences 104, Shared Clerkship in Medical Psychiatry.** This clerkship, administered jointly with the Department of Obstetrics, Gynecology, and Reproductive Sciences, is designed to provide students with an understanding of the presentation of psychiatric illness in patients with comorbid medical disorders. Emphasis is placed on screening interviews, including mental status examination; identification of symptoms; and differential diagnosis and initial treatment recommendations in patients with co-morbid medical and psychiatric illness.

Special emphasis is placed on evaluation of psychiatric emergencies and competency to make informed medical decisions. R. Rohrbaugh and Department of Psychiatry faculty.

**Psychiatry 2o3, 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 2o5, Subinternship in Medical Psychiatry (Consultation Psychiatry), Yale-New Haven Hospital, 2o39 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 2o6, 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 2o8, 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, J. Myer, 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 Detoxification Clinic at the VACHS. Students learn about the evaluation and treatment of alcohol withdrawal and detoxification. Patients with benzodiazapene 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-NHPH; 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, 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 inte-

grative 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 325/Child Study 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 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; Otolaryngology), L. M. Bartoshuk (Otolaryngology), M. Centrella (Plastic), S. J. Dudrick (Co-terminus with St. Mary Hospital; Gastroenterology), J. A. Eleftheriades (Cardiothoracic), J. P. Geibel (Gastroenterology), B. G. Green (Co-terminus with Pearce Laboratory; Otolaryngology), R. J. Gusberg (Director of Medical Studies; Vascular), G. L. Hammond (Cardiothoracic), B. K. Kinder (Emeritus), J. A. Kirchner (Emeritus), G. S. Kopf (Cardiothoracic), D. R. Lannin (Oncology), S. B. Leder (Otolaryngology), D. J. Leffell (Dermatology; Otolaryngology), A. Lofqvist (Adjunct; Otolaryngology), W. E. Longo (Gastroenterology), M. I. Lorber (Transplant), B. Lytton (Emeritus), L. M. Manuelidis (Neuropathology), C. F. McKhann (Emeritus), I. M. Modlin (Gastroenterology), J. A. Persing (Plastic), R. Rabinovici (Trauma), S. H. Rosenbaum (Anesthesiology; Trauma), W. Rosenblatt (Anesthesiology; Otolaryngology), P. E. Rubin (Adjunct; Otolaryngology), J. Santos-Sacchi (Otolaryngology), C. T. Sasaki (Otolaryngology), I. R. Schwartz (Otolaryngology), J. H. Seashore (Emeritus), Y. H. Son (Therapeutic Radiology; Otolaryngology), B. E. Sumpio (Vascular), R. J. Touloukian (Pediatric), R. Udelsman (Chair; Oncology and Endocrinology), R. M. Weiss (Urology)

### Associate Professors

M. S. Bogucki (Emergency Medicine), J. W. Colberg (Urology), D. C. Cone (Emergency Medicine), D. Cronin II (Transplant) L. C. Degutis (Emergency Medicine), G. D'Onofrio (Emergency Medicine), H. Foster, Jr. (Urology), H. L. Frankel (Trauma), A. L. Friedman (Transplant), L. J. Kaplan (Trauma), T. L. McCarthy (Plastic), R. L. Moss (Pediatric), L. J. Rizzolo (Gross Anatomy), R. A. Rosenthal (Chief, VA; Oncology), D. Ross (Otolaryngology), R. R. Salem (Oncology), J. A. Schriver (Emergency Medicine), J. H. Shin (Plastic), W. B. Stewart (Gross Anatomy), G. Tellides (Cardiothoracic), J. G. Thomson (Plastic)

### Assistant Professors

J. Aruny (Diagnostic Radiology; Vascular), P. Barrett (Cardiothoracic), R. L. Bell (Gastroenterology), L. Bontempo (Emergency Medicine), S. M. Bowers (Emergency Medicine), C. Breuer (Pediatric), P. A. Brewer (Emergency Medicine), C. Cha (Gastroenterology), M. Coady (Cardiothoracic), L. Cuchara (Transplant), A. Dardik (Vascular), L. V. Evans (Emergency Medicine), R. Formica (Internal Medicine), H. M. Hojman (Trauma), J. Joe (Otolaryngology), S. W. Jolin (Emergency Medicine), K. J. Jubanyik-Barber (Emergency Medicine), E. L. Kelley (Vascular), M. A. McKee (Pediatric), E. P. Monico (Emergency Medicine), C. Moore (Emergency Medicine), H. C. Moscovitz (Emergency Medicine), D. Narayan (Plastic), M. Perkal (Trauma), S. Roman (Oncology), D. Small (Pierce Laboratory; Otolaryngology), J. A. Sosa (Oncology), E. Uchio (Urology), C. Van Gelder (Emergency Medicine)

### Instructors

V. Kim (Cardiothoracic), S. Tittle (Cardiothoracic)



Senior Research Scientist  
J. Latifpour (Urology)

Associate Research Scientists

Y. Bai (Cardiothoracic), W. Chang (Plastic), W. Li (Vascular), C. Rahner (Gross Anatomy),  
Y. Wang (Cardiothoracic), J. Yang (Administration), T. Yi (Transplant)

Research Affiliates

P. Biancani (Urology), A. Cordova (Vascular), I. Hatzaras (Cardiothoracic), R. Rutland  
(Plastic)

Clinical Professors

S. Ariyan (Plastic and Otolaryngology), M. S. Arons (Plastic), J. E. Fenn (Gastroenterology),  
D. W. Kohn (Dental; Pediatrics), S. B. Nuland (Gastroenterology), R. B. Reinhold  
(Gastroenterology), R. S. Stahl (Plastic), E. Yanagisawa (Otolaryngology)

Associate Clinical Professors

N. A. Atweh (Trauma), M. S. Beinfield (Gastroenterology), Z. N. Chicarilli (Plastic),  
J. M. Dowaliby (Otolaryngology), R. C. Fazio (Dental), A. J. Graham (Gastroenterology),  
J. R. Hernandez (Otolaryngology), R. K. Houlihan (Gastroenterology), J. P. Kelly (Dental),  
K. Koral (Dental), K. J. Lee (Otolaryngology), R. Lena (Urology), W. B. McCullough  
(Gastroenterology), N. M. Passarelli (Gastroenterology), J. M. Serling (Dental), L. W.  
Skope (Dental), S. A. Stein (Gastroenterology), H. Stern (Cardiothoracic), A. L. Toole  
(Cardiothoracic)

Assistant Clinical Professors

H. Abrams (Gastroenterology), J. Arnold (Emergency Medicine), P. A. Barcewicz (Gastro-  
enterology), M. Baron (Dental), A. Baskin (Urology), J. S. Berkley (Dental), J. Cacace  
(Emergency Medicine), P. H. Cain (Dental), H. Cedarbaum (Dental), B. Y. Cha (Dental),  
K. A. Ciardiello (Gastroenterology), D. G. Cloutier (Dental), M. L. D' Aiuto (Trauma),  
R. J. Dean (Urology), R. H. Delfini (Dental), R. W. DeNatale (Vascular), M. L. Dewar  
(Cardiothoracic), A. T. Dioguardi (Dental), J. Federico (Cardiothoracic), P. E. Fidler  
(Trauma), S. V. Flagg (Plastic), J. M. Flynn (Emergency Medicine), A. R. French (Emer-  
gency Medicine), S. I. Friedman (Otolaryngology), S. Fusi (Plastic), R. Garvey (Gastroen-  
terology), R. D. Grossman (Dental), J. Henley (Otolaryngology), R. H. Hirokawa (Oto-  
laryngology), G. Horblitt (Dental), J. A. Huttner (Dental), B. Jordan (Emergency  
Medicine), R. B. Kaplan (Dental), D. E. Karas (Otolaryngology), G. J. Katigbak (Emer-  
gency Medicine), D. B. Keck (Dental), J. C. Kirchner (Otolaryngology), P. A. Kraus (Urol-  
ogy), P. E. Krochmal (Emergency Medicine), D. Kusovitsky (Dental), J. Kveton (Otolaryn-  
gology), E. M. Kwasnik (Gastroenterology), H. A. Laffaye (Gastroenterology), T. E.  
Lamonte (Emergency Medicine), S. B. Levine (Otolaryngology), G. Longstreth (Gastroen-  
terology), R. A. Lowlicht (Otolaryngology), J. Maisel (Emergency Medicine), M. Margolies  
(Dental), S. Mitra (Otolaryngology), G. E. Mombello (Plastic), D. J. Muller (Dental),  
S. H. Natkin (Dental), G. R. Nicastrì (Gastroenterology), M. K. O'Brien (Gastroenterol-  
ogy), G. Opín (Plastic), P. M. Opín (Dental), R. J. Parker (Dental), J. A. Passarelli (Gas-  
troenterology), M. M. Perez (Emergency Medicine), E. G. Polokoff (Gastroenterology), T.

Ponn (Gastroenterology), G. J. Price (Plastic), C. Rambus (Emergency Medicine), D. D. Roberts (Otolaryngology), J. C. Salomon (Plastic), J. E. Sather (Emergency Medicine), R. F. Schlessel (Gastroenterology), M. J. Schpero (Dental), S. Shah (Gastroenterology), S. Shahabuddin (Emergency Medicine), R. K. Shaw (Cardiothoracic), B. K. Singletary (Dental), J. A. Sirleaf (Emergency Medicine), E. Slusky (Dental), R. E. Steller (Dental), G. Strothers (Otolaryngology), R. F. Stroup (Urology), T. F. Sweeney (Vascular), J. M. Tan (Emergency Medicine), J. L. Tanenbaum (Dental), D. Tran (Trauma), R. Tross (Plastic), J. F. Walsh (Urology), D. Wasson (Gastroenterology), H. K. Watson (Plastic), M. A. Wayne (Emergency Medicine), A. Wehl (Emergency Medicine), M. H. Weinstein (Plastic), M. J. Werdmann (Emergency Medicine), A. E. Wilk (Dental), J. A. Wilkinson (Emergency Medicine), J. M. Willett (Otolaryngology), K. Yanagisawa (Otolaryngology), K. Zuckerman (Gastroenterology)

#### Clinical Instructors

P. W. Alberti (Otolaryngology), J. P. Antoci (Urology), J. A. Arons (Plastic), D. Astrachan (Otolaryngology), C. B. Beckman (Cardiothoracic), M. S. Bianchi (Otolaryngology), M. W. Bradway (Oncology), J. A. Camilleri (Urology), E. Chen (Otolaryngology), B. Chervin (Otolaryngology), T. Coffey (Otolaryngology), P. Demir (Urology), R. J. Devito (Urology), R. A. Feldman (Urology), P. D. Fischer (Plastic), M. J. Flanagan (Urology), P. L. Fortgang (Otolaryngology), R. A. Gaito, Jr. (Otolaryngology), N. A. Gordon (Otolaryngology), M. Grushka (Otolaryngology), D. G. Hesse (Urology), V. B. Khachane (Cardiothoracic), J. Klenoff (Gastroenterology), T. H. Lesnik (Otolaryngology), R. A. Levin (Otolaryngology), J. R. Lyons (Plastic), T. V. Martin (Urology), R. J. Miles (Otolaryngology), J. P. Roach (Urology), S. J. Salzer (Otolaryngology), J. F. Schmidt (Otolaryngology), D. Solomon (Emergency Medicine), E. M. Vining (Otolaryngology), T. W. Vris (Otolaryngology)

#### Postdoctoral Fellows

H. Barquero (Neuropathology), M. Fukuhara (Gross Anatomy), Y. Hoshino (Vascular), A. Iakimov (Cardiothoracic), M. Kidd (Gastroenterology), F. Kudo (Vascular), Y. Luo (Gross Anatomy), R. Moomiaie (Cardiothoracic), K. Nishimura (Vascular), R. Perez (Gastroenterology), J. Rodriguea Serrate (Neuropathology), A. Saad (Cardiothoracic), B. Takizawa (Urology), H. Zhang (Neuropathology), Y. Zhang (Cardiothoracic)

#### Postdoctoral Associates

Y. Nie (Administration), H. Ranjbaran Jahromi (Cardiothoracic), L. Song (Otolaryngology), M. Yono (Urology), F. Zhang (Trauma), Y. Zhao-Xue (Neuropathology)

#### Lecturers

L. Acton (Otolaryngology), H. C. Briggs (Gross Anatomy), N. S. Bruno (Otolaryngology), N. Collins (Plastic), B. C. Fichandler (Plastic), S. Ghofrany (Gross Anatomy), S. Jolie (Otolaryngology), S. E. Kapadia (Gross Anatomy), H. M. Keiser-Pederson (Vascular), H. L. Lisitano (Otolaryngology), D. S. MacMillan (Emergency Medicine), A. Meiman (Emergency Medicine), D. C. Newton (Emergency Medicine), P. Possenti (Trauma), C. Powell (Otolaryngology)

**Surgery 1o3, Surgical Clerkship.** This is an eight-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, a two-week rotation on Anesthesia, and an additional two weeks during which the students can choose among several specialties (Vascular Surgery, Endocrine Surgery, Emergency/Trauma Surgery, Pediatric Surgery, or Emergency Medicine).

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 in-patient and outpatient settings). In addition to knowledge acquisition, emphasis is placed on the development of basic clinical skills as well as surgical problem-solving skills.

During the four-week core general surgery experience, each student is assigned to a clinical preceptor who is responsible for monitoring progress, reinforcing core concepts, and facilitating skill development. Throughout the eight-week clerkship, there is a core curriculum, a series of problem-oriented interactive sessions focused on fundamental surgical problems. In addition there is a weekly case study seminar, directed by students, focused on role-playing and emphasizing surgical decision making, doctor-patient interactions, and the development of teaching skills.

At the outset of the clerkship, the students receive an outline of learning objectives (for both knowledge and skills). At the conclusion of the clerkship there is a self-assessment examination and an exit interview.

**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. Eleftheriades.

**Surgery 13o, 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. Eleftheriades.

**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 basic 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. R. Rabinovici, S. Rosenbaum.

**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. R. Rabinovici.

**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 M. Lorber 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. M. Lorber 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 one student per month except August, September, and December. G. S. Kopf and staff. Arrangements to be made with G. Kopf.

**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.

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## therapeutic radiology

Office: HRT 140, 785.2956

### Professors

D. Brash, J. J. Fischer, P. M. Glazer (Chair), B. G. Haffty, R. Nath (Radiological Physics), R. E. Peschel, S. Rockwell, W. D. Rupp, Jr., R. J. Schulz (Emeritus), Y. H. Son, W. C. Summers, P. Sung (Molecular Biophysics and Biochemistry)

### Professor of Research

K. B. Low, Jr. (Adjunct)

### Associate Professors

S. J. Baserga (Molecular Biophysics and Biochemistry), F. d'Errico, S. Higgins, J. Knisely, K. B. Roberts, J. Sweasy, L. D. Wilson

### Assistant Professors

J. Colasanto, J. Deng, A. Khan, M. Moran, H. Song, J. Weidhaas, Z. Yun

### Research Scientist

D. B. Fischer

### Associate Research Scientists

T. Lang, Q. Lin, F. Rogers, W. Zhang

### Research Affiliate

W. P. Summers

### Associate Clinical Professors

Z. Chen, A. H. Knowlton, P. Pathare

### Clinical Instructor

S. Khosravi

### Postdoctoral Fellows

C. Brdlik, J. Lloyd

### Postdoctoral Associates

S. Dalal, K.-H. Kim, K.-H. Lee, I. Mihaylova

### Lecturers

J. Bond, 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. B. G. Haffty and staff.

**Therapeutic Radiology 1o2, 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 B. G. Haffty.

**Therapeutic Radiology 2o1b, 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 3o5, 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 3o6, 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)

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), J. L. Boyer (Internal Medicine), D. E. Brash (Therapeutic Radiology), I. M. Braverman (Dermatology), A. E. Broadus (Internal Medicine), M. J. Caplan (Cellular and Molecular Physiology), Y.-C. Cheng (Pharmacology), Y. J. Choi (Pathology; Bridgeport Hospital), E. Chu (Internal Medicine; VA Cancer Center), L. Cooley (Genetics), 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), 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), B. G. Haffty (Therapeutic Radiology), 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), T. R. Holford (Epidemiology and Public Health), 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), B. K. Kinder (Surgery; Emeritus), E. I. Kohorn (Obstetrics, Gynecology, and Reproductive Sciences; Emeritus), W. H. Konigsberg (Molecular Biophysics and Biochemistry), D. R. Lannin (Surgery), C. H. Lee-French (Diagnostic Radiology), D. J. Leffell (Dermatology), P. Lengyel (Molecular Biophysics and Biochemistry; Emeritus), A. B. Lerner (Dermatology; Emeritus), P. M. Lizardi (Pathology), K. B. Low, Jr. (Therapeutic Radiology; Adjunct), B. Lytton (Surgery; Emeritus), J. A. Madri (Pathology), N. J. Maimle (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), I. S. Mellman (Cell Biology), I. G. Miller (Pediatrics), L. M. Milstone (Dermatology), I. M. Modlin (Surgery), J. S. Morrow (Pathology), F. Naftolin (Molecular, Cellular, and Developmental Biology), R. Nath (Therapeutic Radiology), P. J. Novick (Cell Biology), R. J. Papac (Internal Medicine), 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), C. M. Radding (Genetics; Emeritus), J. M. Rapoport (Internal Medicine), C. A. Redlich (Internal Medicine), 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), P. Salovey (Psychology), A. C. Sartorelli (Pharmacology), C. T. Sasaki (Surgery), D. G. Schatz (Immunobiology), J. Schlessinger (Pharmacology), P. E. Schwartz (Obstetrics, Gynecology, and Reproductive Sciences), J. H. Seashore (Surgery; Emeritus), W. C. Sessa (Pharmacology), M. J. Shlomchik (Laboratory Medicine), 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), Y. H. Son (Therapeutic Radiology), J. A. Steitz (Molecular Biophysics and Biochemistry), D. F. Stern (Pathology), G. Sze (Diagnostic Radiology), P. J. Tattersall (Laboratory Medicine), R. E. Tigelaar (Dermatology), I. Tocino (Diagnostic Radiology), R. J. Touloukian (Surgery), R. Udelsman (Surgery), 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)

#### Associate Professors

D. J. Austin (Chemistry), 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), R. R. Breaker (Molecular, Cellular, and Developmental Biology), B. A. Burtness (Internal Medicine), M. Cappello (Pediatrics), E. B. Claus (Epidemiology and Public Health), J. W. Colberg (Surgery), J. P. Concato (Internal Medicine), D. L. Cooper (Internal Medicine), C. M. Crews (Molecular, Cellular, and Developmental Biology), A. C. de Lotbinière (Neurosurgery), F. d'Errico (Therapeutic Radiology), M. P. DiGiovanna (Internal Medicine), H. E. Foster, Jr. (Surgery), F. J. Giordano (Internal Medicine), M. Girardi (Dermatology), J. R. Gruen (Pediatrics), C. Hashimoto (Cell Biology), S. A. Higgins (Therapeutic Radiology), R. J. Homer (Pathology), 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), E. Lolis (Pharmacology), M. J. Mamula (Internal Medicine), J. M. McNiff (Dermatology), G. G. Mor (Obstetrics, Gynecology, and Reproductive Sciences), J. R. Murren (Internal Medicine), A. S. Perkins (Pathology), W. M. Philbrick (Internal Medicine), L. E. Philpotts (Diagnostic Radiology), G. Pizzorno (Internal Medicine), J. S. Pollak (Diagnostic Radiology), H. G. Prigerson (Psychiatry), M. B. Qumsiyeh (Genetics), 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), R. R. Salem (Surgery), D. J. Schonfeld (Pediatrics), S. Somlo (Internal Medicine), M. J. Stern (Genetics), H. Sun (Genetics), J. B. Sweasy (Therapeutic Radiology), 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), T. Zheng (Epidemiology and Public Health), W. Zheng (Pathology)

#### Assistant Professors

L. Alexander (Epidemiology and Public Health), E. Bahceci (Internal Medicine), A. Bordey (Neurosurgery), D. A. Calderwood (Pharmacology), G. Chung (Internal Medicine), M. J. Harding (Comparative Medicine), M. Hodson (Laboratory Medicine), L. J. Horvath (Diagnostic Radiology), J. G. Howe (Laboratory Medicine), P. Hui (Pathology), M. L. Irwin (Epidemiology and Public Health), A. Iwasaki (Immunobiology), B. A. Jones (Epidemiology and Public Health), N. Kadan-Lottick (Pediatrics), H. Kluger (Internal Medicine), H. Lin (Epidemiology and Public Health), X. Ma (Epidemiology and Public Health), W. H. Mothes (Microbial Pathogenesis), M. F. Perkal (Surgery), D. Psyrris (Internal Medicine), J. L. Reiter (Obstetrics, Gynecology, and Reproductive Sciences), S. J. Santacroce (School of Nursing), S. E. Seropian (Internal Medicine), W. D. Shlomchik (Internal Medicine), F. J. Slack (Molecular, Cellular, and Developmental Biology), B. S. Sleight (Pediatrics), J. A. Sosa (Surgery), D. P. Tuck (Pathology), K. G. Vanasse (Internal Medicine), Z. Yin (Internal Medicine), Z. Yun (Therapeutic Radiology), Y. Zhu (Epidemiology and Public Health)

#### Senior Research Scientists

P. J. Flory (Genetics), R. Halaban (Dermatology)

#### Research Scientists

T. Ashley (Genetics), C. L. Berger (Dermatology), B. Cartmel (Epidemiology and Public Health), D. B. Fischer (Therapeutic Radiology), C. L. Howe (Pathology), Z. Hu (Molecular Biophysics and Biochemistry), 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

R. L. Camp (Pathology), D. Cao (Internal Medicine), B. A. Davis (Cellular and Molecular Physiology), H. G. Foellmer (Internal Medicine), R. L. Fuleihan (Pediatrics), E. T. Matloff (Genetics), D. Ostapenko (Molecular Biophysics and Biochemistry), J. Yang (Surgery)

#### Clinical Professors

S. Ariyan (Surgery), M. S. Arons (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), J. J. Ciarcia (Psychiatry), C. T. Donovan (School of Nursing), A. J. Graham (Surgery), S. Imaeda (Dermatology), A. L. Levy (Internal Medicine), W. B. Lundberg, Jr. (Internal Medicine), 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. C. Salomon (Surgery), R. F. Schlessel (Surgery)

## Lecturers

I. Black (Chemistry), I. A. Dawson (Molecular, Cellular, and Developmental Biology)

## Affiliate Members of the Yale Cancer Center

J. Booss (Professor), J. A. Kirchner (Professor Emeritus), S. O'Malley (Professor), C. R. Roy (Associate Professor), H. Swede (Research Affiliate), N. Dainiak (Clinical Professor), A. H. Knowlton (Associate Clinical Professor), J. F. Pezzimenti (Associate Clinical Professor), H. Abrams (Assistant Clinical Professor), R. B. Cooper (Assistant Clinical Professor), R. J. Garvey (Assistant Clinical Professor), D. Hollister (Assistant Clinical Professor), A. H. Rosenberg (Assistant Clinical Professor), S. O. Shah (Assistant Clinical Professor), A. L. Silber (Assistant Clinical Professor), M. Sznol (Assistant Clinical Professor), M. B. Abrams, W. J. Baker, M. H. Bar, D. S. Berger, P. S. Berger, R. J. Bernasek, J. J. Borruso, D. B. Boyd, D. S. Brandt, N. S. Cohen, M. E. Dailey, S. A. DelPrete, M. S. Dhami, K. A. Dressler, E. A. Duda, S. Duerr, S. F. Dunbar, R. B. Erichson, D. E. Fass, R. S. Folman, T. M. Fynan, N. R. Horowitz, K. Jagathambal, K. A. Johnson, R. A. Kloss, G. Kopelson, G. Kruger, J. F. Levine, K. M. S. Lo, I. S. Lowenthal, M. C. Magnifico, J. P. Malefatto, R. Nadkarni, J. P. O'Connell, P. E. Perillie, W. E. Pleban, S. N. Rabinowe, G. A. Reznikoff, M. Rosman, L. R. Saberski, K. L. Sacks, J. S. Silver, D. Slater, J. A. Spera, H. M. Spinelli, N. Strombakis, I. Tepler, V. M. Tjan-Wettstein, D. P. Tuck, E. Vosburgh, B. A. Ward, D. Wasson, P. L. Weinstein, D. H. Witt

The Yale Cancer Center is one of thirty-eight NCI-designated comprehensive cancer centers in the nation and the only one in Southern New England. The center supports a \$100 million research base to promote translational research through collaborations between and within eleven basic, epidemiological, and clinical research programs. Basic research programs in molecular oncology, molecular virology, cancer prevention and control, immunology, cell biology, and developmental therapeutics are integrated with clinical research and teaching programs in breast cancer, cancer genetics, hematologic malignancies and stem cell transplantation, therapeutic radiology, and ovarian cancer. The center also supports fourteen shared facilities that are available for oncological research: flow cytometry, cesium-137 irradiator, critical technologies, rapid case ascertainment, tissue culture, animal genomics service, clinical trials office, biostatistics, mass spectrometry, cancer genetic counseling, DNA microarray, tissue microarray, molecular epidemiology, and vector production. 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, please contact Acting Associate Dean Kathleen A. Knafel at the School of Nursing, 203.785.2399.

**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 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. C. Tocchi.

**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 765a,b/HPA 575a,b/Internal Medicine 196, Advanced Concepts in Home Care.** This course focuses on topics that address the current issues in the field of home health-care practice. Home care is examined from the perspective of its place within a changing health-care delivery system. Issues that confront both the clinician and the manager in home care practice are discussed from a multispecialty perspective. Open with permission of the instructor. Two hours per week. Not offered 2004–2005.]

**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, coordinator.

**NURS 849b, Family Systems and Perspectives Relevant to Health Care.** This course provides theoretical perspectives on family structures, family development, and family systems that influence the health of the individual in the context of the community. Techniques in assessment of family functioning, vulnerabilities, and strengths provide the basis for developing strategies of intervention, crisis management, referral, and integration of multiple systems of care. Selected family problems are analyzed within the theoretical perspectives with examples for clinical and policy interventions. Open with permission of the instructor. L. Sadler, 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 ([ynhh.org/med\\_prof/grad\\_med.html](http://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 Department of Education, 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 television, 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.

The regularly scheduled educational conferences, e.g., 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 two correspondence courses, The Medical Letter/Yale School of Medicine CME Program and The Diabetes Newsletter CME Program. Based upon the contents of well-known and widely circulated biweekly medical publications, the examination programs are developed twice yearly and are edited and supervised within the Office of 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 Office of 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 2004

- Nduka M. Amankulor, b.a., New York University. Cellular Dynamics of KRIT1: Implications for the Pathogenesis of Cerebral Cavernous Malformations. Surgery. Yale-New Haven Hospital, New Haven, Conn. Neurosurgery. Yale-New Haven Hospital, New Haven, Conn.
- Elizabeth Kagan Arleo, b.a., Yale University. Radiological, Physiological and Psychosocial Variables Before and After Uterine Artery Embolization for Fibroids. Internal Medicine. Lenox Hill Hospital, New York, N.Y. Diagnostic Radiology. New York Presbyterian Hospital—Cornell, New York, N.Y.
- Eliza Auerbach, b.a., Amherst College. A Novel Delirium Study: Does Inattention Correlate with Decreased Perfusion of Frontal Lobes? Pediatrics. New York Presbyterian Hospital—Columbia, New York, N.Y.
- Richard Mahir Awdeh, b.s., Emory University. Visual Outcomes of Children with Optic Pathway Glioma After 54 Gy Conformal Radiation Therapy. Transitional. Memorial Sloan-Kettering Cancer Center, New York, N.Y. Ophthalmology. Duke University, Durham, N.C.
- Paola Carolina Ayora, b.a., University of Pennsylvania; m.p.h., Yale University. Barriers to Healthcare Access Among Disabled Children in Rural Ecuador: A Human Rights Approach. Pediatrics. New York Presbyterian Hospital—Columbia, New York, N.Y.
- Rajasekhara Rao Ayyagari, b.a., Swarthmore College. Age-Related Changes in G-Protein Subunit Expression and Receptor Coupling in Rat Detrusor Muscle. Surgery. University of Washington Affiliated Hospitals, Seattle, Wash. Urology. University of Washington Affiliated Hospitals, Seattle, Wash.
- Charles Alexander Baillie, b.a., University of Edinburgh. Prescription Patterns of Long-Acting Nitrates and Outcomes in Patients with Chronic Heart Failure. Internal Medicine. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Vernee Nicole Belcher, b.s., University of Pittsburgh. Attitudes and Beliefs Concerning Medication-Related Decision-Making Among Older Patients. Internal Medicine/Primary. Yale-New Haven Hospital, New Haven, Conn.
- Mark Alan Berman, b.s., McGill University. Thinking Beyond Health to Motivate Dietary Change: Piloting a Vegan Healthy Eating Program for Obesity Management. Internal Medicine/Primary. Brigham and Women's Hospital, Boston, Mass.
- Jennifer Melissa Blair, b.s., Yale University. Electrocardiographic Changes in Children Treated with Ziprasidone: A Prospective Study and Review. Emergency Medicine. University of Chicago Hospitals, Chicago, Ill.
- Michael Howard Bloch, b.a., University of Pennsylvania. Reduced Caudate Volume and Other Predictors of Future Tic and OCD Severity in Children with Tourette's Syndrome. Psychiatry—Adult/Child. Yale-New Haven Hospital, New Haven, Conn.

- Allyson Kelly Bloom, b.s., Stanford University. The Clinical Utility of the AST/ALT Ratio in Identifying Liver Fibrosis Among HIV and Hepatitis C Co-Infected Patients. *Internal Medicine*. Massachusetts General Hospital, Boston, Mass.
- Reneé Danielle Boynton-Jarrett, b.a., Princeton University; sc.d., Harvard University. Early Life Exposure to Violence and Health. *Pediatrics*. Johns Hopkins Hospital, Baltimore, Md.
- Victoria Lee Bruegel Sanchez, b.s., Boston University. Homologous Recombination in a Defective HPRT Gene in Mouse Epidermal Keratinocytes. *Orthopaedic Surgery*. Yale-New Haven Hospital, New Haven, Conn.
- William Reece Burns III, b.s., Wake Forest University. Interferon-g Mediates T Cell-Dependent Injury and Remodeling of Allogeneic Human Coronary Arteries. *General Surgery*. Johns Hopkins Hospital, Baltimore, Md.
- Shannelle A. Campbell, b.s., Clemson University; m.p.h., Yale University. Video Analysis in Trauma Resuscitations: A National Survey of Level 1 Trauma Centers. *General Surgery*. University of North Carolina Hospital, Chapel Hill, N.C.
- Cordelia Wheeler Carter, b.a., Yale University. Biomechanical Analysis of Vertebroplasty in Stabilization of Thoracolumbar Burst Fracture. *Orthopaedic Surgery*. New York Presbyterian Hospital—Columbia, New York, N.Y.
- Edward Inntae Cho, b.s., Cornell University. Prognostic Significance of COX-2 in Early Stage Larynx Cancer Treated with Radiation Therapy. *Surgery*. Cleveland Clinic Foundation, Cleveland, Ohio. *Otolaryngology*. Cleveland Clinic Foundation, Cleveland, Ohio.
- Keith Adam Choate, b.s., Stanford University; ph.d., Yale University. Molecular Determinants of Paracellular Permeability. *Medicine*. Yale-New Haven Hospital, New Haven, Conn. *Dermatology*. Yale-New Haven Hospital, New Haven, Conn.
- Virginia Grace James Cohen, b.a., Harvard University. Birth Weight as a Risk Factor for Autism Spectrum Disorders: A Pilot Study and Case-Control Study. *Pediatrics*. Children's Hospital of Boston, Boston, Mass.
- Oscar Rene Colegio, b.s., University of Texas, Austin; ph.d., Yale University. The Role of Claudins in Paracellular Permeability. *Internal Medicine*. Yale-New Haven Hospital, New Haven, Conn. *Dermatology*. Yale-New Haven Hospital, New Haven, Conn.
- Kathryn Adamiak Davis, b.s., Brown University. Network Mechanisms for Loss of Consciousness in Epilepsy. *Internal Medicine*. Hospital of the University of Pennsylvania, Philadelphia, Pa. *Neurology*. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Bao Duong, b.s., University of California, Los Angeles. Determining the Activities Affected by, and Strategies Used to Cope with, Chronic Pain in Older Persons. *Emergency Medicine*. Stanford University Programs, Stanford, Calif.
- Ugonna Ada Duru, b.a., Princeton University. Knowledge of HIV/AIDS and Attitudes About Condom Use Among Nigerian University Students. *Obstetrics and Gynecology*. Brigham and Women's Hospital, Boston, Mass.
- Craig H. Dushey, b.a., Yale University. Can CT Scan Determine Disc Integrity Secondary to Burst Fracture: Quantitative Discomanometry Validation. *Orthopaedic Surgery*. Yale-New Haven Hospital, New Haven, Conn.

- Michael Louis Eisenberg, b.a., Rice University. Biochemical and Mechanistic Properties of Cardiomyopathy-Associated F112L Sorcin in T Lymphocytes. Surgery. University of California—San Francisco, Calif. Urology. University of California—San Francisco, Calif.
- Paul Saad El-Fishawy, b.a., Princeton University; j.d., Yale University. Can a Fundamental Constitutional Right to Genetically Enhance Offspring Pre-Birth Be Derived from Current Substantive Due Process Jurisprudence? Internal Medicine. Hospital of Saint Raphael, New Haven, Conn.
- Spencer J. Epps, b.s., Georgetown University. Making Resources Count: The Effect of Community Participation on Non-Governmental Health Organizations in Cameroon. Pediatrics. Children's Hospital of Philadelphia, Philadelphia, Pa.
- Katharine Fast, b.a., Harvard University; m.a., Columbia University. Developing a Scale to Measure Just About Anything: Comparisons Across Groups and Individuals. Internal Medicine. Stanford University Programs, Stanford, Calif.
- Amir Tahmasb Fathi, b.s., Yale University. Acute, Non-Cardiac Comorbidities in Patients with Acute Myocardial Infarction. Internal Medicine. Massachusetts General Hospital, Boston, Mass.
- Myriam Almeida Fernandes, b.a., Wesleyan University. Prediction of Risk of Trisomy 18 in Fetuses with Isolated Choroid Plexus Cysts: A Novel Patient-Specific Algorithm. Obstetrics and Gynecology. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Bahar Fatemeh Firoz, b.a., Columbia University; m.p.h., Harvard University. Should a Skin Biopsy Be Performed for Suspected Acute Graft-Versus-Host Disease? Internal Medicine. Mount Sinai Hospital, New York, N.Y. Dermatology. New York University School of Medicine, New York, N.Y.
- Tamiesha Afrakoma Frempong, b.s., Yale University; m.p.h., Yale University. Efficacy of Newborn Screening in Connecticut in Reducing Mortality in Sickle Cell. Internal Medicine. Mount Sinai Hospital, New York, N.Y. Ophthalmology. Scheie Eye Institute/University of Pennsylvania, Philadelphia, Pa.
- Darlene Gabeau-Lacet, b.a., Wellesley College; ph.d., Yale University. Brain-derived Neurotrophic Factor Influences Olfactory Bulb Granule Cell Development: Evidence for a p75 Mediated Mechanism. Internal Medicine. Mount Auburn Hospital, Cambridge, Mass. Radiation Oncology. Brigham and Women's Hospital, Boston, Mass.
- Rupali Gandhi, b.s., Stanford University; j.d., Yale University. Research Involving Children: Regulations, Review Boards and Reform. Pediatrics. Children's Hospital of Boston, Boston, Mass.
- Saif Ashfaq Ghole, b.s., University of California, Irvine. Equivalency of Incremental and Single Trauma for Subfailure Cervical Spine Injury. General Surgery. Stanford University Programs, Stanford, Calif.
- Zachary David Goldberger, b.a., Brown University. Electrophysiologic Testing in Assessing the Need for Dual-Chamber Implantable Cardioverter-Defibrillators: A Retrospective Study and Costs Analysis. Internal Medicine. University of Washington Affiliated Hospitals, Seattle, Wash.
- Larry Goldstein, b.a., State University of New York—Stony Brook. An Exploration of the Connection Between Relationship to the Land and Concepts of Health, Illness and Healing in

- an Inuit Community. *Emergency Medicine*. University of New Mexico, Albuquerque, N.Mex.
- Grahame Charles Daniel Gould, b.s., Tulane University. *Dissection of the Cerebral Cavernous Malformation-One Gene Pathway with Microarray Analysis*. *Surgery*. Yale-New Haven Hospital, New Haven, Conn. *Neurosurgery*. Yale-New Haven Hospital, New Haven, Conn.
- Michael Benjamin Greenspan, b.a., Yale University. *National Trends and Clinical Implications of the Use of Troponin in the Diagnosis of Acute Myocardial Infarction*. *Internal Medicine*. Yale-New Haven Hospital, New Haven, Conn.
- Severine Chavel Greenspan, b.s., Brown University. *Seizure, Quality of Life, and Psychiatric Outcomes of Vagus Nerve Stimulation for Refractory Partial Epilepsy*. *Internal Medicine*. Yale-New Haven Hospital, New Haven, Conn. *Dermatology*. Yale-New Haven Hospital, New Haven, Conn.
- Eric Albert Gustafson, b.s., Yale University. *Provider HIV Counseling and Testing Practices of Sexually Active Young Women in a Gynecology Clinic*. *Pediatrics*. University of Washington Affiliated Hospitals, Seattle, Wash.
- Cynthia Guzman, b.a., Harvard University. *Downregulation of Uncoupling Proteins 2 and 3 in the Failing Heart: Effects on Energy Metabolism and Reactive Oxygen Species Generation*. *Transitional*. Hospital of Saint Raphael, New Haven, Conn. *Ophthalmology*. Yale-New Haven Hospital, New Haven, Conn.
- Karl Haglund, b.s., University of Illinois; ph.d., Yale University. *Generation of High-Level Cytotoxic T-Lymphocyte Responses to Human Immunodeficiency Virus Proteins Using Live Recombinant Viruses*. *Internal Medicine-Primary*. Yale-New Haven Hospital, New Haven, Conn. *Radiation Oncology*. Brigham and Women's Hospital, Boston, Mass.
- Joseph Michael Harburger, b.s., Yale University. *Is Impaired Insulin Sensitivity a Risk Factor for Stroke and Acute Coronary Syndromes Among Non-Diabetic Patients with Ischemic Stroke and Transient Ischemic Attack?* *Internal Medicine*. Yale-New Haven Hospital, New Haven, Conn.
- Cambria Marie Hembree, b.s., University of California, Irvine; m.a., Columbia University. *The Built Environment and Overdose Mortality in New York City Neighborhoods*. *Internal Medicine*. Stanford University Programs, Stanford, Calif.
- Timothy Jensen Henrich, b.a., Oberlin College. *Geographic Dynamics of Viral Encephalitis in Thailand*. *Internal Medicine*. Brigham and Women's Hospital, Boston, Mass.
- Christopher Norris Herndon, b.s., University of California, San Diego. *Ethnomedical Analysis of an Amazonian Forest Tribe: Insights into the Utilization of Botanical Diversity in Healing*. *Obstetrics and Gynecology*. Brigham and Women's Hospital, Boston, Mass.
- Stephanie Anne Holler Howard, b.s., Duke University. *The Effects of Oral Contraceptives on Bone Density in Female Varsity Athletes*. *Transitional*. Memorial Sloan-Kettering Cancer Center, New York, N.Y. *Diagnostic Radiology*. Brigham and Women's Hospital, Boston, Mass.
- Milton Hwang, b.a., University of Pennsylvania. *Defining Senescence and Evaluating HPV E6/E7 Oncogene Expression in D98 X MJ HeLa Hybrid Cell Line*. *Internal Medicine*. Beth Israel Deaconess Medical Center, Boston, Mass.

- Ryan Sykes Jean-Baptiste, b.s., Yale University. Finding a Gene of Dominant Effect for IgA Nephropathy: Replication Study. Internal Medicine. Carney Hospital, Boston, Mass. Diagnostic Radiology. New York Methodist Hospital, Brooklyn, N.Y.
- Caroline Jennifer Jjingo, b.a., Yale University; m.p.h., Harvard University. Perception and Poverty: A Historical Look at the Persistence STDs in the African-American Community. Internal Medicine. New York Presbyterian Hospital—Columbia, New York, N.Y.
- Jennifer Lynn Jones, b.a., Harvard University. The Use of Hypnosis in Pediatric Medical Care: A Systematic Review. Pediatrics. Dartmouth-Hitchcock Medical Center, Lebanon, N.H.
- Grace Mariko Kalish, b.s., Stanford University. Association of Endogenous Sex Hormones and Insulin Resistance Among Postmenopausal Women: Results from the Postmenopausal Estrogen/Progestin Intervention Trial. Transitional. Virginia Mason Medical Center, Seattle, Wash. Diagnostic Radiology. University of Washington Affiliated Hospitals, Seattle, Wash.
- Byron Sandor Kennedy, b.s., California State University, Sacramento; ph.d., Yale University. Health Disparities Among Hospitalized Patients with Cerebrovascular Disease. General Surgery. Yale-New Haven Hospital, New Haven, Conn.
- Ben Jai-Hoon Kim, b.s., Vanderbilt University. Constitutive and Cytokine-Induced GPCR Ligand Expression on Human Retinal Cells. Internal Medicine. Mount Auburn Hospital, Cambridge, Mass. Ophthalmology. Massachusetts Eye and Ear Infirmary, Boston, Mass.
- Paul Joseph Kim, b.s., Stanford University. Survivin and Molecular Pathogenesis of Colorectal Cancer. Transitional. Santa Clara Valley Medical Center, San Jose, Calif. Radiation Oncology. California Pacific Medical Center, San Francisco, Calif.
- Melissa Louise Kirkwood, b.s., University of Florida. The Effect of Nutrition on the Development of Nephrocalcinosis in Very Low Birth Weight Infants. General Surgery. University of Chicago Hospitals, Chicago, Ill.
- John Robert Koethe, b.a., Oberlin College. Variations in Preventative Health Services Provided to Women in an Urban HIV Clinic. Internal Medicine. Johns Hopkins Hospital, Baltimore, Md.
- Sarah Kohnstamm, b.a., Bowdoin College. Cardiac Ion Channel Mutations Cause Sudden Infant Death Syndrome. Internal Medicine. University of Michigan Hospitals—Ann Arbor, Mich.
- Mona Krishna Kotecha, b.a., Dartmouth College. Clinic-Based Interventions for the Treatment of Obesity in Adults. Internal Medicine. Washington Hospital Center, Washington, D.C. Anesthesiology. University of California—San Francisco, Calif.
- Elaine Fan-Yuk Kung, b.s., Yale University. In Vivo Formation of Microvessels in Human Skin Equivalents with Circulating Endothelial Progenitor Cells. Internal Medicine—Primary. Yale-New Haven Hospital, New Haven, Conn. Dermatology. University of Chicago Hospitals, Chicago, Ill.
- Pramita Elshiba Kuruvilla, b.a., University of Southern California. Resident Physicians' Assessment of Patient Understanding in Complex Risk Communication. Family Practice. Contra Costa Regional Medical Center, Martinez, Calif.

- David V. LaBorde, b.s., Georgia Institute of Technology; m.b.a., Harvard University. A Risk Model for Pulmonary Embolism Among Adult Neurosurgery Patients Age 18 and Older.
- Emily McHam Lambert, b.a., Yale University. The Availability, Cost, and Quality of Fruits and Vegetables in Neighborhoods of Different Socioeconomic Status. Internal Medicine-Neurology. University of Rochester/Strong Memorial Hospital, Rochester, N.Y. Dermatology. University of Rochester/Strong Memorial Hospital, Rochester, N.Y.
- Alfred Ian Lee, b.s., Stanford University; m.s., ph.d., Yale University. Molecular Workings of the RAG1-RAG2 Recombinase on Atypical Recombination Signal Sequences. Internal Medicine. Brigham and Women's Hospital, Boston, Mass.
- Elin Elizabeth Lisska, b.a., Swarthmore College. Do Patients Want to Participate in Medical Decision-Making? A Critical Review of the Literature. Internal Medicine. Yale-New Haven Hospital, New Haven, Conn.
- Brent Patrick Little, b.a., Transylvania University; b.a., University of Kentucky; m.a., Vanderbilt University. Very Small Renal and Hepatic Lesions Detected Incidentally on CT: A Survey of Radiologists' Recommendations for Terminology and Follow-Up. Internal Medicine. Mount Sinai Hospital, New York, N.Y. Diagnostic Radiology. Albert Einstein College/Montefiore Medical Center, Bronx, N.Y.
- Sean C. Lucan, b.a., University of Pennsylvania; m.p.h., Yale University. Patient Age, Number and Type of Clinical Encounters, and Provider Advice to Quit Smoking. BRFSS 2000. Family Practice. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Roberto Lugo, b.s., Yale University. Comparison of Posterolateral Lumbar Fusion Rates Induced by Two Different Osteoinductive Products in a Validated Athymic Rat Model. Orthopaedic Surgery. University of California—San Francisco, Calif.
- Edward M. Marchan, b.s., Emory University. Interaction of Dexamethasone and P-Glycoprotein in a Rat Brain Tumor Model. Surgery. Allegheny General Hospital, Pittsburgh, Pa. Neurosurgery. Allegheny General Hospital, Pittsburgh, Pa.
- Kavita Mariwalla, b.a., Yale University. Cutaneous T Cell Lymphoma: Overcoming Immunosuppression Through Improved DC Vaccine Development. Internal Medicine. Massachusetts General Hospital, Boston, Mass. Dermatology. Yale-New Haven Hospital, New Haven, Conn.
- Jamie McCabe, b.a., Bowdoin College. Host Protection from Fluoropyrimidine Lesions by Uridine Phosphorylase Abrogation. Internal Medicine. University of California—San Francisco, Calif.
- Liana Kretschmar McCabe, b.a., Brown University. Barriers to Adherence to the Back-to-Sleep Recommendations: Focus Groups with African American Inner-City Caregivers. Pediatrics. University of California—San Francisco, Calif.
- Clifton Craig Mo, b.s., United States Military Academy. Effect of Nicotine on the High-Frequency Forehead Blood Flow Oscillatory Phenomenon in Non-Smokers. Internal Medicine. N.C.C. Walter Reed Army Medical Center, Washington, D.C.
- Laura Nneka Mobisson, b.s., Massachusetts Institute of Technology; m.p.h., Emory University; m.b.a., Yale University. Knowledge, and Attitudes of Healthcare Providers Toward Prenatal HIV Screening and Prevention of Maternal to Child Transmission (PMTCT) in Nigerian Pregnant Women. Pediatrics. Children's Hospital of Philadelphia, Pa.

- Alejandro Necochea, b.a., Harvard University. High Altitude Potentiates Anti-Mycobacterial Immunity in Whole Blood. Internal Medicine. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Benjamin Paul Negin, b.s., Yale University. Signs and Symptoms of Primary Melanoma: Important Indicators of Breslow Depth. Internal Medicine. Beth Israel Deaconess Medical Center, Boston, Mass.
- Jessica Clark Newman, b.a., Hamilton College; m.p.h., Columbia University. Correlation of Embryonic Fusion Planes with the Anatomical Distribution of Basal Cell Carcinoma. Internal Medicine. Beth Israel Medical Center, New York, N.Y. Dermatology. Albert Einstein College/Jacobi Medical Center, Bronx, N.Y.
- Ada-Nkem Angela Nwaneri, b.s., University of Maryland; m.p.h., Harvard University. Hormonal Changes Associated with Weight Loss Induced by Moderate Caloric Restriction May Reduce Breast Cancer Risk in Postmenopausal Women. Family Practice. Thomas Jefferson University, Philadelphia, Pa.
- Adam MacKay Pearson, b.a., Dartmouth College. Facet Joint Kinematics and Injury Mechanisms During Simulated Whiplash. Orthopaedic Surgery. Dartmouth-Hitchcock Medical Center, Lebanon, N.H.
- Daniel Eduardo Prince, b.s., University of Notre Dame; m.p.h., Yale University. Improvements in Clinical Pathways for Post-Operative Care Following Orthopaedic Repair of Hip Fractures. Orthopaedic Surgery. New York Presbyterian Hospital—Columbia, New York, N.Y.
- Suneil R. Ramchandani, b.s., United States Naval Academy; m.p.h., Harvard University. Biomechanical Evaluation of Intervertebral Discs Subsequent to Burst Fractures. Internal Medicine. National Naval Medical Center, Bethesda, Md.
- Alejandro Reti, b.s., Amherst College; m.b.a., Yale University. Physicians' Opinions Toward Financial Incentives for Clinical Quality: A Survey and Analysis. Pathology. Hospital of the University of Pennsylvania, Philadelphia, Pa.
- Rina Reyes-Garcia, b.a., Amherst College. Impaired Mitochondrial Activity in Insulin Resistant Offspring of Type 2 Diabetics. Internal Medicine/Primary. Yale-New Haven Hospital, New Haven, Conn.
- Reena Neela Rupani, b.a., Harvard University. Co-Localization of  $\beta 1$ , 6-Branched Oligosaccharides and Coarse Melanin in Macrophage-Melanoma Fusion Hybrids and Human Melanoma Cells In Vitro. Internal Medicine. New York University School of Medicine, New York, N.Y. Dermatology. Rhode Island Hospital/Brown University, Providence, R.I.
- Hilary Furste Ryder, b.a., University of Chicago. Alcohol and Injury: An Analysis of At Risk Drinkers Presenting to the Yale-New Haven Hospital Emergency Department. Internal Medicine. Dartmouth-Hitchcock Medical Center, Lebanon, N.H.
- Marco Antonio Del Valle Salazar, b.s., San Diego State University; ph.d., Yale University. Tuba, a Novel Protein Containing Bin/Amphiphysin/Rvs and Dbl Homology Domains, Links Dynamin to Regulation of the Actin Cytoskeleton. Surgery. University of Washington Affiliated Hospitals, Seattle, Wash. Urology. University of Washington Affiliated Hospitals, Seattle, Wash.

- Nabil Salib, b.s., City College of New York. CD31 Protein and Messenger Ribonucleic Acid Expression in Human Cerebral Vascular Malformations. General Surgery. Hospital of Saint Raphael, New Haven, Conn.
- Jane Alison Schneider, b.a., Harvard University; m.a., University of California, San Diego. The Effect of Topical Tacrolimus on Epicutaneous Th2 Sensitization. Internal Medicine. Albert Einstein College/Montefiore Medical Center, Bronx, N.Y. Dermatology. SUNY Health Science Center—Brooklyn, N.Y.
- Ragui W. Sedeeq, b.s., University of California, Irvine. Characteristics of AIDS-Related Cytomegalovirus Retinitis in the Highly Active Antiretroviral Therapy Era. Internal Medicine. St. Mary Medical Center—Long Beach, Calif. Ophthalmology. New York Eye and Ear Infirmary, New York, N.Y.
- Chirag Dilip Shah, b.a., Stanford University; m.b.a., Harvard University. The Disruptive Potential of Emergency Ultrasound. Emergency Medicine. Harbor-UCLA Medical Center, Torrance, Calif.
- Heather Nicole Shelsta, b.s., University of Virginia. The Clinical Spectrum of Cardiac Sarcoidosis: Evaluation and Outcomes in 28 Patients. Transitional. Georgetown University Hospital, Washington, D.C. Ophthalmology. Wills Eye Hospital, Philadelphia, Pa.
- Rachel Shemtov, b.a., Yale University. Community-Based Screening for Co-Occurring Mental Illness Among Out-of-Treatment Drug Users. Internal Medicine/Primary. New York University School of Medicine, New York, N.Y.
- Harsimran Sachdeva Singh, b.a., Princeton University; m.sc., University of London. Dose Threshold for Clinical Success in Coronary Brachytherapy: A Nested Case-Control Study. Internal Medicine. University of California—San Francisco, Calif.
- Robyn Dale Siperstein, b.a., Yale University. Parental Reporting of Regression in Children with Pervasive Developmental Disorders. Transitional. Albert Einstein Medical Center, Philadelphia, Pa. Dermatology. UMDNJ-New Jersey Medical Center—Newark, N.J.
- John Milton Soderberg, b.s., University of Michigan, Ann Arbor; m.p.h., Boston University. Assessing the Strength of Early CTCL Diagnosis; Correlation of Clinical and Histopathological Tools. Internal Medicine. Hospital of Saint Raphael, New Haven, Conn. Dermatology. Duke University Medical Center, Durham, N.C.
- Ana Paola Uranga Solis, b.s., University of California, San Diego; m.b.a., Yale University. Electroconvulsive Therapy: Effects on Cognitive Function and Cerebral Blood Flow. General Surgery. Yale-New Haven Hospital, New Haven, Conn.
- David Adam Spiegel, b.a., Harvard University. Metal Carbenoids in the Syntheses of the Potent Anticancer and Anticholesterol Agents Phomoidrides A and B. Postdoctoral Researcher. Department of Chemistry and Chemical Biology, Harvard University, Cambridge, Mass.
- Dena Judith Springer, b.a., Harvard University. Sugar High: Factors that Interfere with Achievement of Optimal Control of Type 1 Diabetes in Youth. Pediatrics. Children's Hospital of Boston, Mass.
- Ashraf Thabet, b.a., Cornell University. Pediatric Pulmonary Arteriovenous Malformations: Clinical Manifestations and Embolotherapy. Internal Medicine. New York Medical College at St. Vincent's Hospital, New York, N.Y. Diagnostic Radiology. Massachusetts General Hospital, Boston, Mass.



- Rachel Willner Thompson, b.a., Harvard University. Ethanol and the Developing Mammalian Heart: Alterations in Myocyte Function and Gene Expression. Pediatrics. Children's Hospital of Boston, Mass.
- Parsia A. Vagefi, b.a., Johns Hopkins University. Role of the Thymus in Renal Allograft Transplantation Tolerance in Miniature Swine. General Surgery. Massachusetts General Hospital, Boston, Mass.
- Erica T. Wang, b.s., m.s., Yale University. The Prevalence and Role of Depression in Women with Vulvodynia. Obstetrics and Gynecology. Yale-New Haven Hospital, New Haven, Conn.
- Erik Daniel Weiss, b.a., Yale University. Physical Interaction Between the Invertebrate Photoreceptor-Specific Arrestin Homolog, Phosrestin-I, and Myosin V in Head of *Drosophila melanogaster*. Surgery. Massachusetts General Hospital, Boston, Mass. Urology. Massachusetts General Hospital, Boston, Mass.
- Jared Weiss, b.s., Brown University. Neonatal Hypoxia Suppresses Oligodendrocyte Nogo-A and Increases Axonal Sprouting in a Rodent Model for Human Prematurity. Internal Medicine. Beth Israel Deaconess Medical Center, Boston, Mass.
- Jacqueline May-Louise William, b.s., Stanford University; ph.d., Yale University. Regulation of Rheumatoid Factor-Expressing B Lymphocytes in Normal and Autoimmune-Prone Environments. Pathology. Brigham and Women's Hospital, Boston, Mass.
- Ilene Yi-Zhen Wong, b.a., University of Pennsylvania; m.a., Johns Hopkins University. The Development and Assessment of an Innovative Video to Introduce Concepts of Adherence in Soweto, South Africa. Surgery. Stanford University Programs, Stanford, Calif. Urology. Stanford University Programs, Stanford, Calif.
- Jenny Huiju Yiee, b.a., University of Southern California. Genetic Taste Variation and Mixture Suppression: Effects of PROP (6-n-propylthiouracil). Surgery. University of Texas Southwestern Medical School, Dallas, Tex. Urology. University of Texas Southwestern Medical School, Dallas, Tex.

## students receiving the m.d. and ph.d. degrees

Keith Adam Choate  
 Oscar Rene Colegio  
 Darlene Gabeau-Lacet  
 Karl Haglund  
 Byron Sandor Kennedy  
 Alfred Ian Lee  
 Marco Antonio Del Valle Salazar  
 Jacqueline May-Louise William

## student receiving the m.d. and sc.d. degrees

Reneé Danielle Boynton-Jarrett

## student receiving the m.d. and j.d. degrees

Paul Saad El-Fishawy

## students receiving the m.d. and m.b.a. degrees

David V. LaBorde

Laura Nneka Mobisson

Alejandro Reti

Chirag Dilip Shah

Ana Paola Uranga Solis

## students receiving the m.d. and m.p.h. degrees

Paola Carolina Ayora

Shannelle A. Campbell

Bahar Fatemeh Firoz

Tamiesha Afrakoma Frempong

Caroline Jennifer Jjingo

Sean C. Lucan

Ada-Nkem Angela Nwaneri

Daniel Eduardo Prince

Suneil R. Ramchandani

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# Enrollment for 2004– 2005

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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

Hardean Eric Achneck (b.a. Yale Univ. 2000), Düsseldorf, Germany.  
Yuri Agrawal (b.s. Harvard Univ. 2000), South Windsor, Conn.  
Chloé Evelyn Atreya (b.a. Princeton Univ. 1998), Ann Arbor, Mich.  
David Mathew Aversa (b.a. Brown Univ. 1995, m.p.h. Boston Univ. 2000), Woodbridge, Conn.  
Frances Beth Balamuth (b.s. Brown Univ. 1995), Wynnewood, Pa.  
Suzanne Jane Baron (b.a. Harvard Univ. 2001), Melrose, Mass.  
Cristina Mary Baseggio (b.a. Dartmouth Coll. 1997), Mattapoisett, Mass.  
Kwabena Lartey Blankson (b.a. Harvard Univ. 2001), Birmingham, Ala.  
Julie Danielle Cantor (b.a. Stanford Univ. 1995), Thousand Oaks, Calif.  
Jillian Suzanne Catalanotti (b.s. Yale Univ. 2000), Elmont, N.Y.  
Rohit Chandwani (b.a. Harvard Univ. 2001), Emerson, N.J.  
Anamika Margaret Chaudhuri (b.a. Tufts Univ. 2000), Medford, Mass.  
Andrew Anchung Chen (b.s. Yale Univ. 1999), Ontario, Canada.  
Jeffrey Jen Chi (b.s. Yale Univ. 2000), Westport, Conn.  
Richard Joonoh Chung (b.a. Harvard Univ. 2000), Woodbridge, Conn.  
Stephanie Caroline Colegio-Eisenbarth (b.a. Bryn Mawr Coll. 1996), Golden, Colo.  
Gina Marie Constantine (b.a. Yale Univ. 2000), Fair Oaks, Calif.  
Heidi Cook (b.a. Southern Methodist Univ. 1991), Dallas, Tex.  
Dagan Edrick Coppock (b.s. Univ. Tennessee 1999), Powell, Tenn.  
Nicholas Brittain Countryman (b.s. Univ. of Notre Dame 2000), Indianapolis, Ind.  
Jennifer Suzanne Davids (b.a. Harvard Univ. 2001), Boston, Mass.  
Matthew Steven Davids (b.a. Harvard Univ. 2000), Swampscott, Mass.  
Neelendu Dey (b.s. Harvard Univ. 2000), Bridgeton, Mo.  
Vicente Antonio Diaz (b.a. Brown Univ. 2000), Corona, N.Y.  
Annika Sara Dronge (b.a. Barnard Coll. 1997), Tenafly, N.J.  
Amy Susan Duffield (b.a. Wesleyan Univ. 1995), Wilmington, Del.  
Jing Feng (b.s. Marquette Univ. 2001), Brookfield, Wis.  
Thomas Victor Fernandez (b.a. Princeton Univ. 1997), Bridgewater, N.Y.  
Michele Catherine Flagge (b.s. Stanford Univ. 1999), Carmel, N.Y.  
John Kiene Forrest (b.a. Bowdoin Coll. 1998), New Haven, Conn.

Ariel S. Frey (b.a. Harvard Univ. 1999), Acton, Mass.  
Adam Gafni-Kane (b.a. Univ. Michigan 1997), Norwalk, Conn.  
Katherine Anne Gergen (b.a. Yale Univ. 1996), McLean, Va.  
Daniel Peter Gibson (b.a. Univ. Virginia 2000), Charlottesville, Va.  
Sharon Kathleen Gill (b.s. California Polytechnic State Univ. 1991), Portola Valley, Calif.  
Sophia Elena Gimenez (b.a. Univ. Michigan [Ann Arbor] 2000), Ann Arbor, Mich.  
Eric Michael Golding (b.s. Univ. Pennsylvania 2000), Wyckoff, N.J.  
Helena Bjerring Hansen (b.a. Harvard Univ. 1992), Brooklyn, N.Y.  
Michael Emmanuel Herce (b.a. Univ. Virginia 1999), Woodbridge, Va.  
Lianne Aya Hirano (b.a. Bowdoin Coll. 1999), Honolulu, Hawaii.  
Edidiong Nsidibe Ikpe (b.a. Harvard Univ. 1999), Miami, Fla.  
Douglas William Jacobson (b.a. Colorado Coll. 1998), Menlo Park, Calif.  
Jesse Cimarron James (b.s. Florida A&M Univ. 2000), Atlanta, Ga.  
Rasika Priya Jayasekera (b.a. Yale Univ. 1999), Lexington, Ky.  
Kohar Jones (b.a. Yale Univ. 1999), Tenafly, N.J.  
Niya Armentha Jones (b.a. Brown Univ. 2000), Washington, D.C.  
Barton Charles Kenney (b.a. Brown Univ. 1999), Baltimore, Md.  
Daniel Khaimov (b.s. St. John's Univ. 1999), Flushing, N.Y.  
Leo Am Kim (b.s. Johns Hopkins Univ. 1997), Irvine, Calif.  
Brett Andrew King (b.a. Univ. California [Santa Cruz] 1992), Los Angeles, Calif.  
Joshua Peter Klein (b.a. Univ. Pennsylvania 1997), Roslyn, N.Y.  
Eleanor Ann Knopp (b.a. Brown Univ. 1999), Seattle, Wash.  
Mandy Beth Krauthamer (b.s. Cornell Univ. 2000), Baldwin, N.Y.  
Christopher Michael Kwong (b.s. Univ. California [San Diego] 1999), Concord, Calif.  
Inna Landres (b.s. Yale Univ. 1999), Stamford, Conn.  
Naudia Natalee Lauder (b.a. Johns Hopkins Univ. 1999), Maple Heights, Ohio.  
Aimee Elizabeth Lee (b.s. Brown Univ. 2000), Weston, Mass.  
Christoph Ilsuk Lee (b.a. Princeton Univ. 1998), Oxnard, Calif.  
Sean Michael Lee (b.a. Cornell Univ. 2000), Redmond, Wash.  
Neil Andrew Lester (b.s. Univ. Southern California 1999), Beverly Hills, Calif.  
Lorky Nercessian Libaridian (b.a. Yale Univ. 1999), Cambridge, Mass.  
Catherine Jane Loerke (b.a. Stanford Univ. 1998), Barrington, R.I.  
Javier Lopez (b.s. Univ. Miami 2001), Miami, Fla.  
Coelrida Louis (b.a. Wellesley Coll. 1999), Randolph, Mass.  
Janelle Luk (b.a. Cornell Univ. 2001), Flushing, N.Y.  
Christina Beth Lynch (b.a. Amherst Coll. 2000), Hatboro, Pa.  
Raymond John Lynch (b.s. Boston Coll. 1999), Hopkinton, Mass.  
Edison Alejandro Machado (b.a. Cornell Univ. 1999), Corona, N.Y.  
Ayonija Maheshwari (b.s. Ohio State Univ. 2001), Safat, Kuwait.  
Erin Margaret Mahony (b.a. Colgate Univ. 2000), Belmont, Mass.  
Ernest Israel Mandel (b.a. Harvard Univ. 2001), Sharon, Mass.  
Andre Romell Matthews (b.s. Morehouse Coll. 2000), Chicago, Ill.

Nir Modiano (b.s. Yale Univ. 1996), Woodbridge, Conn.  
 Louis Peter Moreno (b.a. Duke Univ. 1996), College Point, N.Y.  
 Brian Vala Nahed (b.s. Univ. California [Los Angeles] 2000), Los Angeles, Calif.  
 Deanne Michiko Nakamoto (b.a. Harvard Univ. 2000), Honolulu, Hawaii.  
 Sarah Nikiforow (b.s. Princeton Univ. 1993), New Canaan, Conn.  
 David Anders Ornan (b.s. Brown Univ. 2000), Lynchburg, Va.  
 Trevor Grant Phillips (b.s. Linfield Coll. 2000), Sunny Valley, Ore.  
 Damani Arnold Piggott (b.s. Morehouse Coll. 1997), Maraval, Trinidad and Tobago.  
 Eric Michael Poolman (b.s. Stanford Univ. 1995), Redwood City, Calif.  
 Bradley Scott Raphael (b.a. Univ. Rochester 2000), Fayetteville, N.Y.  
 David Adam Ross (b.s. Yale Univ. 1999), Canton, Mass.  
 Susan Elizabeth Rushing (b.s. Massachusetts Inst. of Technology 1999), Jefferson, Md.  
 Mariah Cushman Ruth (b.a. Stanford Univ. 1999), Glencoe, Ill.  
 Issac Sasson (b.a. Yeshiva Univ. 1997), Oakhurst, N.J.  
 Robert Brian Schonberger (b.a. Yale Univ. 1996), New York, N.Y.  
 Michael David Shapiro (b.s. Univ. California [Los Angeles] 2000), Calabasas, Calif.  
 Margo Deborah Simon (b.a. Wesleyan Univ. 1999), Elkins Park, Pa.  
 Jennifer Hale Smith (b.a. Columbia Univ. 1994), Zanesville, Ohio.  
 Jocelyn Soffer (b.a. Yale Univ. 1998), Katonah, N.Y.  
 Martine Marie Solages (b.a. Harvard Univ. 2001), Piscataway, N.J.  
 June Thalia Spector (b.a. Harvard Univ. 2001), Colts Neck, N.J.  
 Matthew Daniel Streckert (b.s. Washington Univ. 2000), Naperville, Ill.  
 Curtis Howard Weiss (b.s. Yale Univ. 2001), Chicago, Ill.  
 Carlos Knute Wesley (b.a. Princeton Univ. 1997), Ames, Iowa.  
 Matthew Kyle Whitley (b.s. Univ. Georgia 2000), Alpharetta, Ga.  
 Jessica Eve Yager (b.a. Harvard Univ. 1997), Cambridge, Mass.

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### Third-Year Class

Shoab Syed Ahmed (b.s. Johns Hopkins Univ. 2001), Prospect, Ky.  
 Jason Randolph Andrews (b.a. Yale Univ. 2002), Algonquin, Ill.  
 Natasha Marie Berna Archer (b.s. Yale Univ. 1999), Forest Hills, N.Y.  
 Dara Beth Arons (b.a. Yale Univ. 1996), West Newton, Mass.  
 Nana Akua Agyeiwaa Asafu-Agyei (b.s. Yale Univ. 2002), Accra, Ghana.  
 Calvin Langston Barnes (b.a., b.a. Oberlin Coll. 2002), Blacksburg, Va.  
 Simon Roderick Albert Best (b.a. Yale Univ. 2002), Brockville, Ontario, Canada.  
 Kira O'Neil Bona (b.a. Cornell Univ. 2002), Montague, Mass.  
 Arianne Jeanve Boylan (b.a. Wellesley Coll. 2002), Bethesda, Md.  
 Juliana Capatosto (b.a. Yale Univ. 2000), Bellrose, N.Y.  
 Allison Fitzgerald Carey (b.s. Pennsylvania State Univ. 2002), Pittsburgh, Pa.  
 Joanna Yee King Chin (b.a. Harvard Univ. 1999), Brooklyn, N.Y.  
 Renu Chundru (b.a. Univ. Pennsylvania 2001), Yardley, Pa.

Marcus Philip Coe (b.a. Dartmouth Coll. 2000), Barrington, Ill.  
Jana Alexandra Colton (b.a. Harvard Univ. 2000), Boca Raton, Fla.  
Joseph Adam Cousin (b.s., m.s. Harvard Univ. 2002), Lutz, Fla.  
Thomas Andrew Dewland (b.a. Dartmouth Coll. 2002), Woodbridge, Va.  
Todd Lawson Ebbert (b.s. Brigham Young Univ. 2001), New Haven, Conn.  
Brittany Albright Epperson (b.s. Weber State Univ. 2001), Plain City, Utah.  
Mariel Aida Focseneanu (b.a. Univ. Pennsylvania 2002), Rye, N.Y.  
Ahmed Mohamed Ghazi (b.s. Massachusetts Inst. of Technology 2002), Dokki Cairo, Egypt.  
Veronique Anne Sabine Griffith (b.a. Harvard Univ. 2002), North Haven, Conn.  
Natalie Guerrier (b.a. Harvard Univ. 2001), New Haven, Conn.  
Jane Awuramma Gwira (b.a. Wellesley Coll. 2001), Bowie, Md.  
Ryan Isaac Huffman (b.s. Washington Univ. 2002), Parkerburg, W.Va.  
Rebecca Stephanie Hunter (b.a. Princeton Univ. 2001), Guaynabo, Puerto Rico.  
Emlyn Starr Jones (b.a. Vassar Coll. 1994, m.p.h. Emory Univ. 1999), Needham, Mass.  
Peter Joshua Juran (b.a. Amherst Coll. 2002), Metairie, La.  
Pavlos Z. Kaimakliotis (b.a. Wesleyan Univ. 2002), Little Neck, N.Y.  
Deborah Elizabeth Kaplan (b.a. Bowdoin Coll. 1999), Lebanon, Conn.  
Joyce I. Kaufman (b.a. Brown Univ. 1996), Cedarhurst, N.Y.  
Lauren Elaine Kernochan (b.a. Smith Coll. 2000), Santa Monica, Calif.  
Davender Singh Khera (b.a. Yale Univ. 2001), Toronto, Ohio.  
Erin Nicole Kiehna (b.a., b.s. Vanderbilt Univ. 2002), Collierville, Tenn.  
Jessica Lynn Kirk (b.s. Stanford Univ. 2001), Seabeck, Wash.  
Kendra Marie Klang (b.a. Johns Hopkins Univ. 2001), Everett, Wash.  
Phoebe Este Koch (b.a. Brown Univ. 1998), Concord, Mass.  
Brian Dongwook Koh (b.a. Harvard Univ. 1996), Honolulu, Hawaii.  
Shlomo Asher Koyfman (b.a. Yeshiva Univ. 2002), Teaneck, N.J.  
Lauren Kendall Krause (b.a. Northwestern Univ. 2001), Castle Rock, Colo.  
Victoria Kuohung (b.a. Univ. Michigan [Ann Arbor] 1992, j.d. Harvard Univ. 1996), Chicago, Ill.  
Meghan Brooks Lane (b.a. Univ. California [Berkeley] 2001), Novato, Calif.  
Ilse Anne Larson (b.a. Stanford Univ. 2000), Bainbridge Island, Wash.  
Aram Jonathan Lee (b.a. Yale Univ. 2000), Potomac, Md.  
Alyssa Rose Letourneau (b.s. Brown Univ. 2001), Rochester, N.H.  
Rachel Rose Light (b.a. Swarthmore Coll. 1999), New York, N.Y.  
David Liska (b.a., m.a. Johns Hopkins Univ. 2002), Vienna, Austria.  
Douglas Alvin Lyssy (b.s. Univ. Texas [San Antonio] 2002), Falls City, Tex.  
Alison Michelle Maresh (b.s. Stanford Univ. 2002), Farmington, Conn.  
Maria Mazzeo (b.s. Cornell Univ. 2000), Slingerlands, N.Y.  
Heather Jane McCrea (b.s. Brown Univ. 2002), Wilton, Conn.  
Lisa Elaine McDonald (b.s. Univ. Texas [Austin] 2002), Pinehurst, Tex.  
Robert Hugh McGlynn (b.s. State Univ. New York [Albany] 1999), Pleasant Valley, N.Y.

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Heather Christine McKee (b.a. Univ. Virginia 2002), Memphis, Tenn.  
Rebecca Anne McNutt (b.s. U.S. Air Force Academy 1996, m.s. George Washington Univ. 1997), Enfield, Conn.  
Kirsten Alexandra Menn (b.a. Smith Coll. 2000), Palo Alto, Calif.  
Ahou Meydani (b.a. Brown Univ. 2001), Newton, Mass.  
Matthew Mark Miller (b.s. Univ. Utah 2002), Farmington, Utah.  
Arnab Mukherjee (b.a. George Washington Univ. 2002), Alpharetta, Ga.  
David Eric Myles (b.s. Morehouse Coll. 2002), Peachtree City, Ga.  
Anthony B. Ndu (b.a., b.s. Union Coll. 2002), Scotch Plains, N.J.  
Andrew Sandor Nerlinger (b.s. Univ. of Notre Dame 2002), Wilmington, Del.  
Bernice Yu Jing Ng (b.a. Univ. California [Berkeley] 2001), South Pasadena, Calif.  
Alexander F. W. Nissen (b.a. Univ. California [Berkeley] 2000), Bodo, Norway.  
Benjamin Carter Noonan (b.s. North Dakota State Univ. 1993, m.s. Saint Cloud State Univ. 1998), Moorhead, Minn.  
Kikelomo Olorunrinu (b.s. Univ. Texas [Arlington] 2002), Yardley, Pa.  
Oyere Kalu Onuma (b.s. Harvard Univ. 2002), Aba, Nigeria.  
Cameron Stuart Page (b.a. Georgetown Univ. 1997), Lexington, Mass.  
Trushar Jayanti Patel (b.s. Massachusetts Inst. of Technology 2001), Anaheim Hills, Calif.  
Sunanda M. Pejavar (b.a. Univ. California [Berkeley] 2000), Cupertino, Calif.  
Huy Quoc Phun (b.s. Univ. California [Los Angeles] 2002), Simi Valley, Calif.  
Craig Daniel Platt (b.a. Univ. Pennsylvania 2002), Wyckoff, N.J.  
Victoria Kathryn Potterton (b.a. Dartmouth Coll. 2002), Fairfax, Va.  
Alain Ramirez (b.s. Univ. Miami 2002), Hialeah, Fla.  
Deepak Angara Rao (b.a. Harvard Univ. 2001), Lafayette Hill, Pa.  
Michael Stephen Reel (b.a. Columbia Univ. 1989, m.b.a. Univ. Chicago 1993), New York, N.Y.  
Jason David Roh (b.a. Amherst Coll. 2001), Freeport, Ill.  
Margaret Jean Rose (b.s. Univ. Pittsburgh 2002), Pittsburgh, Pa.  
Katya Bronwyn Rubinow (b.a. Harvard Univ. 1998), Bethesda, Md.  
Russell James Hubba Ryan (b.a. Amherst Coll. 2002), Marblehead, Mass.  
David Alaistair Scales (b.a. Univ. Pennsylvania 2001), Atlanta, Ga.  
Brent Earl Schultz (b.s. Univ. California [Davis] 2000), Tulelake, Calif.  
Akash Deelip Shah (b.a. Univ. Pennsylvania 2002), Fort Worth, Tex.  
Priya Bhausaheb Shete (b.a. Johns Hopkins Univ. 2001), Naperville, Ill.  
Joshua Dean Shofner (b.s. Univ. Kentucky 2002), Lexington, Ky.  
Duncan M. Smith-Rohrberg (b.a. Harvard Univ. 2002), West Falmouth, Mass.  
Ramnath Subbaraman (b.a. Univ. Chicago 2001), Midland, Tex.  
Lindsey Christine Sukay (b.a., b.s. Coll. of William and Mary 2002), Collegeville, Pa.  
Timothy Brian Sullivan (b.a. Univ. of Notre Dame 1993), Sterling, Ill.  
Edward Teng (b.s. Yale Univ. 2002), Torrance, Calif.  
Mary Elizabeth Turell (b.s. Cornell Univ. 1997), Frederick, Md.  
Stacy Joan Uybyco (b.a. Univ. California [Berkeley] 2001), Fremont, Calif.

Sadhna Raju Vora (b.a. Harvard Univ. 2002), Gray, Ky.  
Silas Lancelot Wang (b.s. Harvard Univ. 2002), Toronto, Canada.  
Stephen Matthew Ward (b.s. U.S. Coast Guard Academy 1997), Pinellas, Fla.  
Jenli D. Waters (b.a. Johns Hopkins Univ. 2002), Sugar Land, Tex.  
Dana Alexandra Weiss (b.a. Yale Univ. 2001), North Haven, Conn.  
William Lamont Worden (b.a. Brigham Young Univ. 2002), Greenacres, Wash.  
Charlotte Audris Wu (b.a. Stanford Univ. 2001), San Diego, Calif.  
Tong Yang (b.s. Peking Univ. 1991, ph.d. Brandeis Univ. 1997), Irving, Tex.  
Anna Yusim (b.s. Stanford Univ. 1999), Wheeling, Ill.

Total, 101

### Second-Year Class

Karen Lorraine Archabald (b.a. Dartmouth Coll. 1994, m.s. Univ. Wisconsin [Madison] 2000), Camillus, 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.  
Sanjay Basu (b.s. Massachusetts Inst. of Technology 2002), Lisle, Ill.  
Jessica Hoffmann Beard (b.a. Columbia Univ. 2003), Houston, Tex.  
Louvonnia Rose Boone (b.s. Yale Univ. 2001), Calhoun, Ga.  
Leon Dimitrios Boudourakis (b.a., b.s. Michigan State Univ. 2003), Fraser, Mich.  
Benjamin Douglas Bowling (b.s. Univ. California [Los Angeles] 2001), Palo Alto, Calif.  
Argyro Pericles Caminis (b.a. Yale Univ. 2000), Rowayton, Conn.  
Claudia Patricia Castiblanco (b.s. Iona Coll. 2002), White Plains, N.Y.  
Davekumar Chandrasekaran (b.s. Brown Univ. 2001), Expect, Pa.  
Omar Rehman Chaudhary (b.s. Duke Univ. 2003), Martinez, Ga.  
Bridget Frances Collins (b.a. Hamilton Coll. 2002), Williamson, N.Y.  
Farrah Mikhail Datko (b.a. Princeton Univ. 2002), Malvern, Pa.  
Shekar Ligia Davarya (b.a. Johns Hopkins Univ. 2003), Baltimore, Md.  
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.  
Mary Alice Dombrowski (b.s. Georgetown Univ. 2003), Glastonbury, Conn.  
Jennifer Dominguez (b.a. Duke Univ. 1999), Ridgefield, Conn.  
Matthew Chandler Egalka (b.a. Dartmouth Coll. 2001), Farmingham, Mass.  
Dario Joseph Englot (b.s. Univ. Scranton 2003), Swoyersville, Pa.  
Candace Hillary Feldman (b.a. Yale Univ. 2003), Forest Hills, N.Y.  
Rachel Summer Clai Friedman (b.a. Harvard Univ. 2001), Dingmans Ferry, Pa.  
Thomas John Gniadek (b.s. Yale Univ. 2002), Cheshire, Conn.  
Lucy Emily Goddard (b.a. Dartmouth Coll. 2001), Rochester Hills, Mich.  
Roger Alan Goldberg (b.a. Yale Univ. 2000), Newton, Mass.  
Liza Elenia Goldman Huertas (b.s. Brown Univ. 1997), Orange, Conn.  
Gretchen Melaine Graff (b.s. Univ. of Notre Dame 2003), Deadwood, S.Dak.  
Danielle Helen Guez (b.s. Massachusetts Inst. of Technology 2003), Penn Valley, Pa.



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Ryan Matthew Hebert (b.a. Univ. Colorado [Boulder] 2001), Crown Point, La.  
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.  
Eric Alan Huebner (b.s. Univ. Washington 2003), Bellevue, Wash.  
Hassana Aisha Ibrahim (b.s. Allegheny Coll. 2002), Kensington, Md.  
Brendan Robert Jackson (b.s. Univ. Georgia 2002), Atlanta, Ga.  
Christopher Michael Janson (b.a. Princeton Univ. 2002), Morristown, N.J.  
David Jay-Pei Jeng (b.a. Harvard Univ. 2003), Great Neck, N.Y.  
Viral Virendra Juthani (b.a. Univ. Pennsylvania 2003), Scarsdale, N.Y.  
Hristos Z. Kaimakliotis (b.a. Wesleyan Univ. 2003), Larnaca, Cyprus.  
Paul Sudhir Arul Kalanithi (b.a. Stanford Univ. 2000, m.a. Stanford Univ. 2001,  
m.a. Cambridge Univ. 2003), Kingman, Ariz.  
Ryan Karl Kaple (b.s. Univ. of Notre Dame 2003), Youngstown, Ohio.  
Ryan Patrick Kelly (b.a. Dartmouth Coll. 2001), Ledyard, Conn.  
Scott Thomas Olco Kennedy (b.a. Stanford Univ. 2002), Moon Township, Pa.  
Rebecca Lynn Kershner (b.s. Yale Univ. 1995, m.s. New York Univ. 2000), Davis, Calif.  
Misaki Mikki Kiguchi (b.s. Yale Univ. 2003), Austin, Tex.  
Srdan Kobsa (b.s. Drake Univ. 2003), Zagreb, Croatia.  
Sheila Kumar (b.a. Johns Hopkins Univ. 2003), Bell Canyon, Calif.  
Aida Eugenia Kuri (b.a. Univ. South Florida 2003), Tampa, Fla.  
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.  
James C. Lee (b.a. Univ. Washington 2003), Honolulu, Hawaii.  
April Robyn Levin (b.s. Brown Univ. 2003), Dover, Mass.  
Kiera Surelle Levine (b.a. Yale Univ. 1996), Los Angeles, Calif.  
Peter Charlie Lin (b.s. Cornell Univ. 2003), Livonia, Mich.  
Sophia Liu (b.a. Stanford Univ. 2002), Great Neck, N.Y.  
Dania Bize Magri (b.a. Univ. California [Berkeley] 1995), Watertown, Mass.  
Al Hasan Makkouk (b.s. Univ. Texas [Austin] 2003), Austin, Tex.  
Stefan Mansourian (b.a. Harvard Univ. 1999), Orange, Conn.  
Michael Joel Martinez (b.a. Princeton Univ. 2002), Edinburg, Tex.  
Maya Maxym (b.a. Yale Univ. 1996, ph.d. Emory Univ. 2003), Arnold, Md.  
Sean Matthew McBride (b.s. Yale Univ. 2003), Wilmington, Del.  
Amy Lynn Meadows (b.s. Massachusetts Inst. of Technology 2003), Lexington, Ky.  
Karen Sarena Morris (b.a. York Coll. [Pennsylvania] 2002), Harrisburg, Pa.  
Melinda Jane Morton (b.s. U.S. Military Acad. 1999), Canal Winchester, Ohio.  
Kudakwashe Kuda Mutyambizi (b.a. Williams Coll. 2003), Harare, Zimbabwe.  
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Amanda Rae Sandoval (b.a. Univ. Denver 2000), Thornton, Colo.  
Maulik Pradeep Shah (b.a., b.s. Stanford Univ. 2003), Las Flores, Calif.  
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Paul Charles Walker (b.a. Univ. Utah 2003), Kirtland, N.Mex.  
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Ayal Aaron Aizer (b.s. Brown Univ. 2004), Kingston, N.Y.  
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Carolyn Sears Avery (b.s. Yale Univ. 2003), Chestnut Hill, Mass.  
Soledad Tarka Ayres (b.a. Smith Coll. 2003), Palo Alto, Calif.

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Jesse Emory Bible (b.s. Univ. Virginia 2004), Chuckey, Tenn.  
Debdut Biswas (b.a. Cornell Univ. 2004), Medina, Ohio.  
Mohamad Bydon (b.a. Dartmouth Coll. 2002), Dearborn, Mich.  
Erik James Carlson (b.a. Dartmouth Coll. 2003), Atlanta, Ga.  
Jonathan Howard Chen (b.s. Univ. Chicago 2003), Barrington, Ill.  
Justin Albert Chen (b.s. Yale Univ. 2003), McLean, Va.  
Cynthia Marie Correll (b.s. Univ. Pittsburgh 2003), Reading, Pa.  
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.  
Damien Jon Ellens (b.a. Hamilton Coll. 2003), Grand Rapids, Mich.  
Peter David Fabricant (b.a. Univ. Rochester 2004), Madison, Conn.  
Jason Elihu Frangos (b.a. Columbia Univ. 1992), New York, N.Y.  
Sarah Elisabeth Frasure (b.a. Wellesley Coll. 2001), Alexandria, Va.  
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Christopher James Gibson (b.a. Univ. Georgia 2003), Atlanta, Ga.  
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Ellen Margaret House (b.s. Yale Univ. 2004), Greensboro, N.C.  
Jenelle Asha Jindal (b.s. Stanford Univ. 2004), Lafayette, La.  
Adam Harris Kaye (b.a. Univ. Pennsylvania 2004), Westport, Conn.  
Rasha Saman Houry (b.s. Georgetown Univ. 2004), Kenilworth, Ill.  
Yunie Kim (b.s. Univ. Washington 2003), Lynnwood, Wash.  
Luis Enrique Kolb (b.s. Johns Hopkins Univ. 2002), Gurabo, Puerto Rico.  
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 Mary Catherine Whitman (b.a. Harvard Univ. 2001), Rockville, Md.  
 Cicely Ann Williams (b.a. Univ. Virginia 2001), Knoxville, Tenn.  
 Yvonne Sue Yang (b.a. Yale Univ. 2000), Fresno, Calif.  
 Mihae Eunice Yun (b.s. Yale Univ. 1998), Lebanon, Pa.

Total, 88

## registered for the combined m.b.a.–m.d. degree

Sarah Michelle Nayeem (b.a. Harvard Univ. 1999), New York, N.Y.  
 Chukwuemeka Chinedu Nwanze (b.a. Harvard Univ. 2000), Silver Spring, Md.  
 Amar Naresh Rewari (b.a. Temple Univ. 2000), Somerset, N.J.

Total, 3

## registered for the combined j.d.–m.d. degree

Rahul Rajkumar (b.a. Yale Univ. 2000), Somers, N.Y.

Marlynn Hwa Wei (b.s. Yale Univ. 2001), Denton, Tex.

Total, 2

## registered for the degree of master of public health

### Second-Year Class

Komail Abbas (b.s. Northwestern Univ. 2003), Bloomingdale, Ill.

Tara Sosa Abraham (b.a. Univ. Chicago 2003), Weston, Mass.

Nabila Alibhai (b.a. Skidmore Coll. 2000), Nairobi.

Naomi G. Anderson (b.s. Muhlenberg Coll. 2003), Gorham, Me.

Wachovia Chanta Banks (b.s. Univ. Pittsburgh 2002), Harrisburg, Pa.

Anna Meredith Beitin (b.s. Villanova Univ. 2003), Dobbs Ferry, N.Y.

Lauren Elizabeth Borchardt (b.a. Colby Coll. 2000), Wayland, Mass.

Saglar Ilinichna Bougdaeva (m.a. St. Petersburg State Univ. 1994), Russia.

Lisa A. Cadmus (b.a. Carleton Coll. 2002), Grinnel, Iowa.

Enid Marie Castro (b.a. Cornell Univ. 2003), New York, N.Y.

Karen Cheung (b.a. Univ. California [Berkeley] 2003), Milpitas, Calif.

Tania Andrea Cossio-Molina (b.a. Wesleyan Univ. 1997), Bronx, N.Y.

Joanne Ilene Cossitt (m.a. American Univ. 2003), Hamden, Conn.

Roderick C. Deano (b.s. Washington Univ. 1999), New Haven, Conn.

Akinluwa A. Demehin (b.a. Harvard Univ. 2003), Minneapolis, Minn.

Arundhati Dhara (b.a. McMaster Univ. 2002), Ontario, Canada.

Lisa Marie DiFedele (b.a. Univ. Colorado [Boulder] 2001), Stanford, Conn.

Gauri Dwivedi (m.b.b.s. G.S.V.M. Medical Coll. 1998), Lucknow, India.

Erica Rowena Fagnan (b.a. Univ. California [Berkeley] 2002), Berkeley, Calif.

Mighty Fine (b.s. Rutgers State Univ. [Camden] 2003), Glastonbury, Conn.

Yuan Fu (b.a. Bernard Baruch Coll.-CUNY 2002), Elmhurst, N.Y.

Rohit Garg (m.b.b.s. SN Medical Coll. 2000), Kendall Park, N.J.

Hayden Meridith Glenn (b.e. Vanderbilt Univ. 1999), New Haven, Conn.

Bonnie Elyssa Gould Rothberg (m.d. Yale Univ. 1994), Guilford, Conn.

Mridu Gulati (m.d. New York Univ. 1997), Agra, N.Y.

Macklin Esteban Guzman (b.a. Brandeis Univ. 2003), Worcester, Mass.

Lillian Hang (b.a. Brown Univ. 2003), Saint Paul, Minn.

Katherine Louise Hansen (b.a. Gustavus Adolphus Coll. 2003), Springfield, Neb.

Aasha Harish (b.s. Cornell Univ. 2003), Williamsville, N.Y.

Bryan E. Harper (b.s. Univ. Florida 2003), Hobe Sound, Fla.

Marie Suzan Harris (b.a. Univ. Michigan [Ann Arbor] 1999), New Haven, Conn.

Farnoosh Hashemian (b.s. Islamic Azad Univ. 2001), Iran.

Marion Curtiss Wilson Henry (m.d. Stanford Univ. 2001), New Haven, Conn.

Beth N. Higa (b.a. Northwestern Univ. 1998), Arlington, Va.

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Anika L. Hines (b.s. Hampton Univ. 2003), Norfolk, Va.  
Elizabeth Winter Holt (b.a. Duke Univ. 2000), Greenfield, S.C.  
Christina Kim Holub (b.s. Univ. California [Los Angeles] 2003), San Diego, Calif.  
Howard Dean Hosgood (b.s. Carnegie Mellon Univ. 2002), Greencastle, Pa.  
Julie Kim Hubble (b.a. Yale Univ. 1998), New York, N.Y.  
Kathryn J. Hughes (b.s. Tufts Univ. 2003), Plymouth, Mass.  
Darryl Kevin Hull (b.a. Cornell Univ. 2003), Westbury, N.Y.  
Andrea Caneel Humphrey (b.a. Georgetown Univ. 1996), New Haven, Conn.  
Samantha Lakmali Illangasekare (b.a. Stanford Univ. 2002), Boulder, Colo.  
Kulsum Janmohamed (m.d. Univ. Wales 1999), United Kingdom.  
Onpracha Jiwajinda (b.a. Univ. California [Berkeley] 2002), San Jose, Calif.  
Kavita Davina Ketwaroo (b.a. Wesleyan Univ. 2003), Baldwin, N.Y.  
Elizabeth Jane King (b.a. Univ. of Kansas 2000), Topeka, Kans.  
Julie D. Kosteas (b.a. Holy Cross 2002), Ashland, Mass.  
Laura Maureen Krueger (b.s. Univ. Michigan [Ann Arbor] 1998), Hamden, Conn.  
Marla Rebecca Kugel (b.s. Cornell Univ. 2003), West Windsor, N.J.  
Aysha Kunju (m.b.b.s. Kasturba Medical Coll. 1994), India.  
Jennifer Marie Lavery (b.a. Willamette Univ. 1999), Littleton, Colo.  
Dominic S. Lim (b.a. Univ. California [Berkeley] 2000), Northridge, Calif.  
Rong Lin (m.d. West-China Univ. of Medical 1997), China.  
Jennifer Lyn Lischewski (b.s. Knox Coll. 2003), Dalzell, Ill.  
Yollanda Ramona London-Osborne (b.s. Southern Connecticut State Univ. 1992),  
New Haven, Conn.  
Elizabeth Ann Lundeen (b.s. Univ. Missouri [Columbia] 2001), Lees Summit, Mo.  
Marina MacNamara (b.a. Univ. California [Santa Cruz] 1998), Schuyler, Va.  
Edward Morris Magee (b.s. Univ. California [Irvine] 2003), San Pedro, Calif.  
Asa Matthew Margolis (b.a. Connecticut Coll. 2003), Branford, Conn.  
Peter S. Marshall (m.d. Univ. Connecticut [Hartford] 1995), Conn.  
Matthew Stephen McDonough (b.a. Boston Coll. 1995), New Haven, Conn.  
Renika Rachelle Montgomery (b.s. Yale Univ. 2003), Nashville, Tenn.  
Kevin Gregory Neill (b.s. State Univ. New York [Purchase] 2003), Poundridge, N.Y.  
Hiep Ngoc Nguyen (b.s. Univ. California [Irvine] 2000), San Diego, Calif.  
Thai-An Trinh Nguyen (b.s. Univ. Georgia [Athens] 2002), Dunwoody, Ga.  
Jared Dennis Novak (b.s. Univ. California [Los Angeles] 2001), Calif.  
Mposo Engwassa Ntumbanzondo (m.d. Univ. Kinshasa 1998), Kinshasa, Congo.  
Koren Odierna (b.s. Univ. Connecticut [Storrs] 1999), Manchester, Conn.  
Ankur Pandya (b.s. Cornell Univ. 2003), Mount Kisco, N.Y.  
Steven T. Pedersen (b.s. Univ. Victoria 2002), British Columbia, Canada.  
Alisa Maria Ple-Plakon (b.a. Brown Univ. 2003), Plymouth, Minn.  
Patrick Scott Pritchard (b.s. Stetson Univ. 2003), West Haven, Conn.  
Bridgette Cian Provost (b.s. Wesleyan Univ. [Connecticut] 2003), Windsor Locks,  
Conn.  
Katherine E. Quesenberry (d.v.m. Univ. Georgia [Athens] 1981), Ridgefield, Conn.  
Padmini Dilrukshe Ranasinghe (m.b.b.s. Univ. Colombo 1999), Sri Lanka.

Anita Ravi (b.a. Washington Univ. 2003), Chesterfield, Mo.  
Maile Caroline Ray (b.a. Yale Univ. 1997), Albany, N.Y.  
Kimberly Irene Reich (b.s. Univ. South Florida 2002), Coral Springs, Fla.  
Jennifer M. Ring (b.s. Univ. California [Davis] 2001), Napa, Calif.  
KaSandra Nicole Rogiers (b.a. Bryn Mawr Coll. 2002), Upper Marlboro, Md.  
Annalyn Saludaes (b.a. Univ. Texas [Austin] 1999), Richmond, Tex.  
Aishawarya Sarkar (b.a. Cornell Univ. 2003), New Haven, Conn.  
Elinor Mary Schwimmer (b.a. Hamilton Coll. 1997), New York, N.Y.  
Rena Angeli Seth (b.a. Columbia Univ. 2001), Watchung, N.J.  
Ashika Kerlyn Severin (b.s. Morgan State Univ. 2003), Castries, Md.  
Scott Toshiro Shimotsu (b.a. Univ. California [Berkeley] 1999), Los Angeles, Calif.  
Flavia Regina Silva De Paula (d.d.s. Univ. Sao Paulo 1995), Brazil.  
Michelle Silverio (b.a. Cornell Univ. 2003), Bronx, N.Y.  
Maria Jacqueline Small (m.d. East Carolina Univ. 1994), Durham, N.C.  
Caroline C. Smith (b.a. Fordham Univ. 2002), Astoria, N.Y.  
Albert B. Sun (m.d. Medical Univ. South Carolina 2001), East Haven, Conn.  
Eskinder Tafesse (ph.d. Univ. Illinois [Chicago] 2000), New Haven, Conn.  
Kristina Marie Talbert-Slagle (b.s. Univ. Kentucky [Lexington] 2001), Buena Vista, Va.  
Jonathan Michael Tan (b.a. Univ. Rochester 2003), Syosset, N.Y.  
Flora Fang-Hwa Teng (b.s. McGill Univ. 2003), Surrey, British Columbia, Canada.  
Reshma Trasi (m.b.b.s. Univ. Mumbai 1999), Mumbai, India.  
Shivani Tripathi (b.a. Univ. California [Davis] 2002), Cary, N.C.  
Sanjay Kongot Unni (b.a. Pitzer Coll. 1999), Calif.  
Catherine Wangui Wachira (m.b.a. George Washington Univ. 2003), Wallingford,  
Conn.  
Mary Patricia Wawrousek (b.s. Marist Coll. 2003), Fort Drum, N.Y.  
Brenda Aisha Williams (b.a. Dartmouth Coll. 2003), Chicago, Ill.  
Yang Yang (b.s. Univ. California [Los Angeles] 2002), South Pasadena, Calif.  
Kaakpema Yelapaala (b.a. Brown Univ. 2002), Sacramento, Calif.  
Christina T. Yuan (b.s. Villanova Univ. 2003), Glenside, Pa.  
Sarah Elizabeth Zalud (b.a. Univ. Notre Dame 2002), Fair Oaks, Calif.

Total, 106

### First-Year Class

Marwah Abdalla (b.a. Harvard Univ. 2000), New Rochelle, N.Y.  
Nadia Abuzaineh (b.s. Univ. Southern California 2004), Encino, Calif.  
Karen Ann Calubiran Alelis (b.s. Villanova Univ. 2004), North Haven, Conn.  
Huma Ali (m.b.b.s. Aga Khan Univ. 1998), Hamden, Conn.  
Jo-anne L. Alissi (m.d. Univ. Connecticut 1999), Hamden, Conn.  
Estela Almanza (b.s. Univ. California [Berkeley] 1992), Sacramento, Calif.  
Janelle Ashley Anderson (b.a. Univ. Kansas 2004), Derby, Kans.  
Laquesha M. Andrews (b.a. Washington Univ. [Missouri] 2003), Oklahoma City, Okla.  
Vidya Margaret M. Anegundi (b.a. Mount Holyoke Coll. 2004), Lilburn, Ga.

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William Alvaro Arias (b.a. Providence Coll. 2004), Providence, R.I.  
Vanda Asapahu (b.s. Univ. California [Los Angeles] 2004), Los Angeles, Calif.  
Jennifer Faith Baron (b.a. Georgetown Univ. 2000), Brighton, Mass.  
Ashlea D. Barrett (b.a. Coll. of William and Mary 2004), Roanoke, Va.  
Elizabeth G. Bayne (b.s. Univ. Pittsburgh 2004), Hampton, Va.  
Mercedes Ariel Beaver (b.a. Macalester Coll. 2004), New Haven, Conn.  
Julie R. Beck (b.a. Princeton Univ. 1982), Southport, Conn.  
Eric Becker (b.a. Hampshire Coll. 2002), Helotes, Tex.  
Jocelyn Patricia Benson (b.a. Wellesley Coll. 2004), Mill Neck, N.Y.  
Lisa Marie Bono Corredor (b.a. Tufts Univ. 2004), Rolling Hills, Calif.  
Christine Elizabeth Boyd (b.s. Davidson Coll. 2001), Greenwich, Conn.  
Jane L. Brokaw (ph.d. Wake Forest Univ. 1990), Hamden, Conn.  
Heather Nicole Brown (b.s. Indiana Univ. 2003), Guilford, Conn.  
Amanda Brozinsky (b.a. Cornell Univ. 2004), La Jolla, Calif.  
Thanh C. Bui (m.d. Univ. Training Center 2002), Ho Chi Minh City, Viet Nam.  
Tobey Busch (b.a. New York Univ. 2000), Scarsdale, N.Y.  
Adam Frederick Carbone (b.s. Muhlenberg Coll. 2004), Palm Coast, Fla.  
Janice KaYan Chan (b.a. Cornell Univ. 2004), Wanchai, Hong Kong.  
Arthi Bala Chandran (b.a. Widener Univ. 2004), Downingtown, Pa.  
Ming Y. Cheung (b.s. State Univ. New York [Albany] 1998), Flushing, N.Y.  
Jessica Chiu (b.a. Univ. Pennsylvania 2000), McLean, Va.  
Lydia Gabrielle Chiu (b.a. Univ. Virginia 2004), McLean, Va.  
Robert Anthony Chu (b.s. Cornell Univ. 2004), New York, N.Y.  
Alan Hsing Chung (b.a. Univ. California [Berkeley] 2000), Fullerton, Calif.  
Jessica Noelle Clague (b.s. Univ. Southern California 2004), Claremont, Calif.  
Lucy Anita Clarke (b.a. Barnard Coll. 2001), Cambridge, Mass.  
Phoebe Cummings (b.a. Harvard Univ.), New Haven, Conn.  
Bridgid Theresa Curry (b.s. Univ. of Notre Dame [Indiana] 2002), Somerville, Mass.  
Erin Curtin (b.a. DePaul Univ. 2003), Berwyn, Ill.  
Erin Elizabeth Cushing (b.a. Colorado Coll. 2002), Portland, Ore.  
Avisa Demehri (b.a. Univ. Maryland [Baltimore] 2003), Germantown, Md.  
Connie Susan Everett (b.a. Johns Hopkins Univ. 2004), Honolulu, Hawaii.  
April Falconi (b.s. James Madison Univ. 2004), Vienna, Va.  
Gerren Joseph Faustini (b.s. Cornell Univ. 2004), Saratoga Springs, N.Y.  
Alexis Gregoire Fedorjaczenko (b.s. Central Connecticut State Univ. 2004), New Haven, Conn.  
J. B. Fenix (b.a. Univ. of Notre Dame [Indiana] 2002), Atascadero, Calif.  
Jennifer Susan Ferris (b.a. Franklin and Marshall Coll. 2002), Buxton, Me.  
Leah McArthur Ferrucci (b.a. Univ. Pennsylvania 2002), New Haven, Conn.  
Christopher Gibbs (b.s. Cornell Univ. 2004), New Haven, Conn.  
Katherine Culbertson Grady (b.a. Univ. Chicago 2003), Saint Louis, Mo.  
Marie-Helene Gratton (b.a. McGill Univ. 1997), New Haven, Conn.  
Alicia Loudon Gray (b.a. Lewis and Clark Coll. [Oregon] 1995), Wareham, Mass.

Christopher John Guerrero (b.s. Northern Illinois Univ. 2004), Chicago, Ill.  
Sanjay K. Gupta (m.b.b.s. Univ. of Delhi 1988), Cary, N.C.  
Neesha Harnam (b.s. Northeastern Univ. 2002), Boston, Mass.  
Zoe Kimberly Harris (b.a. Univ. Pennsylvania 2004), Brookline, Mass.  
Aizza Hassan (b.a. Wellesley Coll. 2003), Longmeadow, Mass.  
Melissa E. Hellenbrand (b.a. Villanova Univ. 2004), Wilton, Conn.  
Laura Marie Hill (b.a., b.s. Stanford Univ. 1998), San Mateo, Calif.  
Uy Hoang (m.b.b.s. Univ. of London 2000), Kent, United Kingdom.  
Robertta Horth (b.a. Trinity Univ. [Texas] 2003), Wichita Falls, Tex.  
Lisa Nicole Houston (b.a. Univ. Oregon 2000), Fieldbrook, Calif.  
Drena Marie Howard (b.s. South Carolina State Univ. 2003), Charlotte, N.C.  
Natalie May Hoyt (b.a. Wellesley Coll. 2002), Riverton, Utah.  
Chia-Hao Damien Hsu (b.s. Univ. Pennsylvania 2003), Taipei, Taiwan.  
Alexis Khanh Huynh (b.s. Boston Univ. 2001), San Jose, Calif.  
Alison Helene Ibsen (b.a. Boston Univ. 2001), New Haven, Conn.  
Jessica Lee Illuzzi (m.d. Harvard Univ. 1998), Fairfield, Conn.  
Erica Michele Jackson (b.a. Duke Univ. 2003), Union, S.C.  
Kelly Ann Jackson (b.s. Purdue Univ. [West Lafayette] 2004), Downingtown, Pa.  
Zahra Ayesha Jaffer (b.a. Univ. California [San Diego] 2000), Concord, Calif.  
Aliya Jiwani (b.s. Univ. British Columbia 2002), Vancouver, British Columbia, Canada.  
Monica Kalaczniak (m.d. State Univ. New York [Stony Brook] 1983), Norwalk, Conn.  
Natasha Kanagat (b.a. Wesleyan Coll. (Georgia) 2004), Mumbai, India.  
Sapna Khubchandani (m.b.b.s., b.s. Medical College of Calcutta University, India),  
Niantic, Conn.  
Briseis Ariel Kilfoyl (b.a. Univ. Chicago 2001), New Haven, Conn.  
Ilana Hershfield Kirsztajn (b.a. Smith Coll. 2002), Newton, Mass.  
Edward Allen Kremer (b.a. Univ. California [Santa Barbara] 1982), Canton, Conn.  
Deepak Chand Lakra (b.s. York Univ. 2004), Richmond Hill, Ontario, Canada.  
Rebecca Latka (b.a. Middlebury Coll. 2004), New Haven, Conn.  
Kristy M. Layton (b.s. Seattle Pacific Univ. 1997), New Haven, Conn.  
Jason Fong-gi Lee (m.s. Virginia Commonwealth Univ. 2004), Arcadia, Calif.  
Melinda Sze-Wai Lee (b.a. Univ. California [Berkeley] 2004), Hercules, Calif.  
Yen-ju Liao (b.a. National Sun-Yat-Sen Univ. 2000), Piungrung, Taiwan.  
Gerald Lin (b.s. Univ. Illinois [Chicago] 2000), Naperville, Ill.  
Sarah Ann Littlefield (b.a. Emory Univ. 2004), Damascus, Md.  
Ann Yu Liu (b.s. Yale Univ. 2002), Glastonbury, Conn.  
Anita Makkenchery (m.d. Sri Ramachandra Medical Coll. 2003), Cheshire, Conn.  
Christine Maureen Malino (b.a. Carnegie Mellon Univ. 2004), Weston, Conn.  
Christopher Paul McManus (b.s. Georgetown Univ. 2000), New City, N.Y.  
Sarah Lynn Merten (b.a. Oberlin Coll. 2004), Troy, Mich.  
Jessica Rae Miles (a.s. Weber State Univ. 1999), Roy, Utah.  
Daniela Esther Myers (b.a. Brown Univ. 2002), Potomac, Md.  
Sarah Ann Narotzky (b.a. Smith Coll. 2003), Casper, Wyo.

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Steven V. Neri (b.s. Quinnipiac Univ. 2000), Kingston, Mass.  
Natalie Cuc Nhat Nguyen (b.s. Univ. California [San Diego] 2002), Garden Grove, Calif.  
Corrie Elizabeth Paeglow (b.a. State Univ. New York [Albany] 2002), Albany, N.Y.  
Catherine Anne Panozzo (b.s. Univ. Illinois [Champaign Urbana] 2004), Naperville, Ill.  
Alexandra Jeahae Park (b.s.e.e. Univ. Michigan [Ann Arbor] 2004), New Haven, Conn.  
Versha Patel (b.a. Univ. Virginia 2004), Newark, Del.  
Brooke North Patterson (b.a. Pitzer Coll. 1998), San Francisco, Calif.  
Peter James Perez (b.s. Emory Univ. 1997), Cincinnati, Ohio.  
Dornell Pete (b.s. Fort Lewis Coll. 2000), Window Rock, Ariz.  
Wesley Spencer Prater (b.s. Jackson State Univ. [Mississippi] 2004), New Haven, Conn.  
Margaret Mary Ptacek (b.a. Oberlin Coll. 2003), Bellevue, Wash.  
S. Elizabeth Ra'cz (b.s. Univ. New Mexico [Albuquerque] 2001), New Haven, Conn.  
Catherine Rees (b.a. Mount Holyoke Coll. 1990), New Haven, Conn.  
Shivani Rikhy (b.sc. Queens Univ. 2004), New York, N.Y.  
Ann Fischer Rodgers (b.a. Northwestern Univ. 2002), Troy, Ohio.  
Shari Stern Rogal (b.s. Yale Univ. 2001), Pittsburgh, Pa.  
Ron-Ryan Dorotheo Romero (b.s. Univ. Texas [Austin] 2004), Mesquite, Tex.  
Stephanie Nicole Scarmo (b.s. Villanova Univ. 2004), Cheshire, Conn.  
Elizabeth P. Scherer (b.a. Mount Holyoke Coll. 2004), Austin, Tex.  
Douglas Schuster (b.a. St. Edward's Univ. 2004), Austin, Tex.  
Linda JungEun Shin (b.s. Univ. Illinois [Champaign Urbana] 2003), Newburgh, Ind.  
Reeha Sinha (b.s. Rutgers State Univ. 2004), Monroe Township, N.J.  
Sara Elizabeth Smiley Smith (b.a. Middlebury Coll. 2004), Winslow, Me.  
Maire Soosaar (b.s.n. Univ. Virginia 2001), New Haven, Conn.  
Emily Catherine Stasko (b.a. Macalester Coll. 2001), Nashville, Tenn.  
David Stuckler (b.a. Univ. Texas [Arlington] 2004), Fort Worth, Tex.  
Tanisha Taylor (m.d. New York Medical Coll. 2001), Waterbury, Conn.  
Nicholas Emile Torsiello (b.s. Cornell Univ. 2004), Pleasantville, N.Y.  
Sharon Tsui (b.a. Wheaton Coll. [Illinois], 2004), Hong Kong, China.  
Katrina Gail Van Gerpen (b.a. Southern Methodist Univ. 2001), Hollister, Calif.  
Anna Elizabeth Wallace (b.s. Univ. Utah 2004), New Haven, Conn.  
Jennifer Robin Wallach (b.a. Wesleyan Univ. [Connecticut], 2002), Newton, Mass.  
Erica T. Warner (b.a. Duke Univ. 2002), Silver Spring, Md.  
Emi Watanabe (b.s. Oregon State Univ. 2003), Oyama-shi, Japan.  
Christopher Watts (m.d. Louisiana State Univ. [Baton Rouge] 2001), West Haven, Conn.  
Alicia J. Whittington (b.a. Wellesley Coll. 2001), New Haven, Conn.  
James F. Wiley (m.d. Duke Univ. 1985), Glastonbury, Conn.  
Pui Ling Yau (b.a. Cornell Univ. 2003), New York, N.Y.

Total, 131

## registered for the combined m.p.h.–m.d. degree

Marwah Abdalla (b.a. Harvard Univ. 2000), New Rochelle, N.Y.

Shari Stern Rogal (b.s. Yale Univ. 2001), Pittsburgh, Pa.

Total, 2

## registered for the combined m.p.h.–f.e.s. degree

Bridgid Theresa Curry (b.s. Univ. of Notre Dame [Indiana] 2002), Somerville, Mass.

Drena Marie Howard (b.s. South Carolina State Univ. 2003), Charlotte, N.C.

Christopher Paul McManus (b.s. Georgetown Univ. 2000), New City, N.Y.

Total, 1

## registered for the combined m.p.h.–m.b.a. degree

Laura Marie Hill (b.a., b.s. Stanford Univ. 1998), San Mateo, Calif.

Total, 1

## registered for the physician associate program

### Second Year

Almas Ibrahim Abbas (b.s. Univ. North Carolina [Chapel Hill] 2003), Winston-Salem, N.C.

Angela Albero (b.a. Cornell Univ. 2001), Middletown, N.Y.

Heather Mikaela Babington (b.a. Western Connecticut State Univ. 2002), Bethel, Conn.

Kyle Thomas Brooks (b.s. Univ. California [Los Angeles] 2002), Santa Barbara, Calif.

Susanna Choy (b.a. Univ. California [Berkeley] 2001), Alameda, Calif.

Laura Beth Desilets (b.s. Stonehill Coll. 2001), Uxbridge, Mass.

Jeffrey Paul Donnelly (b.s. Univ. Massachusetts [Amherst] 2001), Wilbraham, Mass.

Gretchen Kristine Fredricks (b.s. Univ. Wisconsin [LaCrosse] 2001), LaCrosse, Wis.

Linda L. Gale (b.s. Fairfield Univ. 1985), Fairfield, Conn.

Rebecca Nicole Gordon (b.a. Washington Univ. 2001), Bethesda, Md.

Andreana Leialohalani Griffin (b.s. Univ. Massachusetts [Amherst] 2001), Lynn, Mass.

Johanna Marie Hartings (b.s. Univ. Dayton 2003), Piqua, Ohio.

Naomi Nadine Johnson (b.s.n. Univ. Illinois [Chicago] 2003), Galesburg, Ill.

Amy O. Kelsey (b.s. Univ. California [San Diego] 1998), La Quinta, Calif.

Margaret Gorman Leddy (b.s. Univ. Vermont 1999), Vero Beach, Fla.

Allison Grace Lynds (b.s. Univ. Wisconsin [Madison] 2003), Sheboygan, Wis.

Elaine Renee Mazor (b.s. Cornell Univ. 2003), Wyckoff, N.J.

Kristen M. Moore (b.s. Univ. California [Los Angeles] 2002), Castra Valley, Calif.

Israel Mushi (b.s. Southern Connecticut State Univ. 2003), New Haven, Conn.

Carolyn Kay Nedderman (b.s. Univ. Vermont 2001), Middletown, Conn.

Kristin Leigh Noell (b.s. Univ. Florida 2002), Gainesville, Fla.

Scott Michael O'Brien (b.s. State Univ. New York [Albany] 1993), Brewster, N.Y.



Alisha Lynne Oliver (b.a. Univ. Pennsylvania 2000), Orange, Conn.  
 Maria Pasqualina Onofrio (b.g.s. Univ. Connecticut 2003), Hamden, Conn.  
 Aubrie Jillian Pratt (b.s. Univ. California [Irvine] 2000), Stafford Springs, Conn.  
 Ayden Taylor Seguritan (b.a. Harvard Univ. 2001), Quincy, Mass.  
 Janell Susanne Stadler (b.s. Univ. Dallas 2002), Lecompton, Kans.  
 Michelle Lynn Taffaro (b.s. Univ. Connecticut 2000), Ridgefield Park, N.J.  
 Joan Ellyn Uminski (b.a. Univ. Wisconsin [Madison] 2000), Middleton, Wis.  
 Daniel Patrick Walsh (b.s.n. Fairfield Univ. 2001), New Haven, Conn.

Total, 30

### First Year

Vanessa P. Balta (b.a. Oberlin Coll. 1998), Ft. Pierce, Fla.  
 Maura Elaine Brennick (m.p.t. Univ. of Mary 2002), Butte, Mont.  
 Graham Hoopes Burdett (b.s. Brigham Young Univ. 2004), American Fork, Utah.  
 Stephanie C. Carroll (b.s. Cornell Univ. 2000), Cape Elizabeth, Me.  
 Najia Chaudhary (b.s. Univ. North Carolina 2002), Winston Salem, N.C.  
 Brian Edward Cook (b.s. Texas A&M Univ. 1994), Katy, Tex.  
 Marque-Ann Davis (b.s. Univ. Rochester 2001), Pittsford, N.Y.  
 Sarah Rebecca deLoizaga Carney (b.s. Regis Univ. 2003), Norwalk, Conn.  
 Charlene Patricia DeMong (b.a. Boston Univ. 2000), Weymouth, Mass.  
 Erica Lynn Dyresen (b.s. Univ. Michigan 2003), Kalamazoo, Mich.  
 Anne Julia Flitner (b.s. Penn State Univ. 2004), West Chester, Pa.  
 Christina E. Flynn (b.a. Univ. California 2003), West Hills, Calif.  
 Alexis Katherine Howe (b.s. Univ. New Hampshire 2002), Jericho, Vt.  
 Hae Jin Kim (b.s. James Madison Univ. 2000), Springfield, Va.  
 Nancy Chu-Chun Lan (m.a. San Jose State Univ. 2004), Saratoga, Calif.  
 Elizabeth Baydush Larned (b.a. Univ. Virginia 1996), New Haven, Conn.  
 Jason Michael Lightbody (b.s. Manhattan Coll. 2004), Mamaroneck, N.Y.  
 Lia Ariel Marland (b.s. Providence Coll. 2002), Cotuit, Mass.  
 Scott Bryant McKay (b.s. Weber State Univ. 2004), North Ogden, Utah.  
 Leanne E. Nassar (b.a. Colgate Univ. 2000), Hamden, Conn.  
 Sarah Elizabeth Parks (b.s. Fairfield Univ. 2004), Somers, Conn.  
 Vanessa Helena Pollard (b.a. Boston Univ. 2002), Plymouth, Mass.  
 Rebecca Ann Pooley (b.s. Univ. Florida 2003), Rockledge, Fla.  
 Catherine Anne Rabbitt (b.s. Univ. Florida 2003), Bayonne, N.J.  
 Stephanie Simone Seidel (b.a. Earlham Coll. 1997), Dobbs Ferry, N.Y.  
 Matthew Dustin Simmons (b.s. Univ. Florida 2003), Lynn Haven, Fla.  
 Kati S. Sylvester (b.s. Embry-Riddle Aeronautical Univ. 1995), New Haven, Conn.  
 James David Thomas (b.a. Williams Coll. 1999), Fitchburg, Mass.  
 Stephanie Renee Thomson (b.s. Shippensburg Univ. 2004), Carlisle, Pa.  
 Kolby C. Vaughan (b.a. Univ. Colorado 2002), Niantic, Conn.  
 Roxanne Christine Wallner (b.s. Univ. Dayton 2004), Milwaukee, Wis.

Total, 31

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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; telephone, 203.432.9300; e-mail, [undergraduate.admissions@yale.edu](mailto:undergraduate.admissions@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 write to the Office of Graduate Admissions, Yale Graduate School of Arts and Sciences, PO Box 208323, New Haven CT 06520-8323; telephone, 203.432.2771; e-mail, [graduate.admissions@yale.edu](mailto:graduate.admissions@yale.edu); Web site, [www.yale.edu/graduateschool/](http://www.yale.edu/graduateschool/)

**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.). 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 University School of Medicine, 367 Cedar Street, New Haven CT 06510; telephone, 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; telephone, 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; telephone, 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

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School, PO Box 208215, New Haven CT 06520-8215; telephone, 203.432.1696; e-mail, gradpro.law@yale.edu; Web site, 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 University School of Art, PO Box 208339, New Haven CT 06520-8339; telephone, 203.432.2600; e-mail, artschool.info@yale.edu; Web site, www.yale.edu/art/

**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; telephone, 203.432.4155; fax, 203.432.7448; e-mail, gradmusic.admissions@yale.edu; Web site, 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 Academic Services, Yale School of Forestry & Environmental Studies, 205 Prospect Street, New Haven CT 06511; telephone, 800.825.0330 or 203.432.5100; e-mail, fesinfo@yale.edu; Web site, www.yale.edu/environment/

**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; telephone, 203.432.2296; e-mail, gradarch.admissions@yale.edu; Web site, 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 Nursing Science (D.N.Sc.).

For additional information, please write to the Yale School of Nursing, PO Box 9740, New Haven CT 06536-0740; telephone, 203.737.2257; Web site, www.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; telephone, 203.432.1507; Web site, 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; telephone, 203.432.5932; fax, 203.432.7004; e-mail, mba.admissions@yale.edu; Web site, 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, p. 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.

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 Valerie O. Hayes, Director of the Office for Equal Opportunity Programs, 104 W. 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 related to admission to the Yale School of Medicine, please telephone the Office of Admissions, 203.785.2696.*

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