Professional

301A. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302A and 303A required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and credit. Offered irregularly.

301B. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302B and 303B required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and credit. Offered irregularly.

301C. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302C and 303C required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and credit. Offered irregularly.

302A. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303A required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.

302B. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303B required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.

302C. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303C required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.

303A. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302A or 210AL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.

303B. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302B or 210BL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.

303C. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302C or 210CL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.

Medical Informatics (A Graduate Group)

See Medical Informatics (A Graduate Group), page 359.

Medical Microbiology

See Medicine, School of, page 427.

Medical Pharmacology and Toxicology

See Medicine, School of, page 427.

Medical Education Building

See Medicine, School of, page 427; and Medicine and Epidemiology (VME), on page 582.

Medical, School of

Julie Ann Freischlag, M.D.
Vice Chancellor of Human Health Sciences Dean, School of Medicine

Thomas Nesbitt, M.D., M.P.H.
Associate Vice Chancellor for Strategic Technologies and Alliances, Director, Center for Health and Technology

David Acosta, M.D.
Associate Vice Chancellor for Equity, Diversity and Inclusion

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Senior Associate Dean for Clinical Research

Edward Callahan, Ph.D.
Associate Dean for Academic Personnel

Ralph de Vere White, M.D.
Associate Dean for Cancer Center

David H. Wiener, M.D.
Associate Dean for Clinical Affairs and Director, Practice Management Board

Mark Henderson, M.D.
Associate Dean for Admissions and Outreach

Darin Latimore, M.D.
Associate Dean for Student and Resident Diversity

James Nuovo, M.D.
Associate Dean for Graduate Medical Education

Mark Servis, M.D.
Senior Associate Dean for Curriculum and Competency Development

School of Medicine Dean’s Office

446 X Street
Sacramento, CA 95817

http://www.ucdmc.ucdavis.edu/medschool/

Faculty

To search for current faculty, see http://www.ucdmc.ucdavis.edu/search/faculty/

searchdetail.aspx?searchtype=3

Admission Requirements and Professional Curriculum

Detailed information can be obtained from the School of Medicine; see School of Medicine, on page 137.

Courses in the School of Medicine

Curriculum for the School of Medicine

The curriculum for the M.D. degree at the UC Davis School of Medicine is a four-year program providing comprehensive preparation for graduate medical training (internships and residencies) and the practice of medicine. It offers a blend of basic science training and clinical experience with opportunities for research.

The first-year curriculum begins in August and extends into May and is organized into two blocks, Foundations and Mechanisms & Diseases. The basic science portion of the Foundations block includes courses in Molecular Biology, Cell and Tissue Biology, Gross Anatomy/Embryology/Radiology, and Human Physiology. The major organizing theme is structure-function along the continuum of hierarchical biologic structure from molecules to cell, tissue and major organ systems. The three year Doctoring curriculum begins with Doctoring 1, which is presented concurrently with the other courses. The focus of Doctoring 1 is physical examination training using standardized patients and models, correlated with concurrent gross anatomy and physiology by organ system. Behavioral medicine, epidemiology, biostatistics, cross-cultural medicine, and ethics are woven into the cases and didactic presentations and team-based learning modules. Students are required to attend preceptorships in the community and participate in home visits. Periodic quizzes and review sessions are used in the basic science courses throughout the block for formative assessment, and all courses administer comprehensive summative final examinations in December.

The Mechanisms & Disease block of the first-year curriculum begins in January and extends through April, with final exams in early May. There are two major threads, each of which is composed of several integrated courses. The Doctoring 1 course is offered concurrently. The Immunology/Microbiology/Pharmacology/Pathology thread presents an introduction to host defense, infection, basic pharmacologic principles, and general pathologic processes. The Endocrinology/Nutrition/Reproduction/Genetics (ENRG) thread covers essential concepts in genetics, basic and clinical nutrition, reproductive medicine, and clinical endocrinology. The general pathology course also includes male-female GU and endocrine pathology, and the pharmacology course covers antibiotics and endocrine pharmacology, with the goal of integration with concurrent courses. Periodic quizzes and review sessions provide formative feedback, and final examinations are used for summative assessment. The Doctoring 1 course continues with an emphasis on interviewing skills and clinical assessment. Cases are used in the problem-based learning approach for basic-science-clinical correlation, and for the exploration of psychosocial issues.


Pre-Fall 2011 General Education (GE): ArHum—Arts and Humanities; SciEng—Science and Engineering; SocSci—Social Sciences; Div—Diverse Domestics; WR—Writing Experience

Quarter Offered: F—Fall, W—Winter, S—Spring, Su—Summer; 2017/2018 offering in parentheses
Preceptorships and home visits continue. The Doctoring 1 course concludes with a comprehensive final examination, and also includes an observed complete history and physical examination. The first-year curriculum ends with a five-week unscheduled block that may be used for vacation, remediation, electives, research, and international experiences.

The second-year curriculum is composed of two blocks, Brain & Behavior and Pathophysiology. Brain & Behavior begins in late June and extends through August with a neuroscience block composed of neuroanatomy-clinical neurosciences. The latter emphasizes the pathophysiology of common neurological disorders. The systemic pathology curriculum continues with a focus on neuropathology, and the pharmacology course covers pharmacodynamics. A clinical psychiatry course is also presented during this period. The Doctoring 2 course begins, focusing on advanced clinical skills and clinical reasoning using a combination of standardized patient assessments, problem-based learning, subspecialty physical examination sessions, preceptorships, and didactics in clinical epidemiology, medical economics, and socio-behavioral medicine. The Pathophysiology Block is devoted to compressed pathophysiology courses with tight integration of the systemic pathology and pharmacology courses. The course is organized according to organ system (cardiovascular, pulmonary, renal, musculoskeletal system, hematology, gastroenterology, oncology, and dermatology). The Doctoring 2 curriculum encompasses concurrently with its focus on advanced clinical skills, epidemiology, ethics, and problem based assessment. History taking and physical diagnosis skills are correlated with the ongoing pathophysiology course. Like the first year, all of the second year courses utilize periodic quizzes and review sessions and a comprehensive final examination. The Doctoring 2 course includes an objective structured clinical examination (OSCE) using standardized patients at the end of the course series. The second-year curriculum ends in February and is followed by a six-week, unscheduled block for preparation for USMLE Step 1, remediation, electives, and vacation.

The third-year program begins in April and includes six required clerkship rotations in the clinical specialties. Clerkships in surgery, internal medicine, obstetrics & gynecology, pediatrics, and psychiatry run for 8 weeks each. A four-week family medicine clerkship and a four-week elective are also required. In addition to the core clerkships, students will participate in a longitudinal primary care clinic throughout the year. A transition to clerkships takes place in September—October. This includes a four-week clerkship rotation for students to select from a variety of electives during the first two years. Examples include electives in history of ethics and medicine, medical Spanish and insights in clinical research. All students must also participate in one of several student research programs, community clinics for elective credit during their first and second years.

Coordination with other Advanced Degree Programs

The curriculum for the M.D. degree provides flexibility and encourages coordination with other advanced degree programs (Ph.D., M.S., M.A., M.B.A., and M.M.). These programs offer a wide breadth of study areas and draw upon the considerable expertise of the entire campus faculty. The Department of Public Health Sciences offers an M.P.H. program in conjunction with the M.D. program. This program is designed for students interested in disease prevention and community health, health professionals and State Health Department employees.

School of Medicine administrators enthusiastically support students interested in pursuing advanced degree programs. The dual-degree program for the M.D./Ph.D. is targeted to train physicians to meet, respond to and solve the broad diversity of problems and dilemmas facing current and future health care. Students are encouraged to seek degrees in any of the campus wide Ph.D. programs, including those in social sciences and humanities. The UC Davis School of Medicine awards competitive fellowships each year to students enrolled in the M.D./Ph.D. program.

Required Curriculum for the M.D. Degree

The following listing is the typical sequencing of all required curriculum courses. Requirements are consistent with the M.D. degree program, the student must successfully complete the required course work, clerkships, and fourth-year requirements. Students must pass USMLE Step 1, USMLE Step 2 CS and CK, and complete the fourth year clinical performance examination. In addition to the fourth-year elective program available, there is a program for students to select from a variety of electives during the first two years. Examples include electives in history of ethics and medicine, medical Spanish and insights in clinical research.

First-Year Required Courses

Year 1, Foundations Block

Molecular Medicine, BCM 410A

Gross/Radiologic/Developmental Anatomy, CHA 400

Human Physiology, HPH 400

Human Microscopic Anatomy, CHA 402

Doctoring 1, MDS 411A

Year 1, Mechanisms & Disease Block

Medical Immunology, MMI 406

Medical Microbiology, MMI 480A

General and Endocrine Pathology, PMD 410A

Pharmacology, PHA 400A

Endocrine-Nutrition-Reproduction-Genetics, “ENRG”, MDS 406

Doctoring 1, MDS 411B

Second-Year Required Courses

Year 2, Brain & Behavior Block

Neuroanatomy, CHA 403

Systemic Pathology, PMD 410B

Pharmacology, PHA 400A

Clinical Neurosciences, NEU 420

Foundations of Bioethics, MDS 428

Doctoring 2, MDS 421A

Year 2, Pathophysiology Block

Inguinal Surgery, SUR 430

Obstetrics and Gynecology, OBG 430

Psychiatry

Doctoring 3, MDS 430A

Fourth-Year Requirements

36 Weeks of Required Course work comprised of the following:

- 4 weeks of an Inpatient Acting Internship from one of the following departments at UC Davis: Internal Medicine, OB/GYN, Pediatrics, Surgery, Family & Community Medicine and Psychiatry
- 4 weeks of Inpatient or Ambulatory Acting Internship in any department/discipline
- 4 weeks of Special Studies Module or Scholarly Project
- 4 weeks of Emergency Medicine
- 20 weeks of additional Acting Internships, Advanced Clinical Clerkships or Clinical Didactics
- 16 weeks must be taken at UC Davis
- 28 weeks must be in direct patient care

Medical Sciences (MDS)

Lower Division

99. Special Study in Medicine for Undergraduates (1-5)

Independent study—3-15 hours. Prerequisite: consent of instructor. Participates in projects relating to medicine with faculty in the School of Medicine. (S/U grading only)—F, W, S, Su. (F, W, S, Su)

Upper Division

192. Medical Education Internship for Advanced Undergraduates (1-13)

Internship—3-36 hours. Prerequisite: competency with computers. Enrollment dependent on availability of intern positions. Participate in projects related to curriculum development in support of curriculum for M.D. degree. Gain work experience and appreciation for innovative approaches to learning in basic and clinical sciences of medical education. May be repeated for credit up to 12 units. (P/F grading only)—F, W, S, Su. (F, W, S, Su)

Professional

401. Applications of Computers to Medical Practice (2)

Autodirected—2 hours. Prerequisite: enrollment in medical school. Proficiency in computer applications relative to practice of medicine, with emphasis on email, literature searching, file transfer, and hospital information services. Course given online, at home or in lab; time and place determined by student. (H/F grading only)—F, W, S, Su. (F, W, S, Su)
429. Transition to Clerkships (1) Laboratory/discussion—12 hours; workshop—13 hours; discussion—7 hours; independent study—2 hours. (F, S.) Restricted to medical students only. Participation in a variety of educational experiences designed to prepare them to begin their clerkship curricula. Presentation content will be disseminated in large and small group settings. (P/F grading only.)—S. (S.) Bing, Venugopal

430. Introduction to Doctoring 3 (1) Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students only. Introductory course. P/F grading only. 

434A. Doctoring 3 (1) Discussion—3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical students only. Application of multidisciplinary basic, social and clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. [H/P/F grading only; deferred grading only, pending completion of sequence.]—W. (W.) Wilkes

430B. Doctoring 3 (1) Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students only. Application of multidisciplinary basic, social and clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. [H/P/F grading only; deferred grading only, pending completion of sequence.]—F. (F.) Wilkes

430C. Doctoring 3 (1) Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students only. Application of multidisciplinary basic, social and clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. [H/P/F grading only; deferred grading only, pending completion of sequence.]—F. (F.) Wilkes

435KA. ACE-PC Longitudinal Integrated Clerkship A (18) Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship to combine the Internal Medicine, OB/GYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program. [H/P/F grading only; deferred grading only, pending completion of sequence.]—S. (S.) Holt, Zachary
435KB. ACE-PC Longitudinal Integrated Clerkship B (21)  
Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship will combine the Internal Medicine, OBGYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program.  
(H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. (Su.) Holt, Zachary

435KC. ACE-PC Longitudinal Integrated Clerkship C (18)  
Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship will combine the Internal Medicine, OBGYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program.  
(H/P/F grading only; deferred grading only, pending completion of sequence.)—F. (F.) Holt, Zachary

440. Doctoring 4 Teaching Fellowship (3)  
Discussion—5 hours; seminar—0.25 hours. Prerequisite: course 430A, 430B, 430C, 430D; consent of instructor. Restricted to Medical student only. Instructing on teaching methodology and pedagogy. Mentor teaching of first year medical students in seminar, lecture, and bedside. (H/P/F grading only.)—F. W. S. Su. (F. W. S. Su.) Wilkies

441. Combined Ophthalmology and Otolaryngology Clerkship (6)  
Clinical activity—4 weeks. Prerequisite: approval by Ophthalmology and Otolaryngology faculty; Fundamentals of knowledge of ophthalmology and otolaryngology for the treatment of eye, ear, nose and throat problems at a level of training of general physicians; including when to refer patients to specialists. (H/P/F grading only.)—F. W. S. Su. (F. W. S. Su.) Brandt, Strong

450. Introduction to UC Davis Medical Center (1)  
Seminar—20 hours total. Prerequisite: second-year medical student. Designed to assist medical student in transition from classroom to hospital setting. (H/P/F grading only.)—S.

455. Student Run Clinics 1-3  
Clinical Activity—3-9 hours. Open to medical students in good standing. Will learn counseling, diagnosis and treatment of patients with chronic and acute diseases under supervision of physicians. Meet all requirements of prerequisites of the particular clinic within which they work. May be repeated for credit. (P/F grading only.)—F. W. S. Su. (F. W. S. Su.) Lattimore, Service

460C. Introduction to Clinical Research (2)  
Lecture 2 hours; independent study 3 hours. Restricted to completion of M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program. Biomedical applications of statistical methods in clinical laboratory and population medicine. Graphical/tabular data presentation, probability, binomial, Poisson, normal, and Chi-square distribution, elementary non-parametric methods, simple linear regression/correlation, life tables. Microcomputer applications of statistical procedures in population medicine. (S/U grading only.)—Su. (Su.) Becket, Wegelin

460C. International Clinical Preceptorship (1-12)  
Clinical activity—30 hours. Prerequisite: medical student with consent of instructor. Multidisciplinary preceptorship in a foreign country. Clinical credit will be awarded using the course, once approval has been received from the appropriate governing committee. (H/P/F grading only.)—F. W. S. Su. (F. W. S. Su.)

460D. International Elective (1-12)  
Independent study—20 hours; clinical activity—10 hours. Prerequisite: medical students with consent of instructor. Multidisciplinary preceptorship in a foreign country. Course used to award non-clinical credit for international experiences which have been approved by the appropriate governing committee. (H/P/F grading only.)—F. W. S. Su. (F. W. S. Su.)

470. Introduction to Dentistry 3-18)  
Clinical activity—34 hours; lecture—6 hours. Prerequisite: fourth-year medical student in good standing. Consent of instructor. Introduction to Dentistry and basic Oral and Maxillofacial Surgery. Course is offered by the Oral and Maxillofacial Surgery department at UC San Francisco. (H/P/F grading only.)—F. W. S. Su. (F. W. S. Su.) Pogany, Wallach

480. Insights in Clinical Research (1)  
Lecture 1 hour; independent study in good standing. Seminars on research presented by Medical School faculty; overview of pertinent issues, including medical ethics, human subjects protocols, case control methods, etc. (F/P grading only.)—S. (S.)

481. Insights into Clinical Specialties (1)  
Lecture/discussion—1 hour. Prerequisite: medical student in good standing. Exposure to various medical specialties, their residency programs and ways in which medical students can prepare for and improve their candidacy for such programs. (H/P/F grading only.)—Su. (Su.)

482. Lecture Series in Reproductive Health (1)  
Lecture—1 hour. Psychosocial and public health aspects of providing quality reproductive health care and application in student-run free clinics and in 3rd year clerkships. Only medical students may enroll for credit; undergraduates may audit the course. May be repeated twice for credit. (F/P grading only.)—S. (S.)

483. Insights in Political, Legal and Business Aspects of Medicine (1)  
Lecture—1 hour. Prerequisite: Medical student in good standing. Restricted to Medical student only. The practical aspects of a medical career. May be repeated two times for credit. (P/F grading only.)—S. (S.)

485. Health Policy Lecture Series (1)  
Lecture—1 hour. Lecture series provides an overview of local, state, national and international health policy. The current challenges and the controversies are reviewed. (F/P grading only.)—F. (F.) Roman

486. Topics in Health Care Improvement (0.5)  
Lecture/discussion—15 sessions. Lecture series will cover major topics in health care improvement, presented by guest speakers who are leaders in the field. May be repeated for credit. (P/F grading only.)—S. (S.) Shakk

487. History and Ethics of Medicine (1)  
Lecture—1.25 hours. Introduction to ethical problems and events in health care in modern and historical contexts. Historical topics in medicine and medical ethics. (P/F grading only.)—W. (W.) Fitzgerald

489. Directed Studies (1-9)  
Prerequisite: consent of instructor; individual directed studies in extended preparation for modified curriculum, USMLE exams, and/or research as approved by Committee on Student Progress. Independent studies to accommodate modified curricula, prepare for taking USMLE exams and for remediation course work directed by the Committee on Student Progress. May be repeated for credit. (P/F grading only.)—F. W. S. Su. (F. W. S. Su.)

489C. Clinical Reintroduction Experience (1-9)  
Clinical activity—20 hours. Prerequisite: consent of instructor. Learn and practice basic clinical skills in a supervised clinical setting. Skills include patient interviewing, history, physical examination, diagnostic and clinical reasoning, case presentation, and medical records documentation. Direct observation and individual feedback on clinical skills development is provided. (P/F grading only.)—F. W. S. Su. (F. W. S. Su.) Servis

489QA. Improving Quality in Health Care (3)  
Lecture—8 hours; discussion/laboratory—10 hours, project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interprofessional educational experience. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. (F.) Bakerjian, Shakk

489QB. Improving Quality in Health Care (3)  
Lecture—8 hours; discussion/laboratory—10 hours, project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to
make improvement in health care systems while providing an opportunity for interdisciplinary educational experience. [Same course as Nursing 493A.]—F. (F.)—F., W., S., Su.

493A. Improving Quality in Health Care (6) Lecture—8 hours; discussion/laboratory—10 hours; project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interdisciplinary educational experience. [Same course as Nursing 493A.]—F, W., F. (F., W.) Bakerjian, Sheikh

493A. Improving Quality in Health Care (3) Lecture—8 hours; discussion/laboratory—10 hours; project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interdisciplinary educational experience. [Same course as Nursing 493A.]—F, W., F. (F., W.) Bajerian, Sheikh

493A. Improving Quality in Health Care (6) Lecture—8 hours; discussion/laboratory—10 hours; project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interdisciplinary educational experience. [Same course as Nursing 493A.]—F, W., F. (F., W.) Bajerian, Sheikh

493B. Enhancing Patient Safety in Health Care (6) Seminar—6 hours; clinical activity—8 hours; discussion—6 hours. Prerequisite: fourth-year Medical student; consent of instructor. Interprofessional module is designed to explore the theory and practical methods being employed to improve patient safety in health care while providing an opportunity for interprofessional educational experience. [Same course as Nursing 493C.]—F, W., F. (F., W., S., Su.) Bajerian, Natalie

494. Non-Clinical Medical Student Externship (3-9) Independent study—20 hours; clinical activity—10 hours. Prerequisites: consent of instructor. Restricted to students with approval of the Fourth Year Oversight Committee. Generic course for awarding externship credit for medical student rotations that are not primarily focused on patient care. [F, W., F. grading only]—F., W., S., F. (F., W., S., Su.) Wallach

495. Medicine Literature Review (1-9) Discussion—2 hours; laboratory—10 hours. Prerequisite: consent of instructor. Restricted to students with approval of the Fourth Year Oversight Committee. Specific course for awarding literature review credit for medical student research that are not primarily focused on patient care. [F, W., F. grading only]—F., W., S., F. (F., W., S., Su.) Wallach

499. Research in Medical Education and Curriculum Development (4-9) Independent study—2.5-36 hours. Prerequisite: medical student in good standing and competence with computers. Research and development of an independent project related to expanding computer-assisted resources in support of the curriculum at UC Davis. [F, W., F. grading only]—F., W., S., S., Su.

Departmental Courses:

Anesthesiology and Pain Medicine (ANE) Upper Division

192. Internship in Anesthesiology (1-6) Internship—3-18 hours. Prerequisite: upper division standing; approval of project prior to period of internship by preceptor. Supervised work experience in anesthesia and related fields. [P/F grading only]—F., W., S., S., Su.

199. Special Study for Advanced Undergraduates (1-5) Prerequisite: consent of instructor. [P/F grading only]

Professional

460. Anesthesiology Clinical Clerkship (3-18) Prerequisite: medical student. Intensive exposure to anesthesia through informal lectures and mentoring by anesthesiologists. Emphasis on understanding and applying anesthetic principles in managing administration of general, regional, and specialized areas. [P/F grading only]—F., W., S., S., Su.

461. Perioperative Medicine (3-12) Clinical Activity—30 hours. Prerequisite: successful completion of third-year clerkships; consent of IOR. Two week rotation provides a broad exposure to various patient care services with the Department of Anesthesiology and Pain Medicine to apply medical knowledge to safely care for patients. [F, W., F. grading only]—F., W., S., F. (F., W., S., Su.) Pitts

463. Multidisciplinary Pain Management (6) Clinical activity—30 hours; lecture/discussion—10 hours. Prerequisite: senior medical student in good standing. Senior clerkship to expose students to all facets of treating pain in all aspects of clinical care: outpatients and inpatient settings, acute and chronic pain, end of life issues, pediatrics, rehabilitation, etc. Daily clinics, rounds, and lectures. [F, W., F. grading only]—F., W., S., S., F. (F., W., S., S., Su.) Sheehan

465. Away Acting Internship in Anesthesiology (3-18) Clinical activity—40 hours. Prerequisite: satisfactory completion of Anesthesiology Clerkship; consent of instructor. Work at the level of a sub intern in inpatient and/or outpatient settings. Expectation is to provide direct patient management. May be repeated for credit. [F, W., F. grading only]—F., W., S., S., Su.

480. Brief Introduction to Clinical Anesthesiology and Chronic Pain Management (3) Clinical activity—25-30 hours (two weeks). Prerequisite: second-year medical student. Daily experience in clinical anesthesiology at the preparative screening unit, operating room, post anesthesia care unit, chronic pain management clinic with daily clinical correlation case discussions, and one-on-one interaction with faculty anesthesiologists. [F, W., F. grading only]—F., W. (W.) Fishman

493A. Applied Physiology and Pharmacology (6) Lecture—5 hours; lecture/laboratory—10 hours; laboratory—10 hours; tutorial—10 hours. Prerequisite: course 440, consent of instructor. Restricted to UC Davis School of Medicine students only. Special Studies Module, a yearlong in progress course to teach lecture and discussion education technique and theory. [H/P/F grading only]—F., W., S., S., S., Su.

493B. Teaching the Basic Sciences (6) Lecture—3 hours; lecture/laboratory—8 hours; laboratory—2 hours; tutorial—10 hours. Prerequisite: course 440, consent of instructor. Restricted to UC Davis School of Medicine students only. Special Studies Module, a yearlong in progress course to teach lecture and discussion education technique and theory. [H/P/F grading only]—F., W., S., S., S., Su.
the physiology and pharmacology of the cardiovascular, pulmonary, nervous, renal and endocrine systems. (P/F grading only.)—W. (W.) Fleming.

493B. Interdisciplinary Medicine in Pain Care (6)
Lecture—5 hours; laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisites: consent of instructor. UC Davis School of Medicine students only. Integrates applied and practical neuroanatomy, physiology, pharmacology, psychology/psychiatry and social medicine in the care of patients who are receiving care for pain caused by acute or chronic medical or trauma. (H/P/F grading only)—S. (S.) Fishman

498. Individual or Group Study (1-5)
Discussion—1-5 hours; laboratory—2-10 hours. Prerequisites: instructors and students with consent of instructor. Directed reading and discussion and/or laboratory investigation on selected topics. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.)

499. Anesthesiology Research (4-18)
Laboratory—12-54 hours. Prerequisite: third- or fourth-year medical students, advanced standing undergraduate and veterinary medicine students; or consent of instructor. Problems in clinical and/or laboratory research. In-lab fee may be required for credit. (H/P/F grading only for medical students.)—F, W, S, Su. (F, W, S, Su.)

Biological Chemistry (BCM) Lower Division

191. Internship in Biological Chemistry (1-12)
Internship—3-36 hours; final report. Prerequisite: consent of instructor. Supervised work experience in biological chemistry and related fields. (P/NP grading only.)

Upper Division

192. Internship in Biological Chemistry (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project prior to internship by preceptor. Supervised work experience in Biological Chemistry and related fields. (P/NP grading only.)

198. Group Study (1-5)
Prerequisite: consent of instructor. For undergraduate students desiring to explore particular topics in depth. Lectures and conferences may be involved. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

Graduate

209. Prostaglandins/Leukotrienes and Related Lipids (2)

217. Molecular Genetics of Fungi (3)
Lecture—3 hours. Prerequisite: graduate standing in a biological science. Biochemistry 101B: Genetics 100, 102A; Botany 119: Plant Pathology 130, 215X; Microbiology 215 recommended. Advanced treatment of molecular biology and genetics of filamentous fungi and yeasts, including gene structure and organization and regulation; secretion; control of reproduction; molecular evolution; transformation; and gene manipulation. Offered in alternate years. (Same course as Plant Pathology 217.)—W. Holland, Tyler

222. Mechanisms of Translational Control (2)
Lecture—1 hour; discussion—1 hour. Prerequisite: Biochemistry 201C or consent of instructor. Molecular mechanisms of protein synthesis and translational control in eukaryotic cells, with emphasis on mammalian cells and viruses. An advanced graduate level treatment of topics of current interest, with readings and discussion of primary papers from the literature. Offered in alternate years.—W. Hershey

230. Practical NMR Spectroscopy and Imaging (1)
Lecture—1 hour. Prerequisite: Chemistry 107A-107B, Physics 5A-5B-SC or 9A-9B-SC, or consent of instructor. Basic theory, experimental methods, and instrumentation of NMR. Enables students to understand NMR spectroscopy and imaging experiments. (S/U grading only.)—F. (F)

231. Biological Nuclear Magnetic Resonance (3)
Lecture—3 hours. Prerequisite: Molecular and Cellular Biology 221A or the equivalent or consent of instructor. Principles and applications of magnetic resonance in biomedicine. Fundamental concepts and the biological basis for magnetic resonance applications in areas of tissue characterization/imaging, metabolic regulation, and cellular bioenergetics. (Same course as Biophysics 231.)—S. (S.)

291. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1)
Seminar—1 hour. Prerequisite: student in Genetics Graduate Group or consent of instructor. Current genetic approaches to understanding the pathogenesis of disease and mammalian development presented and critically discussed by faculty, fellows and students. Topics include Mendelian and non-Mendelian diseases, imprinting, homologous recombination, statistical methods, genetic epidemiology and cell cycle dependent expression. (Same course as course 491.) (S/U grading only)—F, W, S, Su. (F, W, S, Su.)

298. Group Study (1-5)
Prerequisite: consent of instructor. For graduate students desiring to explore particular topics in depth. Lectures and conferences may be involved.

299. Research (1-12)
Prerequisite: consent of instructor. (S/U grading only.)

Professional

410A. Molecular Medicine (4)
Lecture—3 hours; discussion—3 hours; web virtual lecture—1 hour. Prerequisite: consent of instructor. Restricted to Medical Students only. Biochemistry of proteins and nucleic acids. Includes an introduction to cancer biology and a full discussion of carbohydrate metabolism. Molecular aspects of human disease are highlighted throughout the course. (P/F grading only; deferred grading only, pending completion of sequence.)—(W.)

491. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1)
Seminar—1 hour. Prerequisite: student in Genetics Graduate Group or consent of instructor. Current genetic approaches to understanding the pathogenesis of disease and mammalian development presented and critically discussed by faculty, fellows and students. Topics include Mendelian and non-Mendelian diseases, imprinting, homologous recombination, statistical methods, genetic epidemiology and cell cycle dependent expression. (Same course as course 291.) (F/P/F grading only)—F, W, S, Su. (F, W, S, Su.)

493. Medical Genomics (6)
Clinical activity—4 hours; lecture—4 hours; laboratory—12 hours. Prerequisite: consent of instructor. Four-week module will focus on the clinical methods and applications of medical genomics. Topics will include an introduction to the human genome and human genomics, genetic and epigenetic variation and the ethics of medical genomics. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Herman, Segal

497T. Tutoring in Biological Chemistry (1-5)
Lecture—1 hour; discussion—1 hour. Prerequisite: Basic Science 491. (S/U grading only.)

499. Research (1-12)
Prerequisite: medical students with consent of instructor. (H/P/F grading only.)

Courses in Cell Biology and Human Anatomy (CHA) Upper Division

101. Human Gross Anatomy Laboratory (3)
Laboratory—9 hours. Prerequisite: Biological Sciences 2A; concurrent enrollment in Exercise Biology 106L or course 101L strongly recommended. Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major. Detailed study of the gross anatomical structure of the human body, with emphasis on function and clinical relevance to students entering health care professions. (Same course as Exercise Biology 106L.) GE credit: SciEng | SE—W. (W.) Gross

101L. Human Gross Anatomy Laboratory (3)
Laboratory—9 hours. Prerequisite: Biological Sciences 2A; must take Exercise Biology 106 or course 101 concurrently or have already completed. Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major; mandatory attendance on first day of lab. Detailed study of dissected human cadavers in small group format with extensive hands-on experience. (Same course as Exercise Biology 106L.) GE credit: SciEng | SE—W. (W.) Gross

192. Internship in Morphology (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; laboratory science experience including some chemistry; approval of project by preceptor prior to period of internship; experience of supervised internship in research laboratories of members of the department. (P/NP grading only.)

197T. Tutoring in Cell Biology and Human Anatomy (1-5)
Discussion—1 hour; laboratory—6-9 hours. Prerequisite: completion of course 101 with a grade of B or better and consent of instructor. Provides laboratory instruction in Human Gross and Histological human anatomy, with small groups of undergraduates under the supervision of the instructor. (S/U grading only.)

198. Directed Group Study (1-5)
Discussion—1-110 hours. Prerequisite: consent of instructor. Directly related, discussion, and/or laboratory experience on selected topics. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

Graduate

200. Graduate Human Gross Anatomy (6)
Lecture—4 hours; laboratory—6 hours. Prerequisite: consent of instructor. Lectures on human gross anatomy and cadaver dissection laboratory. Topics arranged by region, emphasis on osteology, neuroanatomy, cardiovascular anatomy, gastrointestinal anatomy and anatomy of reproductive systems. Only two units of credit for students who

Fall 2011 and on Revised General Education (GE) AAH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; AGCH—American Cultures; DD—Domestic Diversity, Div—Domestic Diversity; WC—World Cultures; WE—Writing Experience
Pre-Fall 2011 General Education (GE): ArtHum—Arts and Humanities; SciEng—Science and Engineering; SocSci—Social Sciences; Div—Domestic Diversity; Wrt—Writing Experience
Quarterm Offered: F=Fall, W=Winter, S=Spring, Su=Summer; 2017/2018 offering in parentheses

Medicine, School of

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have completed course 101. Open only to full-time graduate students. — W. (W.) Blankenship, Gross, Tucker.

202. Human Microscopic Anatomy (5)
Lecture—3 hours; laboratory—6 hours. Examines the normal microscopic structure of the basic cells, tissues, and organs of the body. Leagues emphasize morphology and structural relationships. Accompanying laboratories involve analysis and identification of sectional material at the light micro-

203. Neurobiology (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: two upper division or one graduate course in Neuro-

204. The Ethics of Research (1)
Lecture—3 hours. Prerequisite: consent of instructor. Priority given to those with acceptance into the Clini-

205. Introduction to Medical Statistics (4)
Lecture—3 hours; laboratory—2 hours. Prerequisite: completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DPhS in nursing; application and acceptance into the Clini-

206. Introduction to Grant Writing, I (2)
Lecture/discussion—2 hours; extensive writing. First in a two-quarter series. Scholars are encouraged to enroll in both classes. The two-course sequence pro-

207. Team Science (1)
Lecture/discussion—1 hour. Prerequisite: participation in CTSC Research Education and Training Pro-

208. Introduction to Grant Writing, II (1)
Lecture/discussion—1 hour. Prerequisite: successful completion of course 208; consent of instructor. Restricted to students who have completed course 208. Second in a two-quar-

210. Principles and Methods of Comparative Effectiveness Research (4)
Web virtual lecture—4 hours; discussion—2 hours; project—6 hours; web electronic discussion. Prereq-

211. Critical Assessment of the Biomedical Literature (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Exposes students to topical issues and con-

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220. Basic Concepts of Biostatistics (3)
Lecture—1 hour. Prerequisite: consent of instructor. Basic concepts of biostatistics for laboratory, clinical, and epidemiologic research. May be repeated for credit. (S/U grading only.)—W, F, S, Su.

221. Techniques of Clinical Research (2)
Lecture—1 hour; clinical activity—3.5 hours. Prerequisite: consent of instructor. Clinical study methods and techniques for investigators. May be repeated for credit. (S/U grading only.)—W, F, S, Su.

222. Ethical Issues in Clinical Research (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Current ethical issues in clinical research. May be repeated for credit. (S/U grading only.)—W, F, S, Su.

223. Molecular Mechanisms of Disease: Cancer (3)
Lecture/discussion—2 hours; project—3 hours. Prerequisite: consent of instructor. In-depth study of molecular mechanisms of disease with an emphasis on cancer. May be repeated for credit. (S/U grading only.)—F, W, S, Su.

230. Current Techniques in Clinical Research (2)
Lecture—1 hour; clinical activity—3 hours. Prerequisite: consent of instructor. Current techniques in clinical research. May be repeated for credit. (S/U grading only.)—W, F, S, Su.

233. Medical Molecular Genetics (3)
Lecture—1 hour; clinical activity—4 hours. Prerequisite: consent of instructor. Clinical and molecular genetics as applied to disease. May be repeated for credit. (S/U grading only.)—W, F, S, Su.

240. Predoctoral Clinical Research Training Program Research Integration (1)
Seminar—0.5 hours; discussion—0.5 hours. Prerequisite: consent of instructor. Preparation for the complex research projects of clinical research training. May be repeated for credit. (S/U grading only.)—F, W, S, S.

245. Biostatistics for Biomedical Science (4)
Lecture—4 hours. Prerequisite: course 244 or Public Health Sciences 244 or the equivalent; consent of instructor. Data analysis and basic experimental design in biomedical research. May be repeated for credit. (S/U grading only.)—W, F, S, S, Su.

246. Biostatistics for Clinical Research (4)
Lecture—4 hours. Prerequisite: course 245 or Public Health Sciences 245. Emphasizes statistical principles for clinical research and targets biomedical audience. May be repeated for credit. (S/U grading only.)—W, F, S, Su.
498. Special Topics in Clinical Dermatology (1-6)
Independent study—3-18 hours. Prerequisite: medical students with consent of instructor. Individually arranged study of special topics in clinical dermatology determined by student and instructor. Assigned reading and/or clinical examination of selected patients. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Armstrong

499. Research in Cutaneous Biology (1-12)
Laboratory—3-36 hours. Prerequisite: consent of instructor. Research, either laboratory or clinical, on ongoing projects within the department under supervision of faculty. (H/P/F grading only)—Armstrong

Emergency Medicine (EMR)

Lower Division

92. Emergency Medicine Clinical Research Internship (1-4)
Prerequisite: undergraduate student in good academic standing at UC Davis; consent of instructor. Intended to give the undergraduate student an opportunity to perform "handson" research in the Emergency Department. Through the lecture/discussion, students will learn the basics of conducting and developing clinical research studies, using examples from actual studies. May be repeated for credit up to four units. Units awarded will depend on hours worked.—F, W, S, Su; F, W, S, Su; Nishijima

Upper Division

192. Emergency Medicine Clinical Research Internship (1-4)
Internship—6-12 hours. Prerequisite: undergraduate student in good academic standing at UC Davis; consent of instructor. Intended to give the upper division undergraduate student an opportunity to conduct "handson" research in the Emergency Department. Through the lecture/discussion, students will learn the basics of conducting and developing clinical research studies. May be repeated twice for credit. (P/NP grading only)—F, W, S, Su; F, W, S, Su; Nishijima

199A. Special Study for Advanced Undergraduates (4-12)
Prerequisite: experienced RA's who have successfully passed EMRAP exam or clinical research in the Emergency Department. Through the lecture/discussion, students will learn the basics of conducting and developing clinical research studies. May be repeated for credit up to four units. Units awarded will depend on hours worked.—F, W, S, Su; F, W, S, Su; Nishijima

Professional

401. Preceptorship in Emergency Medicine (1-6)
Clinical activity—10 hours. Prerequisite: consent of instructor. Exposure to the specialty of Emergency Medicine and observation of a wide array of patients in the Emergency Department. May be repeated for credit. (P/NP grading only)—F, W, S, Su; F, W, S, Su; Bing

430. Introduction to Medical Toxicology (3-6)
Prerequisite: fourth-year medical student in good standing, consent of instructor. In-depth review of medical toxicology. Emphasis is on basic laboratory testing and appropriate referral. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Forde

435. Wilderness Medicine (3-6)
Lecture/discussion—20 hours; clinical activity—12 hours; independent study—8 hours. Prerequisite: consent of instructor. Elective is designed as an introductory course for students who want to explore how physicians can interact with the environment in austere conditions through lectures, hands-on field experience, and case-based learning. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Armstrong

440. Emergency Medicine Clerkship (6)
Clinical activity—46 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery, and Pediatric Clerkship. Students complete clinical shifts in the Emergency Department, functioning as Acting Intern. Treat a wide variety of patients and problems under the supervision of the EM Attending. Students are expected to take focused histories and present in clear, concise fashion. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Jones

445. Emergency Medicine Ultrasound for Fourth-Year Medical Student (3-6)
Prerequisite: fourth-year medical student in good standing, consent of instructor. Elective where topics may be chosen by student in good academic standing at UC Davis; consent of instructor. Elective is designed as an introduction to clinical and medical toxicologic emergencies. Rationale/rationale for credit up to four units. Units awarded will depend on hours worked.—F, W, S, Su; F, W, S, Su; Armstrong

450. Ambulatory Externship in Emergency Medicine (3-18)
Restricted to MD students in good standing; externships/away rotations only. Credit will be given for approved non-AIEM courses at other institutions to which there is not an equal learning experience at UC Davis. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Jones

465. Externship in Emergency Medicine (3-9)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery and Pediatrics. Students complete clinical shifts in the Emergency Department, functioning as Acting Intern. Treat a wide variety of patients and problems under the supervision of the EM Attending. Students are expected to take focused histories and present in clear, concise fashion. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Jones

470. Pediatric Emergency Medicine Clerkship (6)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery, Pediatrics. Restricted to fourth-year medical student in good standing only. See patients in the Pediatric area of the Emergency Department under the supervision of the EM Attending. Emphasis on recognition and management of the acutely ill pediatric patient and treatment of common pediatric complaints. (H/P/F grading only)—F, W, S, Su; F, W, S, Su; Jones

480. Understanding Health Policy: A Focus on Analysis and Translation (1-6)
Lecture—4 hours; discussion—16 hours; independent study—10 hours. Prerequisite: consent of instructor. This course will introduce students to health care decisions, patient histories, physical examinations, health promotion, disease prevention, diagnosis, treatment of episodic, acute, chronic illness; appropriate referral and follow-up. May be repeated for credit. (P/NP grading only)—F, W, S, Su; F, W, S, Su; F, W, S, Su; F, W, S, Su; Edison-Ton, Hintzeman, Smith

Upper Division

192C. Primary Care Clinics (1-2)
Clinical activity—68 hours; seminar—2 hours; lecture—1-2 hours. Prerequisite: consent of instructor, enrollment at the UC Davis campus, for freshmen and sophomore students. Students must apply and interview with the faculty of the Clinical Tepati or Imani Clinic. Field experience exposes lower division students to health care delivery, patient histories and physical examinations, health promotion, disease prevention, treatment of episodic, acute and chronic illness, appropriate referral and follow-up. May be repeated for credit. (P/NP grading only)—F, W, S, Su; F, W, S, Su; F, W, S, Su; Edison-Ton, Hintzeman, Smith

195. Health Care to Underserved Populations (1)
Lecture—1 hour. Prerequisite: sociology, political science, or applied behavioral science background recommended, or registration in medical school. Discusses sociocultural perspectives of underserved populations in California impacting their health; roles of family/interpersonal relationships in making health care decisions; and clinician's perspectives in treating people of cultures which are unfamiliar and/or uncomfortable with Western medicine. May be repeated for credit. (P/NP grading only)—F, W, S, Su; F, W, S, Su; Edison-Ton, Hintzeman, Smith

Fall 2011 and on Revised General Education (GE) Requirements

AH—Arts and Humanities; SC—Science and Engineering; SS—Social Sciences; VL—Visual; WC—World Cultures; WE—Writing Experience

Pre-Fall 2011 General Education (GE): ArthHum—Arts and Humanities; SciEng—Science and Engineering; SocSci—Social Sciences; Div—Divisional Diversity; WR—Writing Experience

Quarter Offered: Fall, W, Winter, Spring, Summer; 2017-2018 offering in parentheses
401. Selected Studies of Systems for Chronic Illness Care (3)
Clinical activity—4 hours; discussion—4 hours. Prerequisite: course 400A, 400B, 400C, medical students with consent of instructor. Understanding of chronic illness, palliative care, diabetes, participation in patient care, alternative techniques. May be repeated one time for credit. (H/P/F grading only.)—W. Eidson-Ton, Balbaugh

430. Family Medicine Clerkship (6-12)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Family medicine clerkship for third year medical students. (H/P/F grading only.)—W, Su, F, W, S, Su. Eidson-Ton, Srinivasan

430A. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Srinivasan

430B. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. Eidson-Ton, Srinivasan

430C. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. Eidson-Ton, Srinivasan

430D. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. Eidson-Ton, Srinivasan

430E. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. Eidson-Ton, Srinivasan

430F. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Srinivasan

430G. ACE-PC Family Medicine Clerkship (6)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Family medicine clerkship for ACE-PC Program. (H/P/F grading only.)—S. Eidson-Ton, Srinivasan

430KA. ACE-PC Family Medicine Clerkship A (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. Eidson-Ton, Srinivasan

430KB. ACE-PC Family Medicine Clerkship B (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. Eidson-Ton, Srinivasan

430KC. ACE-PC Family Medicine Clerkship C (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. Eidson-Ton, Srinivasan

430KD. ACE-PC Family Medicine Clerkship D (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Srinivasan

430R. Rural PRIME Family Medicine Clerkship (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Eight week primary care clerkship for rural prime third year medical students. Eight weeks of family medicine training at a rural site. (H/P/F grading only.)—F, W, S, Su. Eidson-Ton

430TA. TeachMS Longitudinal Primary Care Clerkship (1.5)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Internal Medicine and Psychiatry for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Srinivasan

430T. TeachMS Longitudinal Primary Care Clerkship (6)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Internal Medicine and Psychiatry for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Srinivasan

431. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year; working one-on-one with a primary care preceptor. (H/P/F grading only.)—S. Eidson-Ton, Schwartz, Srinivasan

431A. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year; working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. Eidson-Ton, Schwartz, Srinivasan

431B. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. Eidson-Ton, Schwartz, Srinivasan

431C. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. Eidson-Ton, Schwartz, Srinivasan

431D. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. Eidson-Ton, Schwartz, Srinivasan

434. Primary Care Clinics—Clinica Tepati (3-12)
Clinical activity—32-36 hours; seminar—0.2 hours; lecture—1-2 hours. Open to medical students in all four years of medical school. Medical students will learn counseling, diagnosis and treatment of patients with chronic and acute disease under supervision of
460. Geriatrics in Community Health (3-6)
Fieldwork—24 hours; clinical activity—12 hours; lecture—4 hours. Prerequisite: course 450. Visits to community agencies including men’s health clinics, adult day health centers, a diagnostic and research center, and case management specialists. Observation and participation in HSE’s patient-family conferences, interdisciplinary team meetings, neuropsychiatric testing and home visit evaluations. [H/P/F grading only]—F, W, S, Su.

468. International Preceptorship (3-12)
Clinical activity—40 hours. Prerequisite: medical student with consent of instructor. Preceptorship with a family practitioner in a foreign country [arranged by student contact or with assistance of the Family and Community Medicine Department. Participate in clinical activities, and report characteristics of the practice. May be repeated up to 12 units of credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton

469. Inpatient Acting Internship in Family Medicine (3-12)
Clinical activity—40 hours. Prerequisite: completion of third-year of medical school or consent of instructor. Open to medical students only. Comprehensive primary medical care of inpatients on a family medicine hospital service. Available sites are university-based family medicine residency programs and programs within the UC Davis Network of Affiliates. Family Medicine Residency Programs. May be repeated up to 12 units of credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton

470. Inpatient Clinical Elective in Family Medicine (3-12)
Clinical activity—40 hours. Prerequisite: completion of third-year of medical school or consent of instructor. Open to medical students only. Comprehensive primary medical care of patients on a family medicine hospital service. Usually includes inpatient and outpatient experience. May be repeated up to 12 units of credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton

475. Committed Inpatient/Outpatient Clinical Elective in Family Medicine (3-12)
Clinical activity—40 hours. Prerequisite: completion of third-year of medical school or consent of instructor. Open to medical students only. Combined inpatient and outpatient elective. Consists of comprehensive primary medical care of patients on a family medicine hospital service and in a family medicine outpatient setting. May be repeated up to 12 units of credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton

479. Advanced Preceptorship in Family Medicine (3-18)
Clinical activity—40 hours. Prerequisite: completion of third-year primary care plus clerkship or consent of instructor. Open to medical students only. Preceptorships with primary care physicians in a variety of settings. Acquisition skills to evaluate and develop a treatment plan for patients with common medical problems. Primary care physicians in an outpatient setting. May be repeated up to 18 units of credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton

500. CAM in Family & Community Health (3-18)
Variable—20-40 hours. Intended to grant units for away rotations; not offered at the UC Davis Medical Center. Complementary and alternative medicine courses at UC Davis and various aspects of integrative medicine, including but not limited to: botanicals, homeopathy, mind/body, naturopathy, nutrition, traditional Chinese medicine, osteopathy, and energy medicine. [H/P/F grading only] Offered irregularly. [F, W, S, Su.] Eidson-Ton

450. Health Care to Underserved Populations (1)
Lecture—1 hours. Prerequisite: Sociology, Political Science, or Applied Behavioral Science background recommended, or registration in medical school. Discusses sociocultural underserved populations; implications for health care; roles of family/interpersonal relationships in making health care decisions; the nature of ethnic/racial/socioeconomic health care disparities; and clinicians’ perspectives in treating people of cultures which are unfamiliar and/or uncomfortable with Western medicine. May be repeated for credit. [H/P/F grading only]—F, W, S, Su. Eidson-Ton, Nesbit, Srinivasan

493. Aging and Health (6)
Seminar—12 hours. Prerequisite: consent of instructor. Is disease and infirmity the inevitable consequence of aging? We will spend four weeks exploring this question by reviewing the biology of aging, physiologic changes seen in aged individuals and disease processes commonly found in elderly persons. [H/P/F grading only]—F, W, S, Su. Eidson-Ton, Nesbit, Srinivasan

495. LGBTIQQA Health Care Lecture Series (1-6)
Lecture—6 sessions. Increase the awareness of medical issues surrounding the LGBTIQQA community, and arm students with knowledge of the health disparities the community faces. Provide better quality care to the LGBTIQQA patients cared for as physicians. May be repeated for credit. [P/F grading only]—W (Callahan

210A. Advanced Physical therapy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Physical therapy Ph.D. program, or consent of instructor. Advanced course in general principles of physiology, surveying homeostasis, cellular and selected topics, and neurophysiology. Same course as Physiology 210A. [F]—F. (Payne

298. Group Study (1-5)
Prerequisite: consent of instructor. For graduate students desiring to explore particular topics in depth. Lectures and conferences may be involved.

299. Research (1-12)
Prerequisite: consent of instructor. [S/U grading only]

400. Human Physiology (6)
Lecture—3 hours; laboratory—3 hours. Medical student only. General and cellular physiology of neuromuscular system; and epithelial cells and systems physiology of cardiovascular, respiratory, gastrointestinal, and renal systems. [Deferred grading only, pending completion of sequence.] [P/F grading only]—F, W, S, Su. (Ferns, Paye

403. Medical Neuroanatomy (5)
Lecture—3 hours; laboratory—1 hour. Discussion/lab—1 hour. Prerequisite: Successful completion of course 400, block 1. Restricted to medical students only. Anatomy of the normal human nervous system, to include gross external and internal morphology of brain and spinal cord, and function of neuroanatomical, motor, sensory and cognitive systems.

Fall 2011 and on Revised General Education (GE): AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; ACGH—American Cultures; DD—Dominant Diversity; OL—Oral Skills; OQ—Quantitative; SL—Scientific; VL—Visual; WC—World Cultures; WE—Writing Experience; Pre-Fall 2011 General Education (GE): ARHum—Arts and Humanities; SciEng—Science and Engineering; SocSci—Social Sciences; Div—Dominant Diversity; Wrt—Writing Experience; Quarter Offered: F,W,Winter, S, Spring, Su, Summer; 2017-2018 offering in parentheses.
incorporates application of neuroanatomy to clinical problem solving. (Same course as Cell Biology and Human Anatomy 403B; F/P/F grading only.)—Su. (Su.) Blankenship, Gross

493. Physiological Principles in SICU SSM (6)
Lecture—5 hours; lecture/laboratory—10 hours; laboratory—5 hours; clinical activity—4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Special Study Module, a four week course on the topic: Care of the Critically Ill Surgical Patient: Use of Physiological Principles to Guide Treatment of Patients with Common Surgical Problems. (Same course as Surgery 493C; [H/P/F grading only].)—F, W, S, Su. [F, W, S, Su.] Cola, Hoehn.

497T. Tutoring in Human Physiology (1-5)
Tutoring—3-15 hours. Prerequisite: advanced standing or consent of instructor. Assist tutor by instructing medical students in preparation for one of the required course in the departmental courses that is a component of the required curriculum of the School of Medicine. (H/P/F grading only.)—F, W, Payne

498. Directed Reading and Group Study (1-4)
Discussion—2-8 hours. Prerequisite: medical student. Directed reading and discussion on selected topics in human physiology. ([H/P/F grading only.]—Last

499. Research (1-6)
Prerequisite: medical students with consent of instructor. Laboratory investigation on selected topics. (H/P/F grading only.)

Internal Medicine (IMD)

Lower Division
92. Internship (1-4)
Internship—3.1-12 hours. Prerequisite: lower division standing and consent of instructor. Supervised internship in internal medicine and related fields. ([P/NP grading only.]—Last

98. Directed Group Study (1-2)
Seminar—1-2 hours. Prerequisite: lower division standing and consent of instructor. Directed group study in medicine and related fields. ([P/NP grading only.]—Last

99. Undergraduate Research in Medicine: Molecular and Cell Biology (1-3)
Prerequisite: consent of instructor. ([P/NP grading only.]—Last

Upper Division
164. Practicum in Community Health Clinic: Bayanihan Clinic (1-2)
Clinical activity—5 hours. Through active participation in the medical aspects of community health clinics, the undergraduate student gains knowledge of the organization, administration, and problem-solving capabilities. May be repeated for credit. ([P/NP grading only.]—F, W, S, Su. [F, W, S, Su.] Guerrero

192. Internship in Internal Medicine (1-12)
Internship—3.3-66 hours, final report. Prerequisite: upper division standing. Supervised work experience in internal medicine and related fields. ([P/NP grading only.]—Last

194. Practicum in Community Health Clinics (1-3)
Clinical activity—5-15 hours on Saturday mornings and during the week as necessary, excluding holidays. Prerequisite: consent of instructor. The undergraduate student, through active participation in the medical aspects of community health clinics, gains knowledge of the organization, administration, and problem-solving capabilities of these primary care facilities. May be repeated for credit. ([P/NP grading only.]—F, W, S, Su. [F, W, S, Su.] Kumagai

198. Directed Group Study (1-2)
Seminar—1.2 hours. Prerequisite: consent of instructor. Directed group study in medicine and related fields. ([P/NP grading only.]—Last

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: upper division standing; consent of instructor. ([P/NP grading only.]—Graduate

214. Topics in Medical Ethics (1)
Seminar—1 hour. The complex moral, legal, and ethical dilemmas that patients, families, and health care providers face in today’s medical care may be repeated one time for credit. ([S/U grading only.]—F.

220D. Cardiovascular System (2.5)
Lecture/discussion—5 hours; laboratory/laboratory—10 hours. Prerequisite: Human Physiology 200, graduate student status and consent of instructor. Principles of etiology, mechanisms, diagnosis and management of the major diseases of the cardiovascular system. Included are ischemic, valvular, hypertensive, cardiomyopathic, pericardial, and electrical disorders. (F/P/F grading only.)—F. (F. Venugopal

240E. Nephrology (2)
Lecture—2 hours, discussion—2 hours, laboratory—2 hours. Prerequisite: approval of Student Progress Committee. Fundamental aspects of disorders of body water, electrolytes and acid/base balance; major categories and mechanisms of parenchymal renal diseases; urinary tract infections. (P/F grading only.)—W. Yen

430. Medicine Clerkship (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Clerkship is divided into two, four-week blocks, one each at UCDMC and at Kaiser Hospitals. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. ([H/P/F grading only.]—F, W, S, Su. PreScott

430FA. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—S. (S.) Aronowitz, Jahl

430FB. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. (F.) Aronowitz, Jahl

430FC. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. (F.) Aronowitz, Jahl

430FD. SJVP Longitudinal Medicine Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F. (F.) Aronowitz, Jahl

430FE. SJVP Longitudinal Medicine Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty.
468. Ambulatory Internal Medicine Externship (3-18) Clinical activity—40 hours. Prerequisite: course 430; consent of instructor; demonstrated ability to accept responsibility. Limited enrollment. Hands-on primary care clinical experience in the ambulatory setting supervised by a general internist. Emphasis on evidence-based outpatient care. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Henderson

470. Landmark Clinical Trials and Evidence-Based Medicine (3) Lecture—discussion—10 hours. Clinical activity—8 hours. Prerequisite: fourth-year medical student. Ten landmark clinical trials from a historical, clinical, and epidemiological/research perspective. Principals of evidence-based medicine. (H/P/F grading only)—S. Kravitz, Amsterdam

480. Person Centered Assessment (1) Lecture—1 hour. Prerequisite: open to all medical students. Person-centered assessment modalities and diagnostic approaches with regards to Internal Medicine and its different subspecialties. (P/F grading only)—F. Fitzgerald

493. Practicum in Community Health Clinics (1-3) Clinical activity—15-40 hours. Prerequisite: medical student with consent of instructor. Students are assigned to clinical settings that demonstrate ethnic, urban/rural, or other related aspects of clinical community health. Through active participation in health care delivery, students are exposed to the conceptual and practical aspects of primary health care. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (W, S, J) Kumagai

497. Medicine, Bioethics and the Holocaust (3) Lecture/discussion—10 hours. Prerequisite: medical students only, consent of instructor. The concept of “evil” and the role of collaborators, bystanders and participants exemplified by the holocaust and compared to problems physicians face in practice today. Demonstration that evil emerges incrementally until taken for granted. (P/F grading only.) Offered irregularly—F, W, S.

499. Group Study in Internal Medicine (1-18) Prerequisite: consent of instructor. Special study for medical students which may involve laboratory or library research, ambulatory or inpatient care responsibility on campus, at UCDMC or off campus by specific arrangement. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.)

Internal Medicine—Cardiology (CAR) Upper Division

192. Internship in Cardiology (1-12) Internship—3-36 hours, final report. Prerequisite: upper division standing; approval of project by preceptor prior to internship. Supervised work experience in cardiology. May be repeated for credit up to 12 units. (P/F grading only)

199. Cardiology Research (1-5) Prerequisite: consent of instructor. Special study by individual arrangement in cardiovascular medicine. Work will include directed readings, laboratory and discussions. (P/NP grading only)

Graduate

220. Basic Science in Cardiology (1) Lecture—1 hour. Prerequisite: graduate or medical student status. Fundamentals underlying cardiovascu- lar medicine. Including hemodynamics, neural control of the circulation, biochemistry and some experimental data and statistics. Experts in each of these fields will give current information in their areas. Offered in alternate years. (S/U grading only)—S. Kaufman
Professional

401. Clinical Cardiology Clerkship: Kaiser (3-18)
Clinical activity—1-5 hours. Prerequisite: third- and fourth-year medical students with advance approval by Division of Cardiology. Limited enrollment. Emphasis placed on history taking and physical examination of pediatric and adult patients with congenital and acquired cardiovascular disease. Hospital rounds in ICU and elsewhere. Roles of ECG, in-office evaluation, etc, in office cardiology will be evaluated. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

460. Cardiology Clinical Clerkship (3-18)
Clinical activity—2-12 hours. Prerequisite: Internal Medicine 430, third- and fourth-year medical students in good academic standing with consent of instructor. Limited enrollment. Participation with members of subspecialty consultation service in initial clinical evaluation, work-up, management, and follow-up of patients with cardiologic disorders. Two outpatient clinics per week. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

461. Management of Coronary Artery Disease: Coronary Care Unit (3-18)
Clinical activity. Prerequisite: completion of second year of medical school and advance approval by Division of Cardiology. Limited enrollment. Research in laboratory and exercise testing to be determined by instructor. Current methods of clinical research involving certain aspects of diagnosis and treatment. Includes acute coronary care, hemodynamic monitoring, stress testing, cardiac catheterization, pathologic correlates, modern approach to therapy, both medical and surgical, based on pathophysiologic mechanisms. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

464. Preventive Cardiology (3-6)
Seminar—2 hours (for 2-4 weeks); clinical activity—full time (2-4 weeks). Prerequisite: completion of third year of medical school. Clinical experience, weekly seminar and reading on primary and secondary prevention of cardiovascular disease. Will be carried out in Lipid and Hypertension Clinics, Exercise Laboratory, Cardiac Care Unit, Cardiac Catheterization, and Cardiac Surgery services. (P/P/F grading only)—W, S. Su. (W, S, Su.) Amsterdam

480. Insights in Cardiology (1-3)
Clinical activity—3-9 hours. Prerequisite: medical student in good academic standing and approval by Division of Cardiology. Students attend one or more cardiovascular medicine clinics: general, hypertensive, arrhythmia. Introduction to the diagnosis/treatment of common cardiovascular problems. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

493. Gender Specific Medicine SSM (6)
Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor. UC Davis School of Medicine students only. Special Studies Module, a four week course on the topic: Basic Science Principles Relating to Gender Specific Medicine. (Same course as Obstetrics & Gynecology 493J.) (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

498. Special Group Study: EKG Unit (1-12)
Prerequisite: medical student with advance approval by monthly attending faculty. Limited enrollment. Special group study in cardiology for medical students in EKG unit. May include lectures, directed reading, and/or discussion groups. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

499. Research (1-12)
Prerequisite: approval by Division of Cardiology. (H/P/F grading only)

Internal Medicine—Endocrinology, Diabetes and Metabolism (ENM)

Upper Division

192. Internship in Endocrinology (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project by preceptor prior to internship. Supervised work experience in endocrinology. May be repeated for credit up to 12 units. (P/NP grading only)

Graduate

299. Research (1-12)
Prerequisite: consent of instructor. Endocrinology research. (S/U grading only)

Professional

460. Endocrinology Clinical Clerkship (3-18)
Clinical activity—46 hours. Prerequisite: completion of Internal Medicine 430; consent of IOR. In-depth experience in assessment and monitoring of nutritional support of patients whose illnesses are complicated by malnutrition and of patients with problems in under-nutrition due to various illnesses. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

465. Clinical Nutrition Clerkship (3-18)
Clinical activity—30 hours. Prerequisite: completion of Internal Medicine 430; consent of IOR. In-depth experience in assessment and monitoring of nutritional support of patients whose illnesses are complicated by malnutrition and of patients with problems in under-nutrition due to various illnesses. May be repeated for credit. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

499. Research (1-12)
Prerequisite: consent of instructor. (H/P/F grading only)

Internal Medicine—General Medicine (GMD)

Upper Division

192. Internship in General Medicine (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project by preceptor prior to internship. Supervised work experience in general medicine. May be repeated for credit up to 12 units. (P/NP grading only)

Graduate

291. Seminars in Human Health Services Research and Clinical Epidemiology (1)
Seminar—1 hour. Critical review, evaluation, and discussion of research in human health services research and clinical epidemiology. Presentation of statistical, epidemiologic, and econometric methods. Students present their own research and critique the work of others. May be repeated for credit. (Same course as Epidemiology 291.) (S/U grading only)—F, W, S. (F, W, S)

Professional

460. General Medicine Consults (1-18)
Clinical activity—46 hours. Prerequisite: fourth-year medical students with consent of instructor; a general medicine clerkship. Limited enrollment. Supervised opportunity to see entire spectrum of medical problems encountered by a general internist. Student spends time in General Medicine Consult and on General Medicine Consult Service. Consultation Service is particularly concerned with medical evaluation of surgical patients. (H/P/F grading only)—F, W, S. Su. (F, W, S, Su.)

470. Health Care Ethics (3-9)
Lecture/discussion—2 hours; laboratory/discussion—1 hour. Prerequisite: consent of instructor. Guided independent study of issues in biomedical ethics, with discussion of readings that are based on student interests and needs. Participation in ethics rounds. (Same course as Nursing 470.) (S/U grading only)—W, S. (S, Su.)

485. Introduction to Health Care Ethics (1)
Lecture—10 weeks. Prerequisite: medical student in good standing. Introduction to concepts and methods of healthcare ethics. Emphasis on problems and methods. (H/P/F grading only)—F, (F)

499. General Medicine Research (1-18)
Discussion—3-18 hours; clinical research—8-40 hours. Prerequisite: consent of instructor. Student will be involved in a clinical research problem within the area, interest and expertise of members of Division of General Internal Medicine. Alternatively, the research effort will be directed toward investigation of a clinical problem of general medical interest. May be repeated for credit. (H/P/F grading only)

Internal Medicine—Hematology-Oncology (HON)

Upper Division

199. Research in Hematology-Oncology (1-5)
Laboratory—hours variable. Prerequisite: upper division standing and consent of instructor. Experience in laboratory research. (P/NP grading only)—F, W, S. Su. (F, W, S, Su.)

499. Research (1-12)
Clinical activity—varied. Prerequisite: medical student status; consent of instructor. Part-time participation in active clinical and basic research projects. Some will involve both patient care and relevant laboratory procedures. Basic research includes liver metabolism, cancer markers, porphyrias diet and cancer, folate metabolism. May be repeated for credit. (H/P/F grading only)
Graduate

298. Topics in Hematology (1-4)
Prerequisite: one year of graduate work and/or consent of instructor. Basic concepts of the physiology of the hematopoietic system, the pathophysiology of hematopoietic disease, and concepts of therapeutics will be offered for study. The specific topics to be dictated by the interest and background of the students.

299. Research (1-12)
Prerequisite: consent of instructor. Laboratory investigation contributing to the dissertation for a graduate degree. (S/U grading only.)

Professional

420. Oncology (4)
Lecture/discussion—2 hours. Prerequisite: approval by the SOM Committee on Student Promotions. Restricted to Medical student only; students must pass year 1 SOM courses. Covers the principles of oncology and the pathophysiology of specific, common cancers correlated with organ systems pathophysiology and systemic pathology courses. (P/F grading only.)—F (F) Weill

460. Hematology–Oncology Acting Internship (6-18)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing. Limited enrollment. Acting intern on inpatient hematology/oncology ward service. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

461. Hematology–Oncology Consult Clerkship (6-12)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing. Limited enrollment. Student is an integral member of the inpatient hematology and oncology consult service, the bone marrow service, and will attend all conferences sponsored by the Division. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

462. Hematology–Oncology Ambulatory Clerkship (3-18)
Clinical activity—30 hours. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Limited enrollment. Outpatient rotations in related clinics. Participation with members of the subspecialty service in the initial clinical evaluation, work-up, management and follow-up of the patient with hematologic or oncologic disorders. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

493. Cancer as a Process (1-6)
Seminar—10 hours; clinical activity—14 hours; autotutorial—6 hours; independent study—10 hours. Prerequisite: consent on instructor. Restricted to UC Davis School of Medicine students only. Covers cancer as a process, beginning with risks and prevention, preneoplasia, microinvasion, treatment options, metastases and systemic therapy, pain medicine and palliative care, and cancer communication. Format includes traditional lectures, student-led case discussions, and problem-based learning. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Meyer, van Friederichs Fitzwater

499. Research (1-12)
Prerequisite: consent of instructor. (H/P/F grading only.)

Internal Medicine—Infectious Diseases (ID1)

Upper Division

141. Infectious Diseases of Humans (1)
Lecture—1 hour. Prerequisite: introductory knowledge in biology and chemistry recommended. Course integrates information on biological and molecular aspects of the human organism, modern diagnostics, treatment and prevention strategies, and the role of infectious diseases in contemporary society and throughout human history. (P/NP grading only.)—F (F) Danekar

192. Research Internship in Internal Medicine (1-12)
Internship—3-36 hours; final report. Supervised work experience in the division of Infectious Diseases. Undergraduates will have an opportunity to acquire research experience in clinical settings. May be repeated for credit up to 12 units. (P/NP grading only.)

199. Infectious Diseases Research (1-5)
Prerequisite: chemistry through organic chemistry (in addition, physical and biochemistry preferred), biology through basic bacteriology (in addition, microbiology and immunology preferred); and consent of instructor. Discrete problem requiring reading and actual manual effort in solution will be assigned to each student. Progress and results will be reviewed at intervals with the instructor and via seminar presentation. (P/NP grading only.)

Graduate

211. Epidemiology and Prevention of Infectious Diseases (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: Epidemiology 205B, 207 or Internal Medicine 421. Infectious disease epidemiology and prevention, with equal emphasis on human and veterinary diseases. Major categories of infectious diseases by mode of transmission. —S. DeFries, Sandrock

299. Research in Infectious Diseases (1-12)
Prerequisite: consent of instructor. Laboratory investigation contributing to the dissertation for a graduate degree. (S/U grading only.)

Professional

440. Introduction to AIDS and Related Disorders (1.5-6)
Clinical Activity—30 hours; discussion—10 hours. Prerequisite: first and second year medical students must be in good academic standing and have consent from the instructor. Familiarizes students with the diagnosis and treatment of individuals infected with the human immunodeficiency virus. Students will interview patients, observe patient care and participate in ongoing clinic research as well as examine alternative lifestyles. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su.

450. Clinical and Social Care of the Injection Drug User (1-4)
Lecture—1 hour; clinical activity—3 hours. Prerequisite: first and second year medical students in good academic standing. Course and guided clinical practice in a supervised clinical setting, focusing on the social and medical aspects of health care for injection drug users. May be repeated for credit up to 24 units. (H/P/F grading only.)—F, W, S, Su.

460. Infectious Diseases Clinical Clerkship (3-6)
Clinical activity. Prerequisite: successful completion of two years of study in an accredited medical school. Limited enrollment with priority to fourth-year medical students. Patients ill with infectious diseases, including AIDS, will be evaluated and presented at rounds and case conferences. Students will also be active in the Infectious Diseases Clinic. Instruction in clinical microbiology and the proper use of the laboratory will be provided. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

499. Research Topics in Infectious Disease (2-12)
Prerequisite: successful completion of the first year of study in School of Medicine, graduate students (approved for graduate credit), and/or consent of instructor. Discrete problem requiring reading and actual manual effort in solution will be assigned to each student. Progress and results will be reviewed at intervals with the instructor and via seminar presentation. (H/P/F grading only.)

Internal Medicine—Nephrology (NEP)

Upper Division

192. Internship in Nephrology (1-12)
Internship—3-36 hours; final report. Prerequisite: upperdivision standing; approval of project by preceptor prior to internship. Supervised work experience in nephrology. May be repeated for credit up to 12 units. (P/NP grading only.)—F, W, S, Su. (F, W, S, Su.)

Graduate

299. Nephrology Research (1-12)
Prerequisite: consent of instructor. (S/U grading only.)

Professional

444. Curriculum Design for Doctoring (1)
Project—2 hours; seminar—1 hour. Prerequisite: consent of instructor, second year standing in School of Medicine. Design of Doctoring curriculum for medical students in focused topic areas to be announced annually. Students will decide sessions, consider resource needs, and work with IORs to initiate the curriculum. (P/F grading only.)—Su. (Su.)

460. Nephrology and Fluid Balance (3-6)
Clinical activity—4 hours; Lecture/discussion—10 hours. Prerequisite: completion of 3rd year medical school; completion of Medicine Care Clerkship; consent of the instructor. Limited enrollment. Active participation in all inpatient/outpatient clinical activities, attendance at specific lectures and conferences at UCD Medical Center covering the fields of nephrology and fluid-electrolyte disorders. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Yeun

499. Research in Nephrology (3-18)
Prerequisite: individual arrangement and consent of instructor. Independent laboratory research on a specific problem related to biochemical or immunologic causes of renal disease and/or uremic disorders in humans or animals. (H/P/F grading only.)

Internal Medicine—Pulmonary Medicine (PUL)

Upper Division

192. Internship in Pulmonary Medicine (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project by preceptor prior to internship. Supervised work experience in pulmonary medicine. May be repeated for credit up to 12 units. (P/NP grading only.)

Graduate

299. Pulmonary Disease Research (1-12)
Laboratory. Prerequisite: by arrangement only. Pulmonary disease research activity with focus in inhalation toxicity, oxidants and lung biochemistry, and cell and molecular biology. (S/U grading only.)—Cross

Professional

460. Comprehensive Pulmonary Medicine Clerkship (3-6)
Clinical activity—40 hours. Prerequisite: completion of second year of medical school and/or consent of instructor; completion of Internal Medicine Clerkship. Rotation intended to provide a comprehensive student education in Pulmonary Medicine. Students will participate in hands on clinical experience, as well as completing an assigned curriculum. Intended for students pursuing Internal Medicine & Primary Care careers. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Stollenwerk

461. Critical Care Clinical Clerkship (3-6)
Clinical activity—40 hours. Prerequisite: completion of second year of medical school and/or consent of instructor; completion of Internal Medicine and Surgical Clerkships. Rotation intended to provide student education in the Critical Care Management of Fall 2011 and on Revised General Education (GE) AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; ACGH—American Cultures; Div—Domestic Diversity; OL—Oral Skills; VL—Visual; WC—World Cultures; WE—Writing Experience
sub-specially patients. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Stollenwerk

462. Pulmonary Clinical Clerkship (3-6)
Clinical activity—35 hours. Prerequisite: completion of second year of medical school and/or consent of instructor; completion of Internal Medicine Clerkship. Similar to course 460. Rotation designed for students interested in learning pulmonary medicine, but who desire more variety in their clerkships, and do not desire the comprehensive experience offered by a four-week pulmonary rotation. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Stollenwerk

470. Practicum in Care of the Terminally Ill (3-6)
Clinical activity—35 hours; seminar—5 hours. Prerequisite: consent of instructor. Restricted to fourth-year medical students in good standing. Work with hospice interdisciplinary team. Direct experience in the care of patients of all ages and their families whenever possible. Emphasis on symptom relief, end of life issues, physician assisted suicide. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) McMillan

475. Encounters in Ethics in the ICU (3-6)
Clinical Activity—12 hours; lecture/discussion—6 hours; independent study—6 hours. Prerequisite: Sophomore year Medical Student. Care for critically ill adults with complex medical disease carries with it unique ethical roles and responsibilities for the physician. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Stollenwerk

480. Pulmonary-Critical Care Medicine Insights (1-3)
Clinical activity—3-9 hours. Prerequisite: student in good academic standing; consent of instructor. Attend respiratory outpatient clinics and in-patient pulmonary consultation rounds and medical intensive care rounds. Introduction to diagnosis and treatment of common pulmonary problems. (H/P/F grading only.) Offered irregularly. —F, W, S, Su. (F, W, S, Su.) Black

499. Research (1-12)
Prerequisite: consent of instructor. (H/P/F grading only.)

Internal Medicine—Rheumatology-Allergy (RAL)

Lower Division

99. Directed Research in Immunology (1-5)
Laboratory. Prerequisite: consent of instructor. Independent research will be encouraged in basic immunology, including the role of the cellular immune system in oncogenesis. (P/NP grading only.)—F, W, S, Su. (F, W, S, Su.)

Upper Division

192. Internship in Rheumatology-Allergy (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing, approval of project by preceptor prior to internship. Supervised work experience in rheumatology-allergy. May be repeated for credit up to 12 units. (P/NP grading only.)

199. Directed Research in Immunology (1-5)
Laboratory. Prerequisite: consent of instructor. Independent research will be encouraged in basic immunology, including the role of the cellular immune system in oncogenesis. (P/NP grading only.)

Graduate

209. Current Topics in Immunology: From Preclinical Approaches to Grants (3)
Lecture—1 hour, term paper or discussion—1 hour; project—1 hour. Prerequisite: Immunology 201. Current developments in various aspects of immunology and their preclinical applications. Focus on areas of immunology not currently covered in the basic and advanced immunology courses. Oral presentation, written review and grant preparation. —W (W) Van de Water

298. Topics in Rheumatology and Clinical Immunology (1-5)
Lecture. Prerequisite: consent of instructor. Library and/or laboratory work as required. (S/U grading only.)—Gershwin

299. Research in Autoimmune Disease (1-12)
Lecture. Prerequisite: consent of instructor. Independent research will be encouraged in both animal models of human disease (including congenital athymic [nude], asplenic, and New Zealand mice) and the cellular immune system of patients with systemic lupus erythematosus, Sjogren’s syndrome, polysymposiums and drug hypersensitivity. (S/U grading only.)

Professional

460. Rheumatology Clinical Clerkship (1-18)
Clinical activity—2-40 hours. Prerequisite: Medical Science 460. Rotation designed for students interested in rheumatic disease clinics and conferences with members of the subspecialty service in the diagnosis and therapeutic management of patients with rheumatologic diseases. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Black

461. Allergy Clinical Clerkship (3-8)
Clinical activity (inpatient/outpatient service)—full time (2 to 12 weeks). Prerequisite: completion of second year of medical school and consent of instructor. Student will work with practicing allergist in daily work with patients and participate in weekly allergy clinic and teaching conferences. Study of the literature. Will see patients with problems in clinical immunology, immunodeficiency, allergic rhinitis. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

480. Insights in Rheumatology (1-3)
Clinical activity—3-9 hours. Prerequisite: student in good academic standing and consent of instructor. Participation in rheumatology consultation rounds, rheumatic disease clinics and conferences with supervised readings in rheumatology. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Leek

499. Research (1-12)
Prerequisite: medical student with consent of instructor. Part-time participation in active clinical and basic research projects which can involve both patient care and relevant laboratory procedures. Students can gain experience in clinical medicine and clinical investigation. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

Master of Public Health (MPh)
The Department of Public Health Sciences offers the Master of Public Health (MPh) degree. The MPh degree is accredited by the Council on Education for Public Health. Students apply for admission through the Office of Graduate Affairs. The following listing is all required core course work for the degree. Course descriptions are given under the individual course offerings. For Public Health Sciences courses, see the Public Health Sciences (SPH), on page 450.

UNITs

Required Units for Master of Public Health
Core courses ........................................ 40
Added-competence selectives .................. 6-11
Elective units ...................................... 5-10

Total units required for the degree ............56

Core coursework

Biostatistics
Introduction to Health Science Statistics .... 4
Biostatistics for the Health Sciences ......... 4
Public Health Informatics ........................ 2

Epidemiology
Principles of Epidemiology .................... 4

Environmental Health Science
Principles of Environmental Health Science ................................................... 3

Health Services Administration
Health Services Administration .............. 3

Social and Behavioral Influences on Health
Social & Behavioral Aspects of Public Health ................................ 3

General Public Health
Introduction to Public Health .................... 3

Topics in Public Health Seminar
1 unit/quarter ......................................... 4

Public Health Practice
For more information about the Master of Public Health, see http://mph.ucdavis.edu/.

Medical Microbiology (MMI)

Upper Division

130. Medical Mycology (2)
Lecture—2 hours. Prerequisite: a course in pathogenic microbiology and consent of instructor. Various aspects of pathogenic fungi, particularly affecting humans, will be discussed including epidemiology, pathogenesis and pathology, diagnosis and therapy. Offered in alternate years. (Same course as 430.)—W. Pappagianis

188. Human Immunology (3)
Lecture—3 hours. Prerequisite: undergraduate level introductory biology course. Human immune system and mechanisms of immunity. Basic components and function of immune system. Molecular basis of immune response; basic cellular and molecular mechanisms. Interactions between cells of immune system producing immune responses; regulating molecules. —S (S) Torres

192. Internship in Medical Microbiology (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project prior to period of internship. Supervised work experience in medical microbiology and related fields. (P/NP grading only.)—F, W, S. (F, W, S.)

194H. Senior Honors Project in Medical Microbiology and Immunology (5)
Independent study—15 hours. Prerequisite: course 199 and consent of instructor. Project in research related to immunology or medically important viruses. Development of a hypothesis-driven project, performance of experimental protocols and preparation of graphical representation of original data. Requires oral and written presentation of research results. May be repeated three times for credit with consent of instructor. (P/NP grading only.)—F, W, S. (F, W, S.)

199. Research in Medical Microbiology (1-5)
Prerequisite: upper division standing and consent of instructor. Directed reading and discussion and/or laboratory investigation on selected topics. (P/NP grading only.)

Graduate

200D. Mechanisms for Microbial Interactions with Hosts (3)
Lecture/discussion—3 hours. Prerequisite: Microbiology 200A or consent of instructor. Study of mechanisms involved in microbial interactions within a host environment. The following principles are basic to understanding these interactions: host recognition, invasion, competition and growth, and host defense. —W (W)

210A. Critical Analysis of Contemporary Research on Animal Models of Human (1)
Lecture/discussion—1 hour. Prerequisite: Microbiology 200A or consent of instructor. Study of mechanisms involved in microbial interactions within a host environment. The following principles are basic to understanding these interactions: host recognition, invasion, competition and growth, and host defense. —W (W)

For more information about the Master of Public Health, see http://mph.ucdavis.edu/.
2108. Comparative Analysis of Animal Models of Human Infectious Diseases (1)
Lecture/discussion—1 hour. Prerequisite: students funded by the Animal Models of Infectious Diseases Training Grants; only by consent of instructor. Limited enrollment. Compares the major vertebrate and invertebrate animal models that are used most commonly to study human infectious disease, including mouse, nonhuman primate, Caenorhabditis elegans, and drosophila. May be repeated for credit. Offered in alternate years. (S/U grading only)—W. Bevins, Solnick.

215. Medical Parasitology (3)
Lecture—1.5 hours; discussion—1.5 hours. Prerequisite: graduate student with consent of instructor. Epidemiology, pathogenesis, diagnostic methods and current literature discussion of protozoa, helminths, and arthropods of medical importance. Offered in alternate years. —S. Luckhart

280. The Endogenous Microbiota in Health and Disease (3)
Lecture—3 hours. Prerequisite: graduate standing. Recent insights into the microbial communities inhabiting mucosal surfaces, and will discuss how the composition of these communities contributes to normal development, metabolism, education of the immune system, and disease susceptibility.—S. (S.) Baumler, Dandekar, Tsolis

291. Seminar in Microbiology and Immunology (1-5)
Seminar—1 hour. Restricted to students with upper division or graduate standing. Research seminars on current topics in microbiology and immunology. May be repeated for credit if topic differs. (S/U grading only)—F. W. S., S. J. Sankaranar, Torres

298. Group Study in Medical Microbiology and Immunology (1-5)
Prerequisite: consent of instructor; open to graduate students. Directed reading and discussion and/or laboratory investigation on selected topics. (Sections 1, 2, 4, 5: S/U grading only)

299. Research (1-12)
Prerequisite: consent of instructor; open to graduate students. Laboratory investigation contributing to the dissertation for a graduate degree. (S/U grading only)

Professional
410. Physician Scientist Molecular Medicine Journal Club (1)
Lecture—1 hour. Weekly seminars by students on research articles in current literature. Topics/articles to be selected to include a broad range of frontiers in biomedical literature. May be repeated for credit. (H/P/F grading only)—F. (F.) Bevins

430. Medical Mycology (2)
Lecture—2 hours. Prerequisite: a course in pathogenic microbiology and consent of instructor. Various aspects of pathogenic fungi, particularly affecting humans, will be discussed including epidemiology, pathophysiology, diagnosis and therapy. Offered in alternate years. (Same course as 130). (H/P/F grading only)—W. Pappagianis

480.1. Medical Immunology (2.5)
Lecture—2 hours; laboratory/discussion—0.5 hours. Restricted to Medical students only. Helping to understand the immune system, the nomenclature and functional significance of the tissues, cells, proteins and genes of the innate and adaptive immune system and the regulatory mechanisms and pathologic outcomes related to the immune response. (P/F grading only; deferred grading only)–Hartigan-O’Connor, Shackelford

4808. Medical Microbiology (5.5)
Lecture—2.75 hours; laboratory/discussion—1 hour. Restricted to Medical students only. Discussion of the diseases caused by infectious agents includes their pathogenesis, clinical manifestations, diagnosis, treatment epidemiology and prevention. Covers the general properties of and diagnostic techniques for bacteria, fungi and viruses. (P/F grading only; deferred grading only, pending completion of sequence)—S. (S.) Luckhart, Mudry, Tsolis

497T. Tutoring in Medical Microbiology (1-5)
Tutoring—3-15 hours. Prerequisite: appropriate preparation in subject matter and consent of instructor. Assist instructor in the conduct of one of the departmental courses that is a component of the required curriculum of the School of Medicine. (H/P/F grading only)

498. Group Study in Medical Microbiology and Immunology (1-5)
Prerequisite: medical students with consent of instructor. Directed reading and discussion and/or laboratory investigation on selected topics. (H/P/F grading only)

499. Research (1-12)
Prerequisite: medical students with consent of instructor. (H/P/F grading only)

Medical Pharmacology and Toxicology (PHA)

Lower Division
92. Internship in Pharmacology (1-12)
Internship—3-36 hours; final report. Prerequisite: lower division student with good academic standing; approval of project prior to period of internship. Supervised work experience in pharmacology and related fields. (P/NP grading only)

99. Special Study for Undergraduates (1-5)
Prerequisite: lower division standing. (P/NP grading only)

Upper Division
192. Internship in Pharmacology (1-12)
Internship—3-36 hours; final report. Prerequisite: upper division standing; approval of project prior to period of internship. Supervised work experience in pharmacology and related fields. (P/NP grading only)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only)

Graduate
205. Problem Solving in Pharmacology (1)
Lecture/discussion—1 hour. Restricted to Graduate Students in Pharmacology and Toxicology. Chemisty and Clinical Research Graduate Groups; other students may be accepted with consent of instructor. Students will be introduced to a current biomedical problem that would benefit from a developing drug and will develop an experimental strategy for addressing the issue. Students will develop model systems for testing various classical and recent pharmacological approaches. May be repeated 12 times for credit. Course changes subjects every quarter; each course is unique and can be taken as often as desirable; certain students (Trainees of the Training Program in Pharmacological Sciences) may take course at least three times.—F. W. S., W. S. J. Hell

207. Drug Discovery and Development (3)
Lecture/discussion—2 hours; extensive writing—1 hour. Prerequisite: consent of instructor. (P/F grading only)–P. Horuk, Wullf

208. Advanced Cardiac Physiology and Pharmacology (3)
Lecture—2 hours; lecture/discussion—1 hour. Prerequisite: Pharmacology and Toxicology 201, Pharmacology and Toxicology 202, an equivalent course in general pharmacology or physiology (example, Biomedical Engineering 204), or knowledge of basic pharmacology/physiology. Open to graduate students from the Pharmacology and Toxicology, Molecular, Cellular and Integrated Physiology, Biomedical Engineering and Clinical Research Graduate Groups; other students (including undergraduates), may be accepted upon consultation with the instructors. Detailed characterization of the mechanisms involved in cardiac excitation-contraction coupling, alterations that occur in heart disease and pharmacological interventions. Topics include: cardiac contractile apparatus, action potential, calcium cycling, excitation-transcription coupling, cardiac inotropy, heart failure and arrhythmias.—S. (S.) Bossuyt, Despa, Ripplinger

225. Gene Therapy (3)
Lecture/discussion—3 hours. Prerequisite: Genetics 201C, Molecular and Cellular Biology 214, or equivalent. Gene therapy from basic concepts to clinical applications. Topics include: the human genome and genetic variation, genetic diseases, methods to manipulate gene expression, viral and non-viral delivery vectors, history and progress of gene therapy, case studies, and ethical issues. (Same course as Genetics 225.)—S. (S.) Anderson

250. Functional Genomics: From Bench to Bedside (3)
Lecture/discussion—3 hours. Prerequisite: Genetics 201C, Molecular and Cellular Biology 214, or equivalent. Functional genomics (how genetic variation and epigenomics affect gene expression), with an emphasis on clinical relevance and applications. Topics include: genetic variation and human disease, cancer therapeutics, and biomarker discovery. (Same course as Genetics 250.)—S. (S.) Díaz, LaSalle, Segal

291. Pharmacology Research Seminar Series (1)
Seminar—1 hour; discussion—1 hour. Prerequisite: consent of instructor; upper division or graduate standing. Research seminars on current topics in Pharmacology. May be repeated for credit if topic differs. (S/U grading only)—F. W. S., W. S. J, Wullf

298. Group Study (1-5)
Prerequisite: consent of instructor.

299. Research (1-12)
Prerequisite: consent of instructor. (S/U grading only)

Professional

400A. Pharmacology (2)
Lecture—1 hour; discussion/laboratory—0.3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical student only. Principles in pharmacology, including pharmacokinetics, drug metabolism and the actions, uses and toxicities of the major classes of drugs. (Deferred grading only, pending completion of sequence. P/F grading only)—F. S. (F. W. S.) Wullf

400B. Pharmacology (1.5)
Lecture—1 hour; discussion—0.25 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Principles in pharmacology, including autonomic pharmacology, general anesthetics, neuropharmacology and sedative/hypnotics. (P/F grading only)—Su. (S.) Diaz

408. Pharmaceutical Pharmacology (3.5)
Lecture—2 hours; discussion—0.5 hours. Prerequisite: Approval by School of Medicine Committee on Student Progress; medical student only; successful completion of courses 400A and 400B. Treatment of
respiratory and cardiovascular disease, central nervous system drugs, GI, Toxicology and chemother-apy. Specific topics: asthma, chronic obstructive pulmonary disease, hypertension, con-gestive heart failure, and the treatment of arrhythm-ias. Pain Management, depression, psychosis, acid reflux, IBS and toxicology. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F, W, F, W, Clancy, Gelli

445. Introduction to Integrative Medicine (1)
Lecture/discussion—1 hour. Prerequisite: medical student in good standing. Basic principles of alternative medical systems (e.g., traditional Chinese, Ayurvedic, Tibetan), alternative practices (e.g., chiropractic, osteopathy, naturopathy, homeopathy, herbalism, guided imagery/meditation, massage therapy), and mind/body connection are presented as introduction to integrating alternative treatments into traditional medical practice. (H/P/F grading only.)—W, W, Diaz

490. Seminar in Pharmacology for Medical Students (1)
Seminar—1 hour. Prerequisite: consent of instructor. Seminar in pharmacology for medical students. (H/P/F grading only.)—W, W, S, Su. (F, W, S, Su.)

497T. Tutoring in Pharmacology (1-5)
Tutoring—3-15 hours. Prerequisite: advanced standing or consent of instructor. Assist instructor by tutoring students in preparation for one of the departmental courses that is a component of the required curriculum of the School of Medicine. (H/P/F grading only.)

498. Special Study for Medical Students (1-5)  
Lecture, directed reading, and/or discussion groups—3-15 hours. Prerequisite: consent of instructor. Special study in pharmacology for medical students. (H/P/F grading only.)

499. Directed Research for Medical Students (1-12)
Laboratory—3-36 hours. Prerequisite: consent of instructor. Directed research in pharmacology for medical students. (H/P/F grading only.)

Neurology (NEU)

Upper Division

199. Individual Special Study and Research (1-4)
Prerequisite: consent of instructor. Individual special study in neurophysiology and biomedical engineering is offered to qualified students. Studies on psychophysics, single-unit electrophysiology and instrumentation are offered in Davis. (F/P/NP grading only.)

Graduate

298. Group Study (1-5)
Prerequisite: consent of instructor. For graduate students desiring to explore particular topics in depth. Lectures and conferences may be involved. (S/U grading only.)

299. Individual Special Study and Research (1-12)
Laboratory—3-36 hours. Prerequisite: consent of instructor. Individual special study and research in Neurophysiology and Biomedical engineering is offered at both Davis and Sacramento Medical Center. (S/U grading only.)

Professional

420. Clinical Neurosciences (2)
Lecture/discussion—1 hour; lecture—1.5 hours. Restricted to Medical Students only. Pathophysiology underlying neurological disorders, including disorders of development, muscles, nerve, cerebral circulation, metabolism, myelin, cortical function, movement, cerebrospinal fluid, autonomic function and special senses. Anatomical basis of clinical testing; nervous system infection, neoplasia and trauma. (P/F grading only.)—Su, (F, W, S, Su.)

450. Clinical Neurology Clerkship (3-6)  
Clinical activity—24 hours; conference—12 hours; seminar—4 hours; independent study—10 hours. Prerequisite: completion of medical students and third year medical students with consent of instructor. Restricted to six students per rotation. Critical elements of clinical and professional skills (history & exam) and basic and clinical neurological concepts expected for general residency preparation. Active, didactic, expereiential and independent learning to encourage motivation of professional competencies. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

452. Advanced Clinical Neurology (6)  
Clinical activity—full time (4 weeks). Prerequisite: completion of four-week Neurology elective and consent of instructor. Extension of basic Neurology clerkship. Designed for students with special interest in medical disorders of nervous system. By arrange-ment with department, students serve as an act-ing intern. Principles of neurological differential diagnosis and therapeutics emphasized. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

455. Child Neurology (6)  
Clinical activity—full time (4 weeks). Prerequisite: satisfactory completion of Internal Medicine 430, Obstetrics and Gynecology 430, Pediatrics 430 and consent of instructor. Student exposed to chil-dren with disorders of the central nervous system, both in outpatient and inpatient services. Cases presented to a member of full-time faculty who will discuss clinical findings, differential diagnosis, management and therapy. This course satisfies the fourth year neurosci-ence requirement. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

498NE. Group Study in Neurology (1-6)
Prerequisite: medical students with consent of instruc-tor. Directed readings and discussions with a com-prehensive written examination at the end of course. (P/F grading only.)—F, W, S, Su.

499. Research (1-12)
Laboratory—2-24 hours. Prerequisite: consent of instructor. Approved for graduate degree credit. Labe-ralatory investigations and research projects. (H/P/F grading only.)—F, W, S, Su.

Neurosurgery (NSU)

Upper Division

199. Special Study in Neurosurgery for Advanced Undergraduates (1-5)
Prerequisite: advanced undergraduate standing with consent of instructor. Students may participate in ongoing neurosurgical projects or may pursue and design independent projects. (P/NP grading only.)

Graduate

299. Neurosurgery Research (3-12)
Prerequisite: graduate standing with consent of instruc-tor. May participate in ongoing neurosurgical pro-jects or may pursue and design independent projects. (S/U grading only.)

451. Neurosurgical Critical Care Clerkship (3)
Clinical activity—full time (2 weeks). Prerequisite: third or fourth-year medical student having com-pleted a neurosurgical clerkship or consent of instruc-tor. Students participate in the care of neurosurgical patients in the NSICU and in the admission and sur-gical management of patients in emergency and trauma emergencies. (F/P/F grading only.)—F, W, S, S.

453. Clinical Pediatric Neurosurgery (6)  
Clinical activity—full time (4 weeks). Prerequisite: third or fourth-year students who have satisfactorily completed course 460; consent of instruc-tor. Admission and follow-up of pediatric patients. Neurological history, examination, and diagnostic procedures are emphasized. Students will parti-ci-pate in surgical procedures and are required to attend all pediatric neurosurgery conferences. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

460. Clinical Neurosurgery (6-18)  
Clinical activity—full time (3 days per week; 4 weeks minimum). Prerequisite: third- and fourth-year med-i-cal students; consent of instructor. Approved for graduate degree credit. Admission and follow-up of patients. Neurological history, examination and fur-ther diagnostic procedures emphasized. Students participate in meaningful aspects of surgical proce-dures and attend listed conferences, rounds, and seminars. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

464. Externship (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student having completed a neu-rosurgical clerkship or consent of instructor. Clerk-ship in neurosurgery is being arranged at another institution with accredited residency program in neu-rosurgery under proper supervision. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

470. Advanced Clinical Neurosurgery (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student in good academic stand-ing. Student will function as acting intern on neurosurgery service. Admission and management of patients. Neurological history, examination, diag-nostic procedures, and surgical management are emphasized. Students participate in meaningful aspects of surgical procedures and attend required conferences and rounds. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

480. Insights in Neurosurgery (1-3)
Clinical activity—3 to 9 hours. Prerequisite: first and second-year medical students in good academic standing; consent of instructor. Observation of neuro-surgical care in emergency room, operating room and hospital floors, including manner of treatment of a variety of chronic and acute neurological diseases. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

499. Neurosurgery Research (1-18)
Prerequisite: medical student with consent of instruc-tor. May pursue and design independent projects. (P/NP grading only.)

Obstetrics and Gynecology (OBG)

Upper Division

192. Shifa Clinic/Student Volunteer (1)
Conference—2 hours; clinical activity—68 hours; discussion—1-2 hours.Clinical activity: Clerkship in obstetrics and gynecology. May be repeated up to three times for credit. (P/NP grading only.)—F, W, S, Su. (F, W, S, Su.)

194. Shifa Clinic Student Volunteer (1)
Conference—1 hour; clinical activity—6 hours. Prerequisite: consent of instructor; the applications will be available to students. Selection of students will be made by selection committee of medical student coordinators and the IOR. Attend clinic every third Sunday performing duties of receptionist, intake, translation, monitor. Students attend a meeting imme-diately after end of clinic. There is a mandatory Monday meeting with Clinic co-directors. Students are expected to participate on various committees. May be repeated three times for credit. (P/NP grading only.)—F, W, S, Su. (F, W, S, Su.)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

Graduate

220. Genetics of Reproduction (3)
290. Current Topics in Research (1) Seminar—1 hour. Prerequisite: graduate standing and consent of instructor. Selected topics in reproductive biology. (S/U grading only.)—F, W, S, Su. (F, W, S, Su.)

298. Group Study (1-5) Prerequisite: graduate standing; consent of instructor.

299. Research (1-12) Prerequisite: graduate standing; consent of instructor. (S/U grading only.)

Professional

430. Obstetrics and Gynecology Clerkship (12) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Obstetrics, gynecologic and gynecological oncology experience in the delivery room, operating room, clinics and wards at UCDMC and affiliated sites. Rounds, conferences, interactive student presentations and seminars ongoing. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

439F. SJVP OBGYN Clerkship at UCSF (12) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Obstetrics, gynecologic and gynecological oncology experience in the delivery room, operating room, clinics and wards at UCSF Fresno. Rounds, conferences, interactive student presentations and seminars ongoing. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

439D. Directed Clinical Studies in OBGYN (1-12) Clinical activity—40 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for remediation of all or part of clinical clerkship. Clinical activities to accommodate and satisfy remedial work as directed by the Committee on Student Progress and approved by the course IOR. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

439R. Directed Studies in OBGYN (1-12) Clinical activity—30 hours; independent study—10 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for remediation of all or part of clinical clerkship. Clinical activities to accommodate and satisfy remedial work as directed by the Committee on Student Progress and approved by the course IOR. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

460. Away Clinical Elective in OBGYN (3-18) Clinical activity—30 hours. Prerequisite: third- or fourth-year medical student; course 430 or the equivalent; consent of instructor. Active participation in inpatient and/or outpatient care. Attendance at specified conferences; student/faculty member informal conferences. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

465. Away Acting Internship in OBGYN (3-18) Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and the third-year core clerkships; consent of instructor. Work at the level of a sub intern in an affiliated hospital and will work under the supervision of house staff, fellows, and attendings. May be repeated up to 99 units for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.) Jeierowitz

470. Gynecologic Oncology Acting Internship (3-18) Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and other third-year core clerkships; consent of instructor. Four week elective primarily involves direct inpatient management of patients on the UCDMC Gyn/Onc service. Students will be acting at the level of a sub-intern and will work under the supervision of house staff, fellows, and attendings. May be repeated up to 99 units for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

471. Ambulatory Gynecology and Obstetrics Elective (3-18) Clinical activity—35 hours. Prerequisite: third- or fourth-year Medical Student having successfully completed course 430; consent of instructor of record. Conduct examinations, present patients and discuss treatment regimen. Topics covered by the following ambulatory clinics: General Obstetrics & Gynecology, New and Return Obstetrics (including Post-Partum), High-Risk Obstetrics, Pre-Operative Clinic, and other subspecialty clinics as assigned. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

472. Family Planning and Reproductive Health (1-6) Clinical activity—40 hours; seminar—5 hours. Prerequisite: course 430. Elective that will focus on the Gynecologic Subspecialty of Family Planning. Counseling and provision of contraception methods, experience with pelvic ultrasonography, management of spontaneous, inevitable and induced abortion and postabortion care by both surgical and medical techniques are included. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

475. Labor & Delivery Acting Internship (3-18) Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and the third-year core clerkships; consent of instructor. Four week elective primarily involves direct inpatient management of patients on the UCDMC L&D unit. Students will be acting at the level of a sub-intern and will work under the supervision of house staff, fellows, and attendings. May be repeated for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

480. The Birthing Process (1) Lecture/discussion—1 hour. Open only to UC Davis medical students. Training to assist in the birthing process as a Doula. Topics covered included in the summer course. (S/U grading only.)—F.

493. Gender Specific Medicine SSM (6) Lecture—5 hours; laboratory/clinical—10 hours; laboratory—16 hours; clinical activity—18 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Special Studies Module, a four week course on the topic: Basic Science Principles Relating to Gender Specific Medicine. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

494. Shifa Clinic (6) Clinical activity—8 hours. Prerequisite: medical student in good standing. Restricted to medical student only. Interaction with patients from multiple ethnic and cultural backgrounds under the direct supervision of a physician/preceptor. Women’s health issues and primary care issues in a diversified mixed population. May be repeated up to three times for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

494A. Shifa Clinic (1) Clinical activity—8 hours. Prerequisite: medical student in good standing; consent of instructor. Interaction with patients from multiple ethnic and cultural backgrounds under the direct supervision of a physician/preceptor. Women’s health issues and primary care issues in a diversified mixed population. May be repeated up to three times for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

494C. Shifa Clinic (5) Clinical activity—8 hours. Prerequisite: medical student in good standing; consent of instructor. Interaction with patients from multiple ethnic and cultural backgrounds under the direct supervision of a physician/preceptor. Women’s health issues and primary care issues in a diversified mixed population. (H/P/F grading only; deferred grading only, pending completion of sequence.)—Su. (Su.)

494S. Shifa Clinic (7) Clinical activity—8 hours. Prerequisite: medical student in good standing; consent of instructor. Interaction with patients from multiple ethnic and cultural backgrounds under the direct supervision of a physician/preceptor. Women’s health issues and primary care issues in a diversified mixed population. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W. (W.)

499. Research in Obstetrics and Gynecology (2-12) Clinical activity. Prerequisite: consent of instructor; fourth-year medical student. Research in Obstetrics and Gynecology arranged with instructor. May be repeated eight times for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

Ophthalmology (OPT)

Upper Division

192. Research Internship (1-12) Internship—3-36 hours. Prerequisite: upper division standing; approval of project prior to period of internship by preceptor. Supervised work experience in ophthalmology research. Research staff in Ophthalmology have programs in cell biology, electron microscopy, biochemistry, immunology and visual psychophysics. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5) Prerequisite: consent of instructor. (P/NP grading only.)

Graduate

299. Basic Research in Visual Science (1-12) Prerequisite: consent of instructor. (S/U grading only.)

Professional

442. Introduction to Ophthalmology (3) Clinical activity—40 hours. Prerequisite: third- or fourth-year Medical Student with consent of instructor; consent of advisor; completion of third-year clerkships in Medicine and Surgery; consult Course Coordinator. Ocular disease diagnosis and management relevant to the clinical practice of primary care physicians and others. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

465. Advanced Subspecialty Ophthalmology (3) Clinical activity—40 hours. Prerequisite: Medical students who have completed Internal Medicine 430 in third or fourth year; consent of instructor. Participation in disciplines of neuro-ophthalmology/ pediatric ophthalmology, diseases of the cataract and lens, glaucoma and retina. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)

498. Group Study (1-3) Prerequisite: medical students with consent of instructor. Directed reading and discussion. (H/P/F grading only.)

499. Research in Ophthalmology (1-12) To be arranged—3-36 hours. Prerequisite: medical students with consent of instructor. Individual research on selected topics in ophthalmic physiology, cornea and external disease. (H/P/F grading only.)

Orthopaedic Surgery (OSU)

Lower Division

99. Special Studies for Undergraduates (1-4) Prerequisite: lower division standing and consent of instructor. (P/NP grading only.)

Upper Division

199. Special Study for Advanced Undergraduates (1-5) Prerequisite: upper division standing; consent of instructor. (P/NP grading only.)

Professional

421. The Musculoskeletal System (2.5) Lecture/discussion—4 hours; discussion—2 hours. Prerequisite: consent of committee on student progress. Restricted to Medical students only. Basic and clinical science of orthopaedic surgery and rheumatology. (P/NP grading only.)—F. (F.)

499. Research in Obstetrics and Gynecology (2-12) Clinical activity. Prerequisite: consent of instructor; fourth-year medical student. Research in Obstetrics and Gynecology arranged with instructor. May be repeated eight times for credit. (H/P/F grading only.)—F, W, S, Su. (F, W, S, Su.)
Graduate

290C. Research Conference in Otolaryngology (1)
Lecture/discussion—1 hour. Prerequisite: graduate students; medical students; advanced undergraduates with consent of instructor. Presentation and discussion of faculty and student research in otolaryngology. (P/NP grading only)—F, W, F, W, F

291. Principles of Speech, Hearing and Equilibrium (4)
Lecture/discussion—3 hours. Prerequisite: graduate students; medical students; advanced undergraduates with consent of instructor. Presentations by faculty and guest lecturers on anatomy, physiology, and behaviors involved in speech production, hearing, and equilibrium. Each student will be expected to make one class presentation.—F, W, W, S, Su

299. Individual Study in Otolaryngology for Advanced Graduate Students (1-12)
Prerequisite: advanced graduate student with consent of instructor. (S/U grading only)

Professional

403. Basic Principles of Reconstructive Surgery (1)
Clinical activity—four 2-hour sessions; laboratory—two 2-hour sessions (4 weeks). Prerequisite: third- or fourth-year medical student; consent of instructor. For- mal presentations covering basic principles of recon- structive surgery, including wound healing, treatment of lacerations, skin and bone grafts, flaps, Z-plasties and revision of scars. Laboratory session utilizing animal tissues.—W, W

440. Otolaryngology Required Clerkship (3-9)
Clinical activity—30 hours. Prerequisite: consent by Committee on Student Evaluation and Promotion. Provide fundamental knowledge of otolaryngology-logic diagnosis and principles, develop facility with basic ENT instruments, provide an understanding of treatment for ear, nose and throat problems and pro-vide knowledge of what patients should be referred for otolaryngologic care. (H/P/F grading only)—F, W, S, Su, F, W, S, Su, F, W, S, Su

450. Fourth Year Otolaryngology Elective (6)
Clinical activity—35 hours; lecture—2 hours; film viewing—0.25 hours; discussion—1 hour. Prerequi-site: third- or fourth-year medical student; consent of instructor. Pathophysiology and treatment of disease and operating room. Evaluation and management of common Otolaryngologic diseases. (H/P/F grading only)—F, W, S, Su, F, W, S, Su

460. Clinical Otolaryngology Elective (3-18)
Clinical activity—full time. Prerequisite: third- and fourth-year medical students with consent of instruc-tor; open to graduate students. Approved for gradu-ate degree credit. Total involvement in clinical activities of the Department. (H/P/F grading only)—F, W, S, Su, F, W, S, Su

490. Journal Seminar (1)
Lecture/discussion—10 hours total (course given three times per quarter). Prerequisite: fourth-year medical students with consent of instructor, open to graduate students. Approved for graduate degree credit. Monthly review of current otolaryngologic and related literature and recent advances. (H/P/F grading only)—F, W, S, Su, F, W, S, Su, F, W, S, Su

Pathology (PMD)

Upper Division

192. Internship in Human Pathology (1-12)
Internship—3.36 hours; final project report. Prereq-ui site: upper division standing; approval of project prior to period of internship by preceptor. Supervised work experience in pathology and related fields. (P/NP grading only)

199. Special Study in Pathology for Advanced Undergraduates (1-5)
Prerequisite: advanced undergraduate with consent of instructor. (P/NP grading only)—F, W, S, Su

Graduate

290C. Research Group Conferences (1)
Seminar—1 hour. Prerequisite: graduate level stand-ing. Seminar. Topics on animal models of human di-sease and infectious diseases. May be repeated for credit. (S/U grading only)—F, W, S, F, W, S, F

298. Advanced Group Study (1-5)
Prerequisite: consent of instructor.

Professional

405. Brain Cutting Conference (1-4)
Seminar—1 hour. Prerequisite: third- and fourth-year medical students or consent of instructor. Cur-rent specimens are sectioned, discussed, and clinical correlations proposed. (H/P/F grading only)—F, W, S, Su, F, W, S, Su, F, W, S, Su

407. Advanced Neurpathology (3-18)
Lecture/discussion—40 hours. Prerequisite: third- or fourth-year medical student; consent of instructor. Restricted to Medical students only. Presents an inte-grated introduction to mechanisms of the central and peripheral nervous system injury. Gain an under-standing of pathological mechanisms underlying dis-ease, the anatomic and molecular manifestations of pathologic processes of the CNS and PNS. (H/P/F grading only)—F, W, S, Su, F, W, S, Su

410A. General and Endocrine Pathology (2.5)
Lecture—4 hours; laboratory/discussion—4.5 hours. Restricted to Medical students only. Pathologic mech-anisms of human disease. Concepts of general pathologic processes, i.e., cell death, inflammation and neoplasia. Endocrine pathology in the context of clinical human disease. Emphasis on integration of clinical practice with gross and histologic images emphasizing team-based learning. (P/F grading only)—W, W, W

410B. Systemic Pathology (1)
Lecture—1 hour; laboratory/discussion—0.5 hours. Prerequisite: Approval by SOM Committee on Student Progress. Restricted to Medical students only. Anatomic and clinical pathology of organ system human disease with an emphasis on integration with clinical medicine. Topics include hematopathology and neuropathology. (Deferred grading only, pending completion of sequence. P/F grading only)—F, W, S, Su

410C. Systemic Pathology (2)
Lecture—1 hour; discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students only. Anatomic and clinical pathology of organ system human disease with an emphasis on integration with clinical medicine. Topics include hematopathology, cardiovascular pathology, hematopathology, oncologic pathology, and nephropathology. (Deferred grading only, pending completion of sequence. P/F grading only)—F, W, F, W, W, S, Su, S

410D. Systemic Pathology (2.5)
Lecture—1 hour; discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students only. Anatomic and clinical pathology of organ system human disease with emphasis on integration with clinical medicine.
Course content parallels concurrent clinical courses with integration of lectures and discussions. Topics include gastrointestinal and pancreatic pathology, hepatopathology, oncologic pathology and musculoskeletal pathology. (Deferred grading only, pending completion of sequence. P/F grading only.)—W. (WJ) Olson

345. Clinical Patient Care in Pathology (3-9) Clinical activity—24 hours; independent study—7 hours; lecture/discussion—4 hours. Prerequisite: completion of one of the following 3rd year clerkships: Family Medicine, Internal Medicine, Surgery, OB/GYN or Pediatrics; consent of instructor. Four-week course is designed to give the third-year medical student an exposure to the diverse roles that pathologists have in clinical patient care. May be repeated for credit. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Dwyr

440. Surgery-Pathology-Radiology (SPR) Research Laboratory (2) Lecture—3 hours; laboratory/discussion—2 hours. Provide future clinicians and scientists with basic clinical and bioengineering laboratory skills to prepare for careers in translational research. (P/F grading only)—F, W, S; Su; (F, W, S, Su) Tran, Wang

464. Anatomic Pathology (3-6) Clinical activity—40 hours. Prerequisite: fourth-year Medical Students; consent of instructor. Restricted to Medical Students. Anatomic pathology with an emphasis on autopsy and surgical pathology with application to clinical practice. Specimen grossing, frozen sections, microscopic sign-out and conferences. May be repeated for credit. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Bishop

465. Applied Clinical Laboratory Medicine (3-6) Prerequisite: consent of instructor. Emphasis upon laboratory techniques, procedures and interpretation of laboratory results. Students will be expected to participate fully and in all laboratory operations including reagent preparation, laboratory management, quality control. May be repeated for credit. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Jensen

470. Sub-Specialty in Didactic Pathology (3-16) Lecture/laboratory—25 hours. Prerequisite: consent of instructor. Extremity provides in-depth exposure to one of a variety of subspecialties in Pathology. May be repeated for credit. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Gandon-Edwards

474. Anatomic Pathology Acting Internship (6) Clinical activity—40-80 hours. Prerequisite: fourth-year medical student or first-year medical student with consent of instructor. Restricted to Medical Students only. Year-four level course is designed to provide a concentrated experience in Surgical Pathology and Cytology-pathology. Rotate on the surgical and cytopathology subspecialty teams and assume responsibility for patient cases. A mix of outpatient and inpatient cases is expected. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Bishop

475. Anatomic Pathology Acting Internship (3-9) Clinical activity—40-80 hours. Prerequisite: completion of course 410 series or equivalent; successful completion of third-year clinical rotations; consent of instructor. Restricted to Medical Students only. Year-four level course is designed to provide a concentrated experience in Surgical Pathology and Cytology-pathology. Rotate on the surgical and cytopathology subspecialty teams and assume responsibility for patient cases. May be repeated for credit. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Huang

493. Interdisciplinary Study of Gastrointestinal Cancer (6) Lecture—5 hours; clinical activity—12 hours; laboratory—3 hours; discussion/laboratory—20 hours. Prerequisite: consent of instructor. In-depth study of gastrointestinal, hepatic and pancreatic cancer. Emphasis on integration of basic science and clinical medicine. Participating departments include surgical oncology, medical oncology, gastrointestinal surgery, radiology and radiation therapy. (Same course as Surgery 493D). (H/P/F grading only)—F, S, Su; (F, S, Su) Khatri, Olson

497. Tutoring in Pathology (1-5) Tutoring—3-15 hours. Prerequisite: advanced standing or consent of instructor. Assist instructor by tutoring medical students in preparation for one of the departmental courses that is a component of the required curriculum of the School of Medicine. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Olson

498. Advanced Group Study (1-5) Prerequisite: medical student and consent of instructor. Group study in variety of advanced topics in general, special, experimental, or comparative pathology. (H/P/F grading only)

499. Research (1-18) Prerequisite: medical student; consent of instructor. Limited enrollment. Research in experimental, molecular, comparative, and applied pathology. (H/P/F grading only)

529. Pediatric Research (1-12) Prerequisite: graduate students who are candidates for a degree in some area of biology or behavioral sciences; consent of instructor. (SU grading only)

Professional

401. Preceptorship in Pediatrics (2) Preceptorship—half time. Prerequisite: second-year medical student or first-year medical student with consent of instructor. In-depth preparation for inpatient clinical rotation. Students may observe and participate in primary medical care in a practicing pediatrician’s office. Participation in history-taking and physical examination under the discretion of preceptor and dependent on student’s experience. Evaluation by student. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su)

402. Clinical Experience in Private Practice (1-18) Clinical activity—full time (2 to 12 weeks). Prerequisite: third-or fourth-year medical student; course 430; consent of preceptor and Chairperson. Opportunity to participate in inpatient care and physical examination under the discretion of the preceptor and dependent on student’s experience. Evaluation by student. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su)

405. Pediatrics Lecture Series (0.5) Lecture—15 sessions. Prerequisite: consent of instructor. Lectures will be given in subjects related to Pediatrics, with case presentations and panels from pediatric subspecialists. Topics include, but are not limited to: cardiology, pulmonology, nephrology, gastroenterology, critical care, and primary care pediatrics. May be repeated for credit. —F. (F) Gross

415. Fetal and Neonatal Physiology (1) Lecture/discussion—4 hours; independent study—4 hours. Prerequisite: consent of instructor. Elective is designed to cover selected aspects of the fetal physiology and anatomy and biochemistry of the fetus and newborn with relevant clinical examples of disorders in each of the 10 topics that will be discussed. (P/F grading only)—S. (S) Phillips, Subramanian

430. Pediatric Clerkship (12) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical Students only. Eight-week clinical clerkship providing students with the opportunity to learn fundamentals of caring for the pediatric patient by participating in nursery, ambulatory and inpatient services at UCSF Benioff Children’s Hospital. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Butani, Plant

4390. SJVP Pediatric Clerkship at UCSF (12) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical Students only. Eight-week clinical clerkship providing students with the opportunity to learn fundamentals of caring for the pediatric patient by participating in nursery, ambulatory and inpatient services at UCSF Fresno. Rounds, conferences, and student presentations are included. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Butani, Plant

439D. Directed Clinical Studies in Pediatrics (1-12) Clinical activity—40 hours; independent study—10 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for modified curriculum or to complete a clinical rotation following a leave of absence. May be repeated for credit. (P/F grading only)—F, W, S, Su; (F, W, S, Su)

439R. Directed Studies in Pediatrics (1-12) Clinical activity—30 hours; independent study—10 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for modified curriculum or to complete a clinical rotation following a leave of absence. May be repeated for credit. (P/F grading only)—F, W, S, Su; (F, W, S, Su)

460A. Acting Internship: General Inpatient Pediatric Clerkship (6-18) Clinical activity—full time (4 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member. Limited enrollment. The Ward Acting Intern functions in a manner similar to that of a pediatric intern. The Acting Intern must be available to accommodate and satisfy remedial work as directed by the Committee on Student Progress and approved by the course IOR. May be repeated for credit. (P/F grading only)—F, W, S, Su; (F, W, S, Su)

460B. Acting Internship: Outpatient Pediatrics (3-18) Clinical activity—full time (2 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member. Limited enrollment. Supervised experience in pediatric care on outpatient service at UCSDMC. Student functions as “Acting Intern” with appropriate supervision by residents and attending faculty. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Palmer

461. Pediatric Inpatient AI in Hematology/Oncology (6) Clinical activity—37.5 hours; lecture—7.5 hours. Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of a variety of hematologic disorders in children. Supervised experience in pediatric care on inpatient service at UCSDMC. Students functions as “Acting Intern” with appropriate supervision by residents and attending faculty. (P/F grading only)—F, W, S, Su; (F, W, S, Su) Jawaid

462. Elective in Pediatric Endocrinology (3-18) Clinical activity—full time (2 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of endocrine disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only)—F, W, S, Su; (F, W, S, Su) Jawaid

463. Medical and Mental Health Evaluation of Children at Risk for Maltreatment (3-9) Clinical activity—30 hours; discussion—4 hours. Elective for fourth-year medical students covers basic areas of knowledge needed for child abuse prevention and consultation. Rotation includes legal cases, abuse exams, child and parent interactive therapy
466. Acting Internship in Neonatology (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of cardiologic disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only)—F, W, Su. (F, W, S, Su.) Butani

467. Acting Internship in Pediatric Intensive Care (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of neurologic disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Butani

469. Elective in Pediatric Infectious Disease (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of nosocomial and nosocomial-like disorders in children. Students will participate in other pediatric subspecialty clinics which serve children with nosocomial infections. This course does not satisfy the fourth year neurology requirement. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Chang

471. Elective in Pediatric Gastroenterology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of gastrointestinal disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Kawatsu

472. Clinical Rotation in Adolescent Medicine (3-9)
Clinical activity—39 hours; lecture—1 hour. Prerequisite: fourth year Medical Student; consent of instructor. Under supervision, students will see patients in the UCSF clinic and at a number of community-based sites. Emphasis on education and the socially- mediated problems that face adolescents, including substance abuse, STD’s, pregnancy, depression and suicide. One hour of lecture each week. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Wilkes

473. Away Acting Internship in Pediatrics (6-18)
Clinical activity—40 hours; lecture—6 hours. Prerequisite: satisfactory completion of Pediatrics Clerkship; consent of instructor. Work at the level of a sub intern in Inpatient and/or Outpatient settings. Expectation is to provide direct patient management. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Butani

476. Acting Internship in Neonatology (Su.-F.W.S.Su.)
Clinical activity—full time (4 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of cardiologic disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Berger

479. Living with Intellectual & Developmental Disability in the Community (1-6)
Clinical activity—4 hours; lecture—10 hours; fieldwork—4 hours; seminar—4 hours. Prerequisite: consent of instructor. In-depth experience with Intellectual & Developmental Disability across the lifespan. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Hansen

493C. Fetal and Neonatal Physiology 5SM (6)
Lecture/discussion—24 hours; clinical activity—8 hours. Prerequisite: consent of instructor. Elective is available for students interested in exploring the fascinating world of the fetus and neonate. The elective is designed to combine the basic sciences with relevant clinical examples of disorders. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Chan, Phillips, Tache

498. Directed Group Study (1-5)
Variable—3-15 hours. Explore in-depth various topics in Pediatrics. Extensive contact with and oversight by instructor. May be repeated for credit. (S/U grading only)—F, W, S, Su. (F, W, S, Su.) Chang

499. Research Topics in Pediatrics (1-18)
Prerequisite: student in Medical School with consent of instructor. Individual research project in pediatric subspecialty areas (cardiology, endocrinology, hematology, metabolism, newborn physiology and others) may be arranged with faculty member. Independent research project by student will be emphasized and long-term projects are possible. (H/P/F grading only)

Physical Medicine and Rehabilitation (PMR)
Upper Division
100. Research Approaches to Disability and Rehabilitation (2)
Lecture/discussion—2 hours. Discussion and evaluation of research approaches to medical rehabilitation, community integration, and quality of life of disabled persons, with a focus on the progressive disabilities associated with neuromuscular diseases. Intent is to encourage interest in professions that serve the disabled community and increase awareness of rehabilitation goals. —W.

198. Directed Group Study (1-5)
Prerequisite: advanced standing and consent of instructor. (P/N grading only)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: advanced standing and consent of instructor. (P/N grading only)

Graduate
299. Research (1-12)
Prerequisite: consent of instructor. (S/U grading only)

Professional
405. Healthy Living: Leading by Example (1.5)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Course is to improve the physical and mental health of participating students while supplementing their medical education with specific concepts. May be repeated for credit. (P/F grading only)—F (F)

405A. Healthy Living: Leading by Example (1.5)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Course is to improve the physical and mental health of participating students while supplementing their medical education with specific concepts. May be repeated for credit. (P/F grading only; deferred grading only, pending completion of sequence)—F (F)

405B. Healthy Living: Leading by Example (0.5)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Improve the physical and mental health of participating students while supplementing their medical education with specific concepts. May be repeated for credit. (P/F grading only; deferred grading only, pending completion of sequence)—W (W)

409. Rehabilitation Internship in Medicine Clerkship (3)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor; completion of Internal Medicine 430, Surgery 430. Rehabilitation and comprehensive care of physically disabled and physically medicine management of neurologic, neuromuscular and musculoskeletal disorders. Emphasis on evaluation and conservative treatment of spinal disorders, sports injuries and neuromuscular disease. Emphasis on inpatient rehabilitation, pediatrics, spine or sports possible. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Spalding-Dias

461. Rehabilitation Medicine (6)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor; completion of Internal Medicine 430, Surgery 430. Four-week rotation designed as broad overview of PM&R prac- tice for students interested in residency training in the specialty. Emphasis on evaluation and conservative treatment of spinal disorders, sports injuries, neuromuscular disease, neurological and non-operative orthopedic problems requiring rehabilitative management. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Spalding-Dias
450. School of Medicine

462. Rehabilitation Medicine Clinical Elective (5-18)
Clinical activity — full time. Prerequisite: Internal Medicine 430, Surgery 430; completion of third year in Medical School. Emphasis on evaluation of patients with neurological or orthopaedic problems requiring rehabilitative techniques for their management. Introduction to management of such patients. Physical Medicine and Rehabilitation at off-campus facility must be approved by Chairperson. (H/P/F grading only) — W, S, Su; (W, S, Su) Fukushima.

463. Applied Musculoskeletal Anatomy: Sports & Spine 55M (6)
Lecture — 5 hours; lecture/laboratory — 10 hours; laboratory — 16 hours; clinical activity — 4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. This four-week module will review the anatomy and biomechanics of the musculoskeletal system as well as its associated pathology. The students will be instructed on appropriate musculoskeletal exam techniques and logical approach to the patient in the clinical setting. (H/P/F grading only) — F, W, S, Su; (W, S, Su) Shin.

498. Advanced Group Study (1-5)
Prerequisite: consent of instructor. Study and experience for medical students in any of a number of areas in physical medicine and rehabilitation. (H/P/F grading only).

Psychiatry (PSY)

92. Willow Clinic (1-2)
Clinical activity — 2-6 hours; seminar — 1-2 hours. Open to lower division undergraduate students. Students run clinic for undergraduate students interested in learning about and meeting the unique health care needs for the homeless population. May be repeated for credit. (P/NP grading only) — F, W, S, Su; (F, W, S, Su) Han, McCarron.

Upper Division

92. Willow Clinic (1-2)
Clinical activity — 2-6 hours; seminar — 1-2 hours; lecture — 1-2 hours. Prerequisite: consent of instructor; UC Davis enrollment; upper-division standing. Students run clinic for upper division students interested in learning about and meeting the unique health care needs for the homeless population. May be repeated for credit. (P/NP grading only) — F, W, S, Su; (F, W, S, Su) Han, McCarron.

93. Directed Group Study For Graduate Students (1-5)
Prerequisite: consent of instructor. Restricted to medical students only. Psychiatry internship, Mental Status Exam and diagnosis. Major child and adult disorders, including substance abuse and dependence. Weekly student interviews of psychiatric patients in small group format. (P/F grading only) — W, S, Su; (W, S, Su) Holm.

100. Klingensteiner Summer Elective (2.5)
Clinical activity — 20 hours. Prerequisite: consent of instructor. During this "mini- clerkship," fellows will attend clinics, in-patient settings, and clinicians' offices. They will be expected to present cases and review current literature, and will complete a summary narrative at the end of their experience. (P/F grading only) — S. (S) Horst.

101. Klingensteiner Longitudinal Elective (2)
Clinical activity — 5 sessions; laboratory/discussion — 10 sessions; discussion — 2 sessions. Prerequisite: consent of instructor. Year-long mentoring program providing clinical exposure to child and adolescent psychiatric healthcare during a medical student's pre-clinical years. (P/F grading only; deferred grading only, pending completion of sequence) — W, S, Su; (W, S, Su) Horst.

102. Psychiatry Grand Rounds (1)
Lecture — 1 hour; conference — 2 hours. Prerequisite: students or staff or other qualified mental health professionals with consent of instructor. Weekly conference at UCDMC for presentation of selected clinical cases, presentation of lecture and research reports. (H/P/F grading only) — W, Su; (W, Su) Scher.

103. Outpatient Psychiatry Clerkship (6)
Clinical activity — 36 hours; conference — 2 hours; lecture — 2 hours. Prerequisite: course 430 and/or consent of coordinator. Intensive in-clinic management/treatment of adult outpatients with psychiatric or substance abuse disorders; crisis management/intervention; evaluation/development of diagnosis and treatment plan; emphasis on out-patient psychopharmacology/brief psychotherapy; observation of group therapy. Individual supervision by faculty/residents. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Liu.

104. Psychosomatic Medicine Clerkship (3-12)
Clinical activity — 32 hours; discussion — 8 hours. Prerequisite: Psychiatry Clerkship or consent of instructor; medical students only. A large university hospital service in which the student functions as a member of the team in evaluation, management and psychiatric liaison with other medical specialties. Intensive supervision from senior staff and psychia-tric residents. May be repeated twice for credit. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Liu.

105. Telemedicine Clinical Elective (3-9)
Clinical activity — 20 hours. Prerequisite: MS 4 with consent of Instructor. Fourth-year medical student elective in Telemedicine focusing on psychiatric issues. Align with University, School and Center for Health and Technology outreach and public health, particularly in primary care. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Hilly, Ton.

106. Child Psychiatry Clerkship (6)
Clinical activity — 36 hours; lecture/discussion — 2 hours; conference — 2 hours. Prerequisite: course 430 and/or consent of instructor. Didactic and clinical inpatient, outpatient, and consultation-liaison experiences with children, adolescents and families. Clinical observations, assessment, and treatment will be undertaken with close supervision. Literature review and case conferences presented on a regular basis. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Ton.

107. Jail Psychiatry Clerkship (6)
Clinical activity — 28 hours; conference — 8 hours; lecture — 4 hours. Prerequisite: course 430 and/or consent of course coordinator. Students gain experience, under close faculty supervision, assessing acute and chronic mentally ill inmates in both inpa-tient and clinic settings. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Ton.

108. Off-Campus Clinical Experience (3-9)
Clinical activity — 20-40 hours. Prerequisite: fourth-year medical students; consent of instructor. Clinical or research elective in off-campus medical school or mental approval of instructor and individual in charge of off-campus setting. May be repeated for credit. (H/P/F grading only) — W, S, Su; (W, S, Su).

420. Acting Internship in Psychiatry (62)
Clinical activity — 40 hours. Prerequisite: course 430 and/or consent of course coordinator. Acting intern position with close faculty supervision with emphasis on biological psychiatry, psychopharmacology and psychodynamic aspects appropriate to diagnostic and interventional management. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Liu.

421. Combined Medicine-Psychiatry Clerkship (3-6)
Clinical activity — 32 hours; discussion — 8 hours. Prerequisite: Psychiatry Clerkship or consent of instructor; medical students only. Students will rotate through the county Primary Care under the supervision of dual-boarded Psychiatry and Internal Medicine/Family Practice Faculty to provide medical care of indigent and uninsured patients as well as primary care for psychiatry patients. May be repeated for credit two times. (H/P/F grading only) — F, W, S, Su; (F, W, S, Su) Chen.

422. Readings in Psychiatry (1-3)
Readings/discussion — 3-9 hours. Independent reading of a selected topic in psychiatry. Supervision and discussion with a psychiatry faculty member. (H/P/F grading only) — W, S, Su; (W, S, Su) Scher.

423. Willow Clinic (1-2)
Prerequisite: open to medical students in all four years of medical school. Student run clinic for medical students interested in learning about and meeting the unique health care needs for the homeless popula-tion. May be repeated for credit. (P/F grading only) — F, W, S, Su; (F, W, S, Su) Han, McCarron.

424. Functional Genomics (2)
Lecture — 1 hour; discussion — 1 hour. Prerequisite: graduate standing or consent of the instructor. The theory, methods and principles of functional neurogenomics with emphasis on the relationship to molecular mechanisms involved in development and disease of the nervous system. (H/P/F grading only) — W, (W) Choudhry.

430. Psychiatry Clinical Clerkship (12)
Clinical activity — 45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Assigned to clinical settings, students build upon the skills gained in previous years of emphasis on diagnostic, therapeutic and interpersonal skills. Areas of focus include patient management, inter-viewing skills, mental status exam, differential diagnosis, basic psychopathology and crisis intervention and case referrals. (H/P/F grading only) — F, W, S, Su; Cox.

430FA. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 1 (4)
Clinical activity — 45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence) — S. (S) Tan.

430FB. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 1 (4)
Clinical activity — 45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are
required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F (F) Ton

430FC. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F (F) Ton

430FD. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—F (F) Ton

430FE. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W (W) Ton

430FF. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W (W) Ton

430A. TeachMS Longitudinal Psychiatry Clerkship (A) (4) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Promotions; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Medicine for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—S (S) Ton

430B. TeachMS Longitudinal Psychiatry Clerkship (B) (6) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Promotions; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Medicine for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W (W) Ton

430C. TeachMS Longitudinal Psychiatry Clerkship (C) (2) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Promotions; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Medicine for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W (W) Ton

430D. TeachMS Longitudinal Psychiatry Clerkship (D) (6) Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Promotions; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Medicine for 24 weeks. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—W (W) Ton

439D. Directed Clinical Studies in Psychiatry (1-12) Clinical activity—40 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for modified internship or to complete a clinical rotation following a leave of absence. May be repeated for credit. (P/F grading only)—F, W, S, Su. (F, W, S, Su.)

439R. Directed Studies in Psychiatry (1-12) Clinical activity—30 hours; independent study—10 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for remediation of all or part of clinical rotation. Clinical studies to accommodate and satisfy remedial work directed by the Committee on Student Progress and approved by the course IOR. May be repeated for credit. (P/F grading only)—F, W, S, Su. (F, W, S, Su.)

480. Insights in Psychiatry (1-3) Clinical activity—3–9 hours. Prerequisite: first- or second-year medical student in good academic standing; consent of instructor. On individual basis, student provided with an opportunity for gaining insight into various clinical activities in the practice of psychiatry. (P/F grading only)—F, W, S, Su. (F, W, S, Su.)

488. Acting Internship in Inpatient Psychiatry, Away Rotation (6) Clinical activity—40 hours. Prerequisite: Psychiatry Clerkship and/or consent of course coordinator. Inpatient acting internship at approved non-UCDHS affiliated training program that provides experience and preparation for ambulatory medical care. Students perform as an intern, with a smaller number of patients, greater supervision, and responsibility for the ongoing care of assigned patients. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.)

489. Acting Internship in Ambulatory Psychiatry, Away Rotation (6) Clinical activity—40 hours. Prerequisite: Psychiatry Clerkship and/or consent of course coordinator. Outpatient acting internship at an approved non-UCDHS affiliated training program that provides experience and preparation for ambulatory medical care. Students perform as an intern, with a smaller number of patients, greater supervision, and responsibility for the ongoing care of assigned patients. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.)

493. Culture, Medicine and Society (6) Seminar—16 hours; clinical activity—16 hours; independent study—8 hours; discussion—4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Students will learn about cultural competence in the context of health disparities and barriers to access to health care. Covers (1) Epidemiology/Health Disparities; (2) Society and Medicine; (3) Cinemducation; (4) Reflection/Integration. (H/P/F grading only.)—S (S)

498. Directed Group Study (1-5) Prerequisite: consent of instructor. Approved for graduate degree credit. Medical students desiring to explore particular topics in depth. (H/P/F grading only for graduate or medical students.)

499. Research (1-12) Prerequisite: consent of instructor. Approved for graduate degree credit. Individual research on selected topics or research projects. (H/P/F grading only for graduate or medical students.)

Public Health Sciences (SPH) Lower Division

92. Internship in Community Health (1-12) Internship—3–36 hours. Prerequisite: lower division standing; consent of instructor. Students apply theory and concepts learned in the classroom through field work in a community health agency. (P/F grading only)

Upper Division

101. Introduction to Public Health (3) Lecture—3 hours. Prerequisite: undergraduate standing. Provide basic concepts and controversies in public health, basic science to public health, social and behavioral factors in health and disease, environmental and occupational health issues, the relationship of public health to the medical care system and health care reform. GE credit: SciEng or SocSci SE or SS.—W. S. (W, S) McCurdy

102. Introduction to Human Epidemiology (3) Lecture—1.5 hours; discussion—1.5 hours. Learn and understand the principles of public health as it relates to human populations. The content is fundamental to the Public Health minor and a required core course. GE credit: SE—S. (S) Garcia


161. Women’s Health and Wellbeing (3) Lecture—4 hours; discussion—1 hour. Open to students in the internship program for the Health Education Program only; class size limited to 50 students. Topics include substitution, substance abuse/prevention, nutrition, stress management, physical fitness, body image, reproductive anatomy and physiology, contraceptive options, safer sex, sexual health, healthy relationships, and other general wellness/health promotion topics. Practice in peer counseling and outreach presentations. (P/NP grading only.)—S (S)

162. Substance Abuse Prevention Program Peer Educator Training (4) Lecture/discussion—3 hours; practice—1 hour. Prerequisite: course 160 (may be taken concurrently); consent of instructor. Preparation for internship in campus and community substance abuse prevention and educational intervention. Addition and other physiological responses to alcohol and other drugs. Harm-reduction strategies for individuals and target populations. High risk behaviors. Practice in peer counseling skills and outreach presentations to small and large groups. (P/NP grading only.)—S (S)

163. Health Advocates Peer Educator Training (4) Lecture/discussion—3 hours; practice—1 hour. Prerequisite: course 160 (may be taken concurrently); consent of instructor. Preparation for internship in campus and community substance abuse prevention and educational intervention. Addition and other physiological responses to alcohol and other drugs. Harm-reduction strategies for individuals and target populations. High risk behaviors. Practice in peer counseling skills and outreach presentations to small and large groups. (P/NP grading only.)—S (S)

Fall 2011 and on Revised General Education (GE) AH=Arts and Humanities; SE=Science and Engineering; SS=Social Sciences, ACIGH=American Cultures, Ethnicity, and Gender; VL=Visual; WC=World Cultures; WE=Writing Experience

Pre-Fall 2011 General Education (GE): AH=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Diverse Diversity; Wrt=Writing Experience Quarter Offered: F=Fall, W=Winter, S=Spring, Su=Summer; 2017/2018 offering in parentheses
201. Introduction to Public Health (3) Lecture—3 hours; laboratory/discussion—2 hours. Prerequisite: graduate standing or consent of instructor. Provides an overview of public health. Covers the history of public health in the U.S.; defines its major functions and constituencies; and, introduces fundamental principles of epidemiology, biostatistics, behavioral sciences, environmental health, infectious diseases, and reducing health disparities. May be repeated one time for credit. —Su. (S.) Garcia

203. Learning and Teaching in Public Health Contexts (2) Lecture/discussion—2 hours. Prerequisite: graduate standing or consent of instructor. Aimed at current and future public health professionals interested in learning more about the educational potential for interactions with community members and other health professionals—all stakeholders in improving the health of communities. —S. (S.) Cassidy, Ziegahn

204. Globalization and Health: Evidence and Policies (3) Lecture—3 hours. Open to graduate student standing. Introduces students to the principles and practice of health disparities research. GE credit: DD, SS. —W. (W.) Vogli


207. Advanced Epidemiologic Methodology (3) Lecture/discussion—4 hours. Prerequisite: course 206. In-depth integration of advanced epidemiologic concepts. Theory, methods, and applications for observational studies including random and systematic error control, confounding, causal inference, effect modification, internal and external validity, estimability, and interpretation of effect measures, and advanced study designs. (Same course as Epidemiology 206.) —S. (S.) Hertz-Picciotto, Ginn

209. History of Epidemiology in Public Health (2) Lecture—0.5 hours; discussion—1.5 hours. Introduction to the history of epidemiology in solving major public health problems. Original historical articles will be read/discussed. Topics may include: infectious disease, accidents/adverse events, nutritional deficiencies, community vaccination trials, occupational exposures, cancer, birth defects, cardiovascular disease, and smoking. (Same course as Epidemiology 209.) —F, W. (F, W.) S. Garcia

210. Public Health Informatics (2) Lecture—2 hours; laboratory—2 hours. Restricted to upper division or graduate students. Collection, verification, and utilization of data related to populations, infrastructure used to generate public health knowledge supporting public health practices and policy development/dissemination. (S/U grading only.) —Su. (S.) Hogarth

211. Infectious Disease Epidemiology (3) Lecture—2 hours; laboratory—1 hour. Prerequisite: introductory epidemiology course e.g., Epidemiology 205. Infectious disease epidemiology and prevention, with emphasis on human and veterinary diseases of global health importance. Major global health epidemics and challenges of infectious diseases, by mode of transmission. (Same course as Epidemiology 231.) —W. (W.) DeKriemer

212. Migration and Health (3) Lecture/discussion—3 hours. Prerequisite: graduate standing. Principles of migration and health. Topics will include demographics, public health intervention programs, health care delivery, occupational health, and effects of international migration on the health in communities of origin, transit, and destination. Guest presentations by outside experts. Offered in alternate years. —S. (S.) Schenker

222. Social & Behavioral Aspects of Public Health (3) Lecture/discussion—3 hours. Prerequisite: consent of instructor required; graduate standing, Statistics 102 and 106. Theories and strategies of health behavior change at the individual, community, and environmental levels. Examples include: transtheoretical model, social networks, and social marketing. Topics are applied to solve common public health problems (cancer, obesity, smoking, and HIV/AIDS). —W. (W.) De Vogli

223. Obesity Prevention in Community Settings (3) Lecture/discussion—3 hours. Prerequisite: consent of instructor. Look and causes of the obesity epidemic in the U.S.; identify and critically assess the research literature on obesity intervention with emphasis on human and veterinary epidemiology. —S. (S.) Cassidy

232. Health Communication (4) Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Health communication theories and research traditions. Topics include consumer health information seeking; physician-patient interaction; information, social marketing, “edutainment,” and media advocacy campaigns; social marketing and media influences on health; and new communication technologies in health promotion and healthcare delivery. (Same course as Communication 232.) Offered in alternate years. —F. (F.) Cassidy

244. Introduction to Medical Statistics (4) Lecture/discussion—6 hours; laboratory/discussion—3 hours. Introduction to statistical methods and software in clinical, laboratory and population medicine. Graphical and tabular presentation of data, probability, binomial, Poisson, normal, t, F, and Chi-square distributions as fixed parameters, simple linear regression and correlation, life tables. Only undergraduates who have completed Statistics 100 or Preventative Veterinary Medicine 402. —Su. (S.) Yang

245. Biostatistics for Biomedical Science (4) Lecture—4 hours. Prerequisite: Clinical Research 244 or consent of instructor. Analysis of data and design of experiments for laboratory data. (Same course as Clinical Research 245.) —W. (W.) Kim

246. Biostatistics for Clinical Research (4) Lecture—4 hours. Prerequisite: Clinical Research 244 or Clinical Research 245. Emphasizes critical biostatistics for clinical research and targets biomedical audience. Students will develop understanding for basic planning and analysis of clinical studies and learn to determine collaborations with biostatisticians. (Same course as Clinical Research 246.) May be repeated for credit. Offered in alternate years. —W. Qi

247. Statistical Analysis for Laboratory Data (4) Lecture—4 hours. Prerequisite: Clinical Research 245 or course 245. Statistical methods for experimental design and analysis of laboratory data, including gene expression arrays, DNA-Seq, and mass spec. (Same course as Clinical Research 247.) —S. Raffke

252. Social Epidemiology (2) Lecture/discussion—2 hours. Prerequisite: Epidemiology 205A; consent of instructor. Social determinants of health; psychosocial and physiological pathways; health and social inequality; gender and racial/ethnic disparities in health; social support, social cohesion and health; social gradient in behavioral factors; social ecological approaches to health intervention; interventions addressing social determinants. (Same course as Epidemiology 252.) —S. (S.)

255. Human Reproductive Epidemiology (3) Lecture—3 hours. Prerequisite: Preventive Veterinary Medicine 405, 406, Physics 220, Physiology 222 or equivalents or consent of instructor. Human reproductive effects and risk of reproductive disorders, examined from macro and micro-environmental exposures in community and occupational settings, epidemiologic study designs and analyses. Offered in alternate years. —F. Hertz-Picciotto

256. Principles of Environmental Health Science (3) Lecture—3 hours. Prerequisite: consent of instructor required. Principles, approaches, and issues related to environmental health. Recognizing, assessing, understanding and controlling the impact of people on their environment and the impact of the environment on the public. —F. (F.) Bennett

258. Public Health Ecometrics (2) Laboratory/discussion—3 hours. Prerequisite: consent of instructor. Principles and applications in analysis of epidemiologic data. Methods of analyzing stratified and matched data, logistic regression, and case-control studies. Poisson regression, survival-time methods. (Same course as Population Health and Reproduction 266.) —S. (S.) Kass, Kim

273. Health Services Administration (3) Laboratory—3 hours. Prerequisite: consent of instructor. Limited enrollment. Structure and function of public and private medical care. Topics include categories and trends in national medical spending, predictors of patient use, cost-containment, HMOs, Medicare, Medicaid, costs of technology, and medical care in other countries. —W. (W.) Leight

276. Critical Assessment in Health Policy and Economics (2) Lecture/discussion—2 hours. Course aims to develop critical reading skills of the health policy and health economics literature, mainly following the microeconomic paradigm and microeconomic theories. Some basic concepts of microeconomic theory will be explained in the class. —F. W. (F, W.) Yoo

290. Topics in Public Health (1) Seminar. Prerequisite: consent of instructor. Open to students in Master of Public Health program, or permission of instructor. Seminar in key issues and current topics in public health. Course begins in August
SSII. Students must enroll in August, then Fall and Winter. The course is a series of base grades and units are assigned at end of each quarter. May be repeated four times for credit. [S/U grading only]—F, W, S, Su. [F, W, S, Su.] Kass, McCurdy

295. International Health (2)
Lecture/discussion—2 hours. Prerequisite: graduate standing or consent of instructor. Forum for learning health issues and health care systems in other countries. Topics include health care for refugees, the impact of political strife on health, the health care professional in international settings. [S/U grading only]—S. (J.) Koga

297. Public Health Practicum (1-16)
Prerequisite: consent of instructor. Open to Master of Public Health students. Practical fieldwork experience in public health. Placement site will vary based on the interest and experience of each student. May be repeated four times for credit. [S/U grading only]—F, W, S, Su. [F, W, S, Su.] McCurdy

298. Study in Community and International Health (1-5)
Prerequisite: graduate student in good academic standing; consent of instructor. Study and experience for graduate students in any number of areas in community and international health. [S/U grading only]—F, W, S, Su. [F, W, S, Su.]

299. Research in Community and International Health (1-12)
Prerequisite: graduate standing; consent of instructor. Students will work with a faculty member in areas of research interest, including but not limited to injury control, international health, health policy, occupational and environmental health, health promotion and wellness, women’s health, and health demographics. [S/U grading only]—F, W, S, Su. [F, W, S, Su.]

Professional

402. Introductory Medical Spanish (2)
Lecture—2 hours. Prerequisite: medical student or consent of instructor. The vocabulary needed to conduct a basic history and physical examination will be taught. May be repeated two times for credit. [S/U grading only]—S. (J. H.)

461. Clerkship in Community Health Group Practice (3-9)
Clinical activity—full time (2-6 weeks). Prerequisite: third or fourth-year medical student. Overview of local community health in group practice situations. Students participate in treatment at several clinic sites in Yolo County. Topics include primary care, environmental health, maternal and child health, jail health, and care for the aged. [S/U grading only]—F, W, S, Su. [F, W, S, Su.]

465. Community Health Preceptorship (3-18)
Clinical activity—5-40 hours. Prerequisite: fourth-year medical student; consent of instructor. Participate at state or county health department or other public health organization in on-going investigations into current public health problem, e.g., birth defects, cancer control, diabetes, hypertension, injury control, infectious diseases, aging, Alzhei-mer’s disease, and smoking and tobacco use control. [H/P/F grading only]—F, W, S, Su. [F, W, S, Su.] McCurdy

466. Occupational and Environmental Medicine Elective (6-12)
Clinical activity, laboratory. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Participate in activities of Occupational and Environmental Health Unit. Major activity is involvement in an epidemiologic research project of the University. Participate in Occupational and Environmental Medicine Clinic at UC Davis Medical Center and other sites, as arranged. [H/P/F grading only]—F, W, S, Su. [F, W, S, Su.] McCurdy

470. Clinical Selective in Occupational and Environmental Medicine (3-12)
Clinical activity—9-18 hours. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Outpatient clinical experience in Occupational and Environmental Medicine at UCDMC and other sites, as arranged. Gain experience in evaluating occ/env medical conditions, use of medical literature, the physician’s competencies, evaluation system, and occupational principles. Students may take up to four weeks for six units. [H/P/F grading only]—F, W, S, Su. [F, W, S, Su.] McCurdy

480. Insights in Occupational and Environmental Medicine (1-3)
Clinical activity—3-9 hours. Prerequisite: first- or second-year medical student in good academic standing; consent of instructor. Observe and participate in research and clinical activities in occupational and environmental medicine which include conferences, occupational and environmental medicine clinical activities and field visits. Develop and present small individual research projects. [P/F grading only]—F, W, S, Su. [F, W, S, Su.] McCurdy

495. International Health (2)
Lecture/discussion—2 hours. Prerequisite: medical student in good academic standing; consent of instructor. Study and experience for medical students in areas in community and international health. [H/P/F grading only]—S. (J.) Koga, Schenker

496. Current Issues in Public Health (1)
Lecture/discussion—1 hour. Topical issues in public health. Speakers from the local public health community address issues in disease control programs, access to care. May be repeated up to three times for credit. [P/F grading only]—S. (J.) McCurdy

498. Study in Public Health Sciences (1-6)
Clinical activity—full time (2-6 weeks). Prerequisite: medical student in good academic standing and consent of instructor. Study and experience for medical students in areas in community and international health. [H/P/F grading only]—F, W, S, Su. [F, W, S, Su.]

499. Research in Public Health Sciences (1-9)
Prerequisite: medical students with consent of instructor. Work with faculty member in areas of research interest, including but not limited to injury control, international health, health policy, occupational and environmental health, health promotion and wellness, women’s health, and health demographics. [H/P/F grading only]—F, W, S, Su. [F, W, S, Su.]

Radiation Oncology (RON)

Upper Division

199. Special Study for Advanced Undergraduate Students; Research in Radiation Biology (1-5)
Prerequisite: undergraduate standing; consent of instructor. Radiation Oncology is a unique discipline combining elements of clinical practice linked to complex physics based dosimetry and treatment planning. Included within this clinical environment is a strong basis in biology that underpins the clinical effectiveness of radiation treatment. [P/NP grading only]—F, W, S, Su. [F, W, S, Su.]

211. Introduction to Radiation Oncology Physics (3-6)

Graduate

213. Advanced Clinical Clerkship in Radiation Oncology (3-6)
Clinical activity—3-6 hours. Prerequisite: consent of instructor. Medical radiation biology; molecular cellu-lar and organ system response to acute and chronic irradiation; radiobiological effects and genetic effects; radiation risk assessment; diagnostic ultrasound and magnetic resonance imaging health effects. Medical/legal considerations of radiation exposure. Offered in alternate years. [H/P/F grading only]—S. Bushberg

461. Advanced Clinical Clerkship in Diagnostic Radiology (3-6)
Clinical activity—35 hours; conference—4 hours; diagnosis/laboratory—1 hour. Prerequisite: satisfactory completion of second year medical school curriculum and of third-year clerkships in Internal Medicine and General Surgery; consent of instructor. Restricted to eight students for each rotation. Open to visiting medical students from accredited programs. Work with clinical radiologists in image interpreta-tion, fluoroscopy angiography image-guided intervention, cardiac stress testing radiouclide therapy.
4.54 Medicine, School of

Daily conferences in Radiology Diagnosis and Ther-apy Health Physics Radiation Safety. Prepare two clinical cases for discussion. Assigned readings. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Bateni, Shakeri

4.62. Diagnostic Imaging of Acquired and Congenital Heart Disease (2)
Lecture/discussion—5 hours [for 3 weeks]. Prerequisite: fourth-year medical student with interest in Diagnostic Radiology. Assigned readings. Credit limited to 3 units for 2 weeks, 6 units for 4 weeks. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Link

4.77. Advanced Clinical Clerkship in Ultrasound Radiology (3-6)
Clinical activity—30 hours; conference—5 hours. Opportunity to assess patients for interventional procedures. There will be opportunities to Daily conferences in Neuroradiology, General Radiology, Health Physics, and Radiology Safety. Assigned readings. Credit limited to 3 units for 2 weeks, 6 units for 4 weeks. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) McGahan

4.78. Advanced Clinical Clerkship in Pediatric Imaging (3-6)
Clinical activity—35 hours; conference—4 hours; independent study—1 hour. Prerequisite: fourth-year medical student with interest in Pediatric Radiology. Assigned readings. Credit limited to 3 units for 2 weeks, 6 units for 4 weeks. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Bobinski

4.79. Specialty Externship in Pediatric Radiology (3-6)
Clinical activity—25 hours; discussion—10 hours. Prerequisite: consent of instructor. Externship provides in-depth exposure to a variety of therapeutic specialties. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Hagge

4.98. Group Study in Diagnostic Radiology (1-12)
Clinical activity—25 hours; discussion—10 hours. Prerequisite: consent of instructor. (H/P/F grading only)

4.99. Independent Study and Research in Therapeutic Radiology (1-18)
Prerequisite: consent of instructor. Advanced-level research seminar in clinical and/or translational radiation oncology. Course instructor to generate a testable hypothesis. May be repeated for credit. (H/P/F grading only)—F, W, S, Su. (F, W, S, Su.) Coleman, Fragoso, Li, Mayadev, Monjazeb, Vaughan

Radiology—Nuclear Medicine (RNU)

Upper Division

190. Directed Group Study (1-5)
Prerequisite: upper division standing and consent of instructor. (P/NP grading only)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: upper division standing and consent of instructor. (P/NP grading only)

Graduate

299. Research (1-12)
Prerequisite: graduate standing and consent of instructor. (S/U grading only)

Professional

340. Surgery Clerkship (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Eight week general surgery clerkship includes GI, Burn, Oncology, Plastics, Vascular Cardiothoracic, consult, transplant and trauma. Clerkship assignments are at UC Davis Medical Center. Offered in alternate years. (H/P/F grading only)—F, W, S. su. (F, W, S, Su.) Shelton

430F. SJVP Surgery Clerkship at UCSF (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Eight week general surgery clerkship includes GI, Burn, Oncology, Plastics, Vascular Cardiothoracic, consult, transplant and trauma. Clerkship assignments are at UC Davis Medical Center. Offered in alternate years. (H/P/F grading only)—F, W, S. su. (F, W, S, Su.) Shelton

Fall 2011 and on Revised General Education (GE): AH=Arts and Humanities; SC=Science and Engineering; SS=Social Sciences; AC=American Cultures; DD=Diverse Domestic; OD=Other Skills; OL=Quantitative; VL=Visual; WC=World Cultures; WE=Writing Experience
Pre-Fall 2011 General Education (GE): Ahum=Arts and Humanities; ScEng=Science and Engineering; SocSci=Social Sciences; Div=Diverse Domestic; WRI=Writing Experience
Quarter Offered: F=Fall; W=Winter; S=Spring; Su=Summer; 2017/2018 offering in parentheses
493H. Fourth-Year Surgical Honors Program (18) Prerequisite: completion of third year of medical school with superior performance on course 430, consent of instructor. To provide intensive and comprehensive training in surgery to students interested in a postgraduate surgical career, that would enable them to succeed during the internship and residency training.

(H/P/F grading only)—F, W, S, Su

Holcroft

481. Interactive Clinical Case Presentation (ICCP) (3) Clinical activity—1 hour. Prerequisite: fourth-year medical students; however, course is open for third and fourth year student observers. Course taught as one session (4 hours) per month for three quarters (July to March); students must earn a minimum of three credits and the minimum requirements will be to attend at least six sessions; students can do all nine sessions and work toward an honor; for the written part students will turn in two of the nine case presentations and write a detailed paper with a literature review on “The Current management” of that disease(s) in order to be a manuscript submitted for publication with a faculty member as an adviser; maximum of 10.5 S's in good standing. Case presentation of common clinical scenarios (i.e. chest pain/MI; fever/pneumonia; abdo pain/ileus; etc.) from various discipline held in an auditorium with real patients exposure. Interactive session to review history, physical findings and case management. Students will be asked to perform H&P.

(H/P/F grading only)—F, W, S, Su

Kharti

493B. Critically Ill Surgical Patients SMS (6) Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical—4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Special Study Module; a four week course on the topic: Application of Basic Cardiopulmonary Physiology to Problems Encountered in Critically Ill Surgical Patients. (H/P/F grading only)—F, W, S, Su

Holcroft

493C. Physiological Principles in SICU SMS (6) Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical—4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Special Study Module; a four week course on the topic: Application of Basic Cardiopulmonary Physiology to Problems Encountered in Critically Ill Surgical Patients. (H/P/F grading only)—F, W, S, Su

Holcroft

493D. Interdisciplinary Study of Gastrointestinal Cancer (6) Lecture—5 hours; clinical—12 hours; laboratory—3 hours; discussion/laboratory—20 hours. Prerequisite: consent of instructor. In-depth study of gastrointestinal, hepatic and pancreatic cancer. Emphasis on an integration of basic science and clinical practice. Emphasis on basic science is required. Student must attend all sessions, participate in case presentations and write a detailed paper with a literature review on “The Current management” of that disease(s) in order to be a manuscript submitted for publication with a faculty member as an adviser; maximum of 10.5 S's in good standing. Case presentation of common clinical scenarios (i.e. chest pain/MI; fever/pneumonia; abdo pain/ileus; etc.) from various discipline held in an auditorium with real patients exposure. Interactive session to review history, physical findings and case management. Students will be asked to perform H&P.

(H/P/F grading only)—F, W, S, Su

Holcroft
495. Intensive Introduction to Cardiac Surgery (3)
Clinical activity—16 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor. Restricted to medical student between first and second year. Class contact with vascular surgeon for two-week period. Includes Sunday mornings. 100% mandatory attendance. Physiology of going on and off cardiopulmonary bypass. Atherosclerotic cardiovascular disease, structural and valvular heart disease and electrical and rhythmic heart disease. May be repeated one time for credit. (P/F grading only).—Su. (Su.) Jan

498. Group Study (1-5)
Prerequisite: medical student; consent of instructor. Directed reading and discussion and/or laboratory investigation on selected topics. (P/F grading only).—F, W, S, Su. (F, W, S, Su.)

499. Laboratory Research (1-12)
Laboratory—3-36 hours. Prerequisite: completion of second year of medical school; consent of instructor. Laboratory research on surgically related problems. Participation in projects to include the following: burn, nutrition, oncology, transplant and urology. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

500. Office Urology (1)
For preclinical years. Prerequisite: completion of second-year medical student; consent of instructor. Limited introduction to basic principles of urologic disease. May be repeated for credit. (P/F grading only).—F, W, S, Su. (F, W, S, Su.)

501. Urology Clinical Clerkship (5-18)
Clinical activity—full time. Prerequisite: second-year medical student; consultation of instructor. Limited introduction to therapeutic and diagnostic procedures in urology. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

460. Clinical Plastic Surgery Elective (1-18)
Clinical activity—full time (approximately 40 hours per week). Prerequisite: third- or fourth-year medical student, Surgery 430; consent of instructor. Total involvement in patient care involving surgical preparation, treatment, operative care, and follow-up. Developing an understanding of reconstructive and aesthetic plastic surgery. Microvascular surgery included. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

Surgery—Plastic Surgery (PSU)

Professional

460. Clinical Plastic Surgery Elective (1-18)
Clinical activity—full time (approximately 40 hours per week). Prerequisite: third- or fourth-year medical student, Surgery 430; consent of instructor. Total involvement in patient care involving surgical preparation, treatment, operative care, and follow-up. Developing an understanding of reconstructive and aesthetic plastic surgery. Microvascular surgery included. Student rotation. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

Urology (URO)

Upper Division

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

Professional

400. Office Urology (1)
Clinical activity—4 hours in afternoons (6 weeks). Prerequisite: for fourth-year medical students with consent of instructor. Introduction to ambulatory care of urologic patients including basic therapeutic and diagnostic procedures from case material referred to private clinic. Management of urinary tract infection will be emphasized. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

460. Urology Clinical Clerkship (5-18)
Clinical activity—full time. Prerequisite: second-year medical student; physical diagnosis or equivalent; consent of instructor. Limited enrollment. Clinical experience in diagnosis and treatment of urologic disease. Student will work closely with house staff, participate in conferences and surgery, and perform initial patient evaluation on new patients. May be repeated for credit. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

461. Extremity Urology (3-18)
Clinical activity—60 hours. Prerequisite: fourth-year medical student; consent of instructor. Under supervision, student acting as intern will assume full inpatient responsibility including admission history, physical examination and management of hospitalization, and participate in surgical procedures, outpatient clinic and diagnostic and therapeutic procedures. May be repeated for credit. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)

499. Research in Urology (1-12)
Research—3-36 hours. Prerequisite: medical or veterinary medical student with consent of instructor. Research in oncology, male infertility, urodynamics, neurogenic bladder. Unique opportunity to apply recent technologies (nuclear medicine resonance, flow cytometry, recombinant DNA) in investigation, diagnosis and treatment of GU cancer, infectious disease, male infertility and development of genitourinary bioprosthesis. (H/P/F grading only).—F, W, S, Su. (F, W, S, Su.)/Ghosh, Kurzrock

Medicine and Epidemiology

See Medicine and Epidemiology (ME), on page 582.

Medieval and Early Modern Studies

[College of Letters and Science]
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Committee in Charge
Carlson Arnett, Ph.D. (German/Russian)
Catherine Chin, Ph.D (Religious Studies)
Sally McKee, Ph.D. (French)
Matthew Vernon, Ph.D. (English)
Hegnarr Watenphaugh, Ph.D. (Art History)

The Major Program

The major in Medieval and Early Modern Studies examines the intellectual, political, and cultural forces that shaped modern European civilization during the period from the end of Ancient Rome (fifth century) to the beginning of the Enlightenment (mid-eighteenth century). An interdisciplinary and interdepartmental major, the program includes studies in history, art history, philosophy, literature, drama, music, national languages, religion, rhetoric, and political theory.

The Program. The major requires interdisciplinary work, while allowing the student to focus on the early Middle Ages, the High Middle Ages, the Renaissance, or the Baroque. The series of medieval and early modern courses in the program provides the foundation for the major and prepares students for advanced work within the individual disciplines. On the upper-division level, students may choose course work in specific areas of History, Comparative Literature, English, French, German, Italian, Spanish, and Latin; philosophy and religion, arts and language, and political thought. In addition, each student may elect to complete a senior thesis on a selected aspect of medieval and/or early modern culture.

Career Alternatives. The major in Medieval and Early Modern Studies is a liberal arts degree providing excellent preparation for the rigors of professional schools as well as careers in law, museology, journalism, and teaching.

Medieval and Early Modern Studies

A.B. Major Requirements: UNITS
Preparatory Subject Matter................... 22
Medieval Studies 20A, 20B, 20C................... 10 Three additional courses chosen from: Art History 18, 1C, 1E; Comparative Literature 2, 10A, 10B, 10C, 10D, 10E; English 10A; German 48; History 44A, 48, Humanities 1*, 9; Philosophy 21, 22. 12 language proficiency is a desideratum. Courses in Latin and other European languages are strongly recommended, particularly for students planning to pursue graduate studies in the medieval or early modern field.

Depth Subject Matter.......................... 44
In consultation with the undergraduate adviser, students select a total of eleven courses from the following disciplines with at least three courses each from the medieval and early modern periods:
Medieval History 155, 156, 178A, 178B, 178C, 179B, 190B, 190C
Classics 110
Comparative Literature 139, 164A, 164B, 164C, 164A, 180A
English 111A, 113A, 113B, 117, 112, 150A, 153*, 165*, 185A*, 188*, 189*
French 115, 116, 117A, 118B, 141*
German 101A, 112*, 120, 121, 122, 124*, 131, 134*, 169*

Music 121*, 124A, 124B
Philosophy 105, 145, 165, 170, 172
Political Science 115, 116, 118A
Religious Studies 102, 115, 117A
Spanish 130, 133A, 133B, 134A, 134B, 142*

Total Units for the Major....................... 66
* Prior approval by Undergraduate Adviser necessary.

Major Adviser. See Program office.

Minor Program Requirements:

Medieval and Early Modern Studies

The minor in Medieval and Early Modern Studies is a coherent program of interdisciplinary study. Medieval and Early Modern Studies units may be taken in one or more of the traditional fields of concentration, including art, history, literature, music, national languages, philosophy, political theory, and religious studies. Courses must be upper-division with at least two courses each from the medieval and early modern periods. Students may also select a minor with a thematic emphasis.

Although there is no foreign language requirement for the minor, knowledge of Latin or a modern European language is recommended. The minor must be designed in consultation with the Undergraduate Adviser.

Minor Adviser. See Program office.

Courses in Medieval Studies (MST)

Lower Division

20A. Early Medieval Culture (5)
Lecture—3 hours; discussion—1 hour; extensive writing. Readings (in translation) in medieval culture, such as Codes of Justinian, Confessions of Saint Augustine, Beowulf, the Nibelungenlied, The Song of Roland, the Summa Theologica, and the Peasants’ Revolts, the Renaissance, Reformation and Counter-Reformation, and the Baroque. GE credit: ArtHum, Wrt|AH, WC, WE.—F. (F)

20B. The Culture of the High Middle Ages (5)
Lecture—3 hours; discussion—1 hour; extensive writing. Great transformations that created the modern world: Constitutional Government, the Hundred Years War, the Black Death, and the Reformation. GE credit: ArtHum, Wrt|AH, WC, WE.—W. (W)

98. Directed Group Study (1-5) (P/NP grading only)

99. Special Study for Undergraduates (1-5) (P/NP grading only)