Medical Informatics (A Graduate Group)


258A. Numerical Optimization (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 25, 167. Numerical methods for infinite dimensional optimization problems. Newton and Quasi-Newton methods, linear and sequen-tial quadratic programming, barrier methods, large-scale optimization, theory of approximations; infinite and semi-infinite programming; applications to optim-al control, stochastic optimization and distributed systems. Offered in alternate years.—(I.)

258B. Variational Analysis (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 25A, 167, or consent of the instructor. Foundations of optimization theory. The design of solution procedures for optimization prob-lems. Modeling issues, and stability analysis. Offered in alternate years.—(II.)

261A. Lie Groups and Their Representations (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 215A, 240A, 250A-250B or the equivalent or consent of instructor. Lie groups and Lie algebras. Classification of semisimple Lie groups. Classical and compact Lie groups. Representations of Lie groups and Lie algebras. Root systems, weights, Weyl character formula. Kac-Moody and Virasoro algebras. Applications. Offered in alternate years.—(II.)

261B. Lie Groups and Their Representations (4)

265. Mathematical Quantum Mechanics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 215A, 240A, 250A-250B or the equivalent or consent of instructor. Mathematical foundations of quantum mechanics: the Hilbert space and Operator Algebra formula-tions; the Schrödinger and Heisenberg equations, symmetry in quantum mechanics, basics of spectral theory and perturbation theory. Applications to atoms and molecules. The Dirac equation. Offered in alternate years.—(I.)

266. Mathematical Statistical Mechanics and Quantum Field Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 265 or consent of instructor. Mathematical principles of statistical mechanics and quantum field theory. Topics include classical and quantum lattice systems, variational principles, spon-taneous symmetry breaking and phase transitions, second quantization and Fock space, and funda-mentals of quantum field theory. May be repeated one time for credit. Offered in alternate years.—(II.)

271. Applied and Computational Harmonic Analysis (4)
Lecture—3 hours; extensive problem solving. Prereq-uisite: courses 1229 or 201C, and 1288 or 167, or 129 or equivalent, or consent of instructor. Intro-duction to mathematical basic building blocks (wave-lets, local Fourier basis, and their relatives) useful for diverse fields (signal and image processing, numeri-cal analysis, and statistics). Emphasis on the connec-tion between the continuum and the discrete worlds. Offered in alternate years.—(II.)

280. Topics in Pure and Applied Mathematics (3)
Lecture—3 hours. Prerequisite: graduate standing. Special topics in various fields of pure and applied mathematics. Topics selected based on the mutual interests of students and faculty. May be repeated for credit when topic differs.—I, II, III, (I, II, III)

290. Seminar (1-6)
Seminar—1-6 hours. Advanced study in various fields of mathematics, including analysis, applied mathematics, discrete mathematics, geometry, mathe-matical biology, mathematical physics, optimization, partial differential equations, probability, and topology. May be repeated for credit. (S/U grading only)—I, II, III, (I, II, III)

298. Group Study (1-5)
299. Individual Study (1-12)
(S/U grading only)—I, II, III, (I, II, III)

299D. Dissertation Research (1-12)
(S/U grading only)—I, II, III, (I, II, III)

Professional

301A-301B-301C. Mathematics Teaching Practicum (3-3-3)
Fieldwork—5 hours; discussion—1 hour. Prerequi-site: course 202A-202B-202C and 303A-303B- 303C concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and cross observing classes taught using large group Socratic techniques, small group guided inquiry experiences, and/or other approaches to teaching at various grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.

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

303A-303B-303C. Mathematics Pedagogy (1-1-1)
Lecture/discussion—1 hour. Prerequisite: course 302A-302B-302C or 210L 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.

390. Teaching Assistantship Training (3)
Lecture—3 hours. Prerequisite: graduate standing in the Department of Mathematics. Experience in meth-ods of assisting and teaching of mathematics at the university level. Includes discussion of lecturing tech-niques, running discussion sessions, holding office hours, preparing and grading of examinations, stu-dent-teacher interaction, and related topics. Required of departmental teaching assistants. (S/U grading only)—I, II, III, (I, II, III)

399. Individual Study (2-4)
Independent study—2-3 hours; discussion—1 hour. Individual study of some aspect of mathematics edu-cation or a focused work on a curriculum design project under supervision of a faculty member in mathematics. May be repeated one time for credit. (S/U grading only)—I, II, III, (I, II, III)

Medical Informatics (A Graduate Group)

See Health Informatics (A Graduate Group), on page 333.

Medical Microbiology

See Medicine, School of, on page 396.

Medical Pharmacology and Toxicology

See Medicine, School of, on page 396; and Medicine and Epidemiology (VME), on page 539.

Medical, School of

Julie Ann Freischlag, M.D.
Vice Chancellor of Human Health Sciences Dean, School of Medicine
Fred Meyers, M.D., M.A.C.P.
Vice Dean, School of Medicine
Thomas Nesbitt, M.D., M.P.H.
Associate Vice Chancellor for Strategic Technologies and Alliances; Director, Center for Health and Tech-nology
David Acosta, M.D.
Associate Vice Chancellor for Equity, Diversity and Inclusion
Lars Berglund, M.D., Ph.D.
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
James Goodnight, Jr., M.D.
Associate Dean for Clinical Affairs and Director of Practice Management Group
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., Ph.D.
Associate Dean for Graduate Medical Education
Andrea Seritan, M.D.
Associate Dean for Student Wellness
Mark Servis, M.D.
Senior Associate Dean for Curriculum and Compe-tency Development
School of Medicine Dean's Office
4610 X Street
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http://www.ucdmc.ucdavis.edu/medschool/

Faculty

To search for current faculty, see http://www.ucdmc.ucdavis.edu/search/faculty/searchdetail.asp?searchtype=3
Admission Requirements and Professional Curriculum

Detailed information can be obtained from the School of Medicine; see School of Medicine, on page 127.

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 [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 to May and is organized into two blocks. The basic science portion of the first 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 molecule to cell, tissue and major organ systems. The three year Doctoring curriculum begins in January and is presented concurrently with the other courses. The focus of Doctoring 1 is physical examination training using standardized patients and models, correlated with concepts in 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 cover basic science courses throughout the block for formative assessment, and all courses administer comprehensive summative final examinations in December.

The second 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 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. Preceptorships and home visits continue. The Doctoring 2 course concludes with a comprehensive final examination, and also includes an observed comprehensive history and physical examination.

The first year curriculum ends with a six week unscheduled block that may be used for vacation, remediation, electives, research, and international experiences.

The second year curriculum is composed of three blocks (Blocks 3-5). Block 3 begins in late June and extends through August with a neuroscience block composed of integrated neuroanatomy-clinical neuroscience. The latter emphasizes the pathophysiology and pathology of common neurological disorders. The systemic pathology curriculum continues with a focus on neuropathology, and the pharmacology course covers neuromuscular, musculoskeletal and nervous system disease. 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, sub-specialty physical examination sessions, preceptorships, and didactics in clinical epidemiology, medical economics, and socio-behavioral medicine. The remaining curriculum is devoted to a composed of pathophysiology courses with tight integration of the systemic pathology and pharmacology courses. The courses are organized according to organ system (cardiovascular, pulmonary, renal, musculoskeletal system, hematology, gastroenterology, oncology, and dermatology). The Doctoring 2 curriculum continues 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 courses. Like the first year, all of the second year courses utilize periodic quizzes and review sessions and a comprehensive final examination.

The second year curriculum ends in February and is followed by a six week, unscheduled block for preparation for USMLE Step 1, remediation, elective, and vacation.

The third-year program begins in April and includes six required clerkship rotations in the clinical specialties: eight weeks each of surgery, medicine, obstetrics/gynecology, pediatrics, primary care (jointly administered by Family and Community Medicine and Internal Medicine/Gastroenterology and Psychiatry). Students may elect to defer one of the required clerkships to the fourth year. The third year Doctoring program consists of longitudinal small groups led by faculty members who remain with their group throughout the year as the students rotate through their clerkships. Doctoring 3 themes include advanced interviewing techniques, clinical reasoning, clinical epidemiology, evidence-based medicine, and ethics/jurisprudence. Students must take a comprehensive clinical skills examination at the end of the third year which features self-assessment and faculty feedback.

The fourth year curriculum features built-in flexibility to allow students with special interests to pursue their medical careers. The early start to the fourth year in May allows students to pursue electives for early exposure to clinical specialties or to complete clerkships which may have been deferred. All students are required to select a minimum of 32 weeks of clinical electives in addition to a single 4-week special study module or scholarly project. The Special Study modules are designed to integrate basic sciences with clinical specialties, provide opportunities for students to practice and refine fundamental skills in critical appraisal and analysis of emerging scientific developments, and to allow students to focus indepth on a multidisciplinary topic of special interest to the student. The Scholarly Project requires independent inquiry with faculty mentorship and leads to a publishable manuscript and a presentation of the project at a research forum held in the winter.

Individual student programs are designed under the guidance of college directors, mentors and faculty advisors, with the support of the Career Advising Office. Each student’s fourth year program must be approved by the Fourth Year Oversight Committee to ensure appropriate breadth, depth, and vigor. There are strict guidelines for the choices and time allowed away from the home institution. To satisfy the M.D. degree requirements, 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 the opportunity 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. Most students also participate in one of several student run, 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.P.H.). This program offers a wide breadth of study areas and draws 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 courses required for earning the M.D. degree. Course descriptions are given under the individual departmental course offerings.

First-Year Required Courses

Year 1, Block 1

Molecular Medicine, BCM 410A

Gross-Pathologic-Developmental Anatomy, CHA 400

Human Physiology, HPH 400

Human Microscopic Anatomy, CHA 402

Doctoring 1, MDS 411A

Year 1, Block 2

Medical Immunology, MMI 480A

Medical Microbiology, MMI 480B

General and Endocrine Pathology, PMID 410A

Pharmacology, PHA 400A

Endocrine-Nutrition-Reproduction-Genetics, "ENRG", MDS 406

Doctoring 1, MDS 411B

Second-Year Required Courses

Year 2, Block 3

Neuroanatomy, CHA 403

Systemic Pathology, PMID 410B

Pharmacology, PHA 400C

Clinical Neurosciences, NEU 420

Fundamentals of Clinical Psychiatry, PSY 403

Doctoring 2, MDS 421A

Year 2, Block 4

Integumentary System, DER 420

Musculoskeletal System, OSU 421

Doctoring 2, MDS 421B

Year 2, Block 5

Cardiovascular System, IMD 420D

Pulmonary and Critical Care, IMD 420C

Nephrology, IMD 420E

Hematology, IMD 420A

Systemic Pathology, PMID 410C/D

Pharmacology, PHA 400C/D

Doctoring 2, MDS 421A

Oncology, HON 420

GI System, IMD 420B

Doctoring 2, MDS 421C

Third- and Fourth-Year Required Courses

Third-Year Clerkships

Internal Medicine

Clerkship—IMD 430-01-08

Surgery

Clerkship—SUR 430-01-08

Pediatrics

Clerkship—PED 430-01-08

Fourth-Year Clerkships

Internal Medicine

Clerkship—IMD 430-01-08

Surgery

Clerkship—SUR 430-01-08

Pediatrics

Clerkship—PED 430-01-08
398 Medicine, School of

Primary Care Clerkship—
FAP 430 ............................. 8 weeks
Obstetrics and Gynecology Clerkship—OBG 430 ...................... 8 weeks
Psychiatry—PSY 430 ........................... 8 weeks
Medical School 3, MDS 430A-D

Fourth-Year Requirements
36 Weeks of Required Course work comprised of the following specifics:
• 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 Scholarship Project
• 4 weeks of Undifferentiated Patient Experience (see 4th Year Guide for requirement guidelines)
• 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. Participate in research projects relating to medicine, with faculty in the School of Medicine. (S/U grading only.)—I, II, III, IV. (I, II, III, IV)

Upper Division
192. Medical Education Internship for Advanced Undergraduates (1-12)
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 for up to 12 units. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV)

Professional
401. Applications of Computers to Medical Practice (2)
Autotutorial—2 hours. Prerequisite: enrollment in medical school. Prerequisite: 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 instructor. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV)

405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)
Lecture—3.8 hours. discussion/lab—2.8 hours. Prerequisite: consent of instructor. Restricted to Medical school students. Basic and pathophysiological processes involved in human metabolic and nutritional regulation and in reproductive and endocrine systems across the lifespan. Integrate information across these systems and use clinical reasoning process to identify patients with unusual perturbations and diseases. May be repeated three times for credit. (P/F grading only; deferred grading only, pending completion of sequence.)—II, III, (III, IV) Hou, Segel, Tucker

41A. Doctoring 1 (4)
Discussion—1 hour; clinical activity—1 hour; lecture/discussion—1 hour. Prerequisite: approval of committee on student progress. Medical students only. Small, case-based learning groups with training in patient communication and interviewing techniques, clinical identification and problem solving, applications of social, psychological, cultural, bio-ethical, and basic science concepts to patient cases, outpatient clinical experiences and didactic presentations. (P/F grading only; deferred grading only, pending completion of sequence.)—II, III, (III, IV) Eidson-Ton, Onate

41B. Doctoring 1 (5)
Discussion—1.5 hours; clinical activity—1.5 hours; lecture/discussion—1.8 hours. Medical students only. Small, case-based learning groups with training in patient communication and interviewing techniques, clinical identification and problem solving, applications of social, psychological, cultural, bio-ethical, and basic science concepts to patient cases, outpatient clinical experiences and didactic presentations. (P/F grading only; deferred grading only, pending completion of sequence.)—II, III, (III, IV) Venugopal

421A. Doctoring 2 (6)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science concepts to cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV) Lee, Molla, Scilla

421B. Doctoring 2 (6)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science concepts to cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV) Lee, Molla, Scilla

421C. Doctoring 3 (2)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science concepts to cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—II. (II) Wilkes

421D. Doctoring 3 (2)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science concepts to cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV) Wilkes

420. Multisystem Clinical Presentations (0.5)
Extensive problem solving—15 hours; independent study—6 hours. Prerequisite: completion of Pathophysiology Block; consent of instructor. Capstone course integrates knowledge, skills and experiential learning to enable the student to demonstrate a broad mastery of learning across the curriculum. (P/F grading only.)—III. (III) Venugopal

440A. Doctoring 4 Teaching Fellowship (1)
Discussion—0.5 hours; seminar—0.25 hours. Prerequisite: courses 430ABCD and approval by Instructor of Record. Restricted to Medical students only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (Deferred grading only, pending completion of sequence. P/F grading only.)—I. (I) Wilkes

440B. Doctoring 4 Teaching Fellowship (1)
Discussion—0.5 hours; seminar—0.25 hours. Prerequisite: courses 430ABCD and approval by Instructor of Record. Restricted to Medical students only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV) Wilkes

440C. Doctoring 4 Teaching Fellowship (1)
Discussion—0.5 hours; seminar—0.25 hours. Prerequisite: courses 430ABCD and approval by Instructor of Record. Restricted to Medical students only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (Deferred grading only, pending completion of sequence. P/F grading only.)—I. (I) Wilkes

441. Combined Ophthalmology and Otologyngology Clerkship (6)
Clinical activity—4 weeks. Prerequisite: approval by Committee on Student Promotion and Evaluation. Fundamental knowledge of ophthalmology and otolaryngology for the treatment of eye, ear, nose and throat problems at a level of training of general phy-
sicians, including when to refer patients to a specialist. (H/P/F grading only)—I, II, III, IV, (I, II, III, IV) 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 clerkship to hospital setting. (H/P/F grading only)—II, III, IV (I, II, III, IV)

455. Student Run Clinics (1-3) Clinical Activity—3.5 hours. Open to medical students in good standing. Will learn counseling, diagnosis and treatment of patients with chronic and acute disease under supervision of physician. Meet all requirements and prerequisites of the particular clinic within which they work. May be repeated for credit. (P/F grading only)—I, II, III, IV (I, II, III, IV) Latimore, Servis

460CR. Introduction to Clinical Research (2) Lecture—2 hours; independent study—3 hours. Prerequisite: consent of instructor; completed one of the following courses: M.D., D.D.S., M.D.O., N.D., D.O., Pharm.D., D.V.M., Ph.D. in D.N.S. in nursing. Application and acceptance into the Clinical Research Graduate Group, K30 program. Introduction to the K30 program and overview of major clinical research topics. Overview of basic clinical skills needed to accomplish CRGG mentored research project. (P/F grading only)—IV (I) Fredrick

461CR. Strategies for Grant Writing (2) Lecture/discussion—2 hours. Prerequisite: consent of instructor; completed M.D., D.D.S., M.D.O., 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. Practical skills and strategies to create successful grant proposals in the NIH style and format. Generating ideas, identifying and accessing research resources, grant components, specific aims, background and significance, preliminary studies, budgets, and bios. Matriculation through UC system, and resubmissions. (S/U grading only)—IV (I) Rulledge

462CR. Introduction to Clinical Epidemiology and Study Design (3) Lecture—25 hours; discussion—10 hours. Prerequisite: consent of instructor; completed M.D., D.D.S., M.D.O., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing, application and acceptance into Clinical Research Graduate Group, K30 program. Anatomy and physiology of conducting clinical epidemiologic research. Familiarity with three basic study designs (cross-sectional, case-control, and cohort). Discussion of principles of measurements in clinical epidemiological studies, basic methods for analyzing data and ethical issues involved in conducting research. (S/U grading only)—IV (I) McCurdy, Romano

463CR. Methods in Clinical Research (5) Lecture—3 hours; discussion—2 hours. Prerequisite: consent of instructor; M.D., D.D.S., M.D.O., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing, application and acceptance into Clinical Research Graduate Group, K30 program. Overview of research approaches to clinical research, including health services research techniques, informatics, the GCRC, and preclinical methodologies to enhance clinical projects. Overview of UC Davis clinical research support infrastructure. Methodologies applicable to clinical research and its multi-disciplinary perspective. (S/U grading only)—IV (I) Berglund, Lloyd, Kravitz


465CR. Introduction to Medical Statistics (4) Lecture—3 hours; laboratory—2 hours. Prerequisite: completed M.D., D.D.S., M.D.O., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing, application and acceptance into Clinical Research Graduate Group, K30 program. Biomedical applications of statistical methods in clinical, laboratory and population medicine. Graphics, data presentation, probability, binomial, Poisson, normal, t, F, and Chi-square distributions, elementary non-parametric methods, simple linear regression/correlation, life tables, and applications to statistical procedures in population medicine. (S/U grading only)—IV (I) Beckett, Wegelin

468. Multidisciplinary International Preceptorship (1-12) Clinical activity—12 hours. Prerequisite: medical students with consent of instructor. Multidisciplinary preceptorship in a foreign country. Participate in clinical and didactic learning experiences. May be repeated for credit. (H/P/F grading only)—I, II, III, IV (I, II, III, IV)

470. Introduction to Dentistry (3-18) Clinical activity—34 hours; lecture—6 hours. Prerequisite: fourth-year medical student in good standing; consent of instructor. Overview of anatomy, endodontics, and oral and Maxillofacial Surgery. Course is offered by the Oral and Maxillofacial Surgery department at UC San Francisco. (P/F grading only)—IV (I)

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

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)—IV (I)

482. Lecture Series in Reproductive Health (1) Lecture—1 hour. Psychosocial and public health aspects of providing quality reproductive health care and application to student clinics and in 3rd year clerkships. May be repeated two times for credit. (P/F grading only)—I, II, III, IV (I, II, III, IV)

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

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 health care reform implementation is facing provides how medical students can successfully advocate for changes in health policy. May be repeated two times for credit. (P/F grading only)—I (I) Romano

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

489. Directed Studies (1-9) Prerequisite: consent of instructor; individual directed studies in extended preparation for modified curriculum, USMLE exams, and/or as required by Committee on Student Progress. Independent studies to accommodate modified curriculums, 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)—I, II, III, IV (I, II, III, IV)

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)—I, II, III, IV (I, II, III, IV) Servis

489A. 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 theoretical 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)—I (I) Bakernik, Shailik

489B. 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)—II (II) Bakernik, Shailik

489R. USMLE Directed Remedial Studies (1-9) Independent study—20 hours. Prerequisite: recommendation by Committee on Student Progress. Independent studies to accommodate remediation for taking USMLE exams directed by the Committee on Student Progress. (P/F grading only)—I, II, III, IV (I, II, III, IV) Servis

490A. PRIME Seminar Series: Fall Quarter (1) Lecture—1 hour. Weekly seminar series covering the following areas: community engagement, Health care to rural and under served populations, health policy and advocacy, leadership, technology and health equity and disparity. May be repeated for credit. (P/F grading only)—I (I) Eidson-Torner, Fancher

490B. PRIME Seminar Series: Winter Quarter (1) Lecture—1 hour. Weekly seminar series covering the following areas: community engagement, Health care to rural and under served populations, health policy and advocacy, leadership, technology and health equity and disparity. May be repeated for credit. (P/F grading only)—II (II) Eidson-Torner, Fancher

490C. PRIME Seminar Series: Spring Quarter (1) Lecture—1 hour. Weekly seminar series covering the following areas: community engagement, Health care to rural and under served populations, health policy and advocacy, leadership, technology and health equity and disparity. May be repeated for credit. (P/F grading only)—III (III) Eidson-Torner, Fancher

490D. PRIME Seminar Series: Summer Quarter (1) Lecture—1 hour. Weekly seminar series covering the following areas: community engagement, Health care to rural and under served populations, health policy and advocacy, leadership, technology and health equity and disparity. May be repeated for credit. (P/F grading only)—IV (IV) Eidson-Torner, Fancher
493. Independent Special Study Module (3-12)
Prerequisite: consent of instructor. FYOC approval required. Necessary education experience that meets Special Study Module requirements. (H/P/F grading only)—I, II, III, IV. (I, II, IV)

493A. International and Comparative Health Care—SSM (4)
Discussion—20 hours; lecture—10 hours. Prerequisite: consent on instructor. Restricted to UC Davis School of Medicine students only. Through a series of lectures, seminars, and clinical experiences, all occurring in other nations, students will research how health care systems address critical health issues. In 2007, Chronic Disease is the local issue. SSM Component. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Wilkes

493B. International and Comparative Health Care—Clinical (3-9)
Clinical activity—30 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Through a series of lectures, seminars, and clinical experiences, all occurring in other nations, students will research how health care systems address critical health issues. In 2007, Chronic Disease is the local issue. SSM Component. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Wilkes

493QA. Improving Quality in Health Care (3)
Lecture—8 hours; discussion/lab—10 hours; project—10 hours. Prerequisite: consent on 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. (Same course as Nursing 493A.) [H/P/F grading only; deferred grading only, pending completion of sequence.]—I. (I.) Bakerjian, Shaikh

493QB. Improving Quality in Health Care (3)
Lecture—8 hours; discussion/lab—10 hours; project—10 hours. Prerequisite: consent on 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. (Same course as Nursing 493A.) [H/P/F grading only; deferred grading only, pending completion of sequence.]—I. (I.) Bakerjian, Shaikh

493QC. 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 expose 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.) (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Bakerjian, Natale

495. Medicine Literature Review (1-9)
Discussion—3-27 hours. Prerequisite: medical student in good academic standing and permission of the Associate Dean of Curricular Affairs. Independent study: topics for selection include, but are not restricted to, medical ethics, economics, and jurisprudence, culture and medicine, ethnicity and medicine, gender and medicine, history of medicine, health manpower, and medical education. A prepared paper on the selected topic will be required. (H/P/F grading only)—I, II, III, IV. (I, II, IV)

497A. Scholarship Project (1)
Seminar—0.25 hours, independent study—0.5 hours. Prerequisite: project proposal must be accepted by the Scholarly Project Executive Committee (SPEC). Restricted to fourth year medical school students only. Develop a research project on a focused topic area, implements the research, writes a publishable paper, and presents an oral summary of the project. [Deferred grading only; pending completion of sequence. H/P/F grading only]—I. (I.) Schaefer

497B. Scholarly Project (2)
Seminar—0.25 hours; independent study—0.5 hours. Prerequisite: Project proposal must be accepted by the Scholarly Project Executive Committee (SPEC). Restricted to fourth year medical school students only. Develop a research project on a focused topic area, implements the research, writes a publishable paper, and presents an oral summary of the project. [Deferred grading only; pending completion of sequence. H/P/F grading only]—II. (II.) Schaefer

497C. Scholarly Project (2)
Seminar—0.25 hours; independent study—0.5 hours. Prerequisite: Project proposal must be accepted by the Scholarly Project Executive Committee (SPEC). Restricted to fourth year medical school students only. Develop a research project on a focused topic area, implements the research, writes a publishable paper, and presents an oral summary of the project. [Deferred grading only; pending completion of sequence. H/P/F grading only]—I. (I.) Schaefer

497M. Scholarly Project (Master’s Thesis) (6-18)
Research—up to 18 hours; independent study—up to 18 hours. Prerequisite: consent of instructor. Independent study: extends the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interprofessional educational experience. (Same course as Nursing 493M.) (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Wilkes

499. Research in Medical Education and Curriculum Development (4-9)
Independent study—10-36 hours. Prerequisite: medical student in good standing and competency with computers. Research and development of an independent project related to expanding computer-assisted resources in support of the MD curriculum at UC Davis. [H/P/F grading only]—I, II, III, IV. (I, II, III, IV)

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

Professional
460. Anesthesiology Clinical Clerkship (3-18)
Prerequisite: medical student. In-depth 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/NP grading only)—I, II, III, IV. (I, II, III, IV) Yao

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 within the Department of Anesthesiology and Pain Medicine to apply medical knowledge to safely care for patients. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) 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: outpatient and inpatient settings, acute and chronic pain, end of life issues, pediatrics, rehabilitation, etc. Daily clinics, rounds, and lectures. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Singh

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. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV) Yao

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 preoperative 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. (H/P/F grading only)—II. (II.) Fialkow

493B. Interdisciplinary Medicine in Pain Care (6)
Lecture—5 hours; lecture/lab—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will review and demonstrate the application of basic physiology and pharmacology to patient care. There will be an in-depth analysis of the physiology and pharmacology of cardiovascular, pulmonary, nervous renal and endocrine systems. Limited enrollment. (H/P/F grading only)—II. (II.) Fleming

493B. Interdisciplinary Medicine in Pain Care (6)
Lecture—5 hours; laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will review and demonstrate the application of basic physiology and pharmacology to patient care. There will be an in-depth analysis of the physiology and pharmacology of cardiovascular, pulmonary, nervous renal and endocrine systems. Limited enrollment. (H/P/F grading only)—II. (II.) Fleming

499. Anesthesiology Research (4-18)
Laboratory—12-54 hours. Prerequisite: third- to fourth-year medical students; advanced standing undergraduate and veterinary medicine students; consent of instructor. Problems in clinical and/or laboratory research. May be repeated for credit. (P/NP grading only for medical students) I, II, III, IV. (I, II, III, IV)

Biological Chemistry (BCM)

Lower Division
92. 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/N 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 anesthesia and related fields. (P/N grading only)—I, II, III, IV. (I, II, III, IV) Pitts

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/N grading only)
Professional

410A. Genetics and Molecular Medicine (4) Lecture—3 hours; discussion—3 hours; web virtual lecture—1 hour. Prerequisite: 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 Pediatrics 420.) (P/F grading only; deferred grading only, pending completion of sequence.)—I, IV (I, IV) Segal, Sweeney

491. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1) Seminar—1 hour. Prerequisite: student in Genetics Graduate Group of 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.) (H/P/F grading only.)—I, III, IV (I, III, IV)

493. Medical Genomics (6) Clinical activity—4 hours; lecture—4 hours; laboratory—12 hours. Prerequisite: consent of instructor. Four-week modular format covering the clinical applications and medical applications of medical genomics. Topics will include an introduction to the human genome and human genomics, genetic and epigenetic variation and the ethics and implications of medical genomics. (P/F grading only.)—I, II, III, IV (I, II, III, IV) Herman, Segal

497T. Tutoring in Biological Chemistry (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.)

498. Group Study (1-5) Prerequisite: medical students with consent of instructor. (H/P/F 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 (4) Lecture—4 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 2 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 106.) GE credit: SciEng | SE—II. (I) 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 2 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 projected human cadavers in small group format with extensive hands-on experience. (Same course as Exercise Biology 106L.) GE credit: SciEng | SE—II. (I) Gross

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

Graduate


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, organization and regulation; secretion; control of reproduction; molecular evolution; transformation; and gene manipulation. Offered in alternate years. —same course as Plant Pathology 217. —II. 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 their 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. —II. HERSHEY

230. Practical NMR Spectroscopy and Imaging (1) Lecture—1 hour. Prerequisite: Chemistry 107A-107B, Physics 5A-5B-5C or 9A-9B-9C, 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.)—I, II

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 biophysical basis for magnetic resonance applications in the areas of tissue characterization/ imaging, metabolic regulation, and cellular bioenergetics. (Same course as Biophysics 231.)—III. Jue

291. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1) Seminar—1 hour. Prerequisite: student in Genetics Graduate Group of 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.)—I, II, III, IV (I, II, III, IV)

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.)

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 gross and microscopic human anatomy, with small groups of undergraduates under the supervision of the instructor. (S/U grading only.)

198. Directed Group Study (1-5) Discussion—1-10 hours. Prerequisite: consent of instructor. Directed reading, 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, neuromuscular anatomy, cardiovascular anatomy, gastrointestinal anatomy and anatomy of reproductive systems. Only two units of this class may be applied toward completion of course 101. Open only to full-time graduate students. —II. (II) Blankenship, Gross, Tucker

202. Human Microscopic Anatomy (5) Lecture—3 hours; laboratory—3 hours. Examine the normal microscopic structure of the basic cells, tissues, and organs of the body. Lectures emphasize morphology and structure-function relationships. Accompanying laboratory offers hands-on experience and identification of sectioned material at the light microscopic and ultrastructural levels. —II. (II) Beck

203. Neurobiology (4) Lecture—3 hours; laboratory—3 hours. Prerequisite: two upper division or one graduate course in Neurobiology, consent of instructor. Physiology and anatomy of the normal human nervous system in an integrated format. —III. (III) Blankenship, Gross

290. Seminar (1) Seminar—1 hour. Prerequisite: student in Genetics Graduate Group of consent of instructor. (S/U grading only.)—I, III, IV (I, III, IV)

290C. Research Group Conference (1) Discussion—1 hour. Prerequisite: graduate student with research experience (may be taken concurrently), consent of instructor. Discussion of problems, progress and literature relevant to current research undertaken by laboratory groups in Human Anatomy. (S/U grading only.)—I, II, III, IV (I, II, III, IV)

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

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

Professional

400. Developmental, Gross, and Radiologic Anatomy (7.5) Lecture—2 hours; laboratory—3 hours. Prerequisite: consent of Committee on Educational Progress. Medical Students only. An integrated presentation of developmental, gross and radiologic anatomy. Embryology and radiology correlated with the sections of the entire body. Embryology from implantation to birth. (Deferred grading only, pending completion of sequence.) (P/F grading only.)—I, IV (I, IV) Tucker
402. Cell and Tissue Biology (4.5)
Lecture—2 hours; laboratory—4 hours. Prerequisite: approval of the Pre-Student Affairs Program. Medical Students only. Microscopic structure of the basic cells, tissues and organs of the body with an emphasis on how structure explains function. Analysis and interpretation of material at the light microscopic and ultrastructural levels. Deferred grading only, pending completion of sequence. [P/F grading only.]—I, II, IV Beck

403. Medical Neuroanatomy (5)
Lecture—3 hours; laboratory—1 hour; discussion; laboratory—1 hour. Prerequisite: successful completion of course 400, block 1; restricted to medical students only. Anatomy of the human nervous system. Review of gross external and internal morphology of brain and spinal cord, and functions of neuroanatomy of motor, sensory and cognitive systems. Incorporates application of neuroanatomy to clinical problem solving. [Same course as: Physiology 403.] [P/F grading only.]—IV. (IV.) Blankenship, Gross

493. Clinically-Oriented Anatomy Special Study Module (6)
Seminar—10 hours; laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor. Restricted to School of Medicine students only. Reviews aspects of the anatomy of the heart, thoracic cavity, abdomen, pelvis, extremities, vascular system, peripheral nervous system and central nervous system. Focus on the understanding of anatomy related to common surgical procedures. [Same course as: Surgery 493.] [H/P/F grading only.]—III. (III.) Khati

493B. Anatomy Medical Education Special Study Module (6)
Seminar—1 hour; clinical activity—14 hours; autotutorial sessions—10 hours; independent study—10 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. Attend all of the lectures and laboratory sessions for courses 400 and 402 during the four-week section (approximately seven anatomy labs and three to four histology labs); tutor first-year students during the laboratory sessions; prepare and present a clinical correlate session. [H/P/F grading only.]—I, II, III, IV, (I, II, III, IV) Beck, Gross, Fitzgerald, Tucker

497T. Tutoring in Human Anatomy (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 departments in Human Anatomy. [H/P/F grading only.]

498. Advanced Group Study (1-12)
Prerequisite: medical students, interns, and residents with consent of instructor. Directed reading and group discussion and/or laboratory experience on selected topics. [H/P/F grading only.]

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

Clinical Research (CLH)

Graduate

200. Introduction to Clinical Research (3)
Lecture—2 hours; independent study—3 hours. Prerequisite: approval of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing. Application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM/CTSC training programs; consent of instructor. Introduction to the CRGG program and overview of major clinical research topics. Overview of basic clinical skills needed to accomplish CRGG mentored research. [Formerly Medical Science 466OCR.] [S/U grading only.]—IV. (IV.) Meyers

201. Strategies for Grant Writing (2)
Lecture—2 hours. Prerequisite: consent of instructor; completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing. Application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM/CTSC training programs; consent of instructor. Practical skills and strategies to create successful grant proposals in NIH style/format. Generating ideas, identifying and accessing research resources, grant components, specific aims, budget, and significance, preliminary studies, budgets, and bios. Matriculation through UC system, and resubmissions. [Former course Medical Sciences 461CR.] [S/U grading only.]—IV. (IV.) Rost

202. Introduction to Clinical Epidemiology and Study Design (3)
Lecture—25 hours; discussion—10 hours. Prerequisite: completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program, or other SOM/CTSC training programs; consent of instructor. Anatomy and physiology of conducting clinical epidemiologic research. Familiarity with three basic study designs (cross-sectional, case-control, and cohort). Discussion of principles of measurement in clinical epidemiologic studies, basic methods for analyzing data, and ethical issues involved in conducting research. [Formerly Medical Sciences 462CR.] [S/U grading only.]—IV. (IV.) McCurdy, Romano

203. Methods in Clinical Research (5)
Lecture—3 hours; discussion—2 hours. Prerequisite: completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM training programs; consent of instructor. Overview of major approaches to clinical research, including health services research techniques, informatics, GCR, and preclinical methodologies to enhance clinical projects. Overview of UCD clinical research support infrastructure. Methodologies applicable to clinical research and the clinical researcher's perspective. [Formerly Medical Sciences 463CR.] [S/U grading only.]—IV. (IV.) Berglund, Kravitz, Murphy

204. Responsible Conduct of Research (3)
Lecture—3 hours. Prerequisite: consent of instructor; completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing. Application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM training program. The nine NIH-managed modules: Data Acquisition and Reporting, Mentor Training, Publication Practices and Authorship, Peer Review, Collaborative Science, Human Subjects, Research with Animals, Conflict of Interest, Research Misconduct, and Entrepreneurship/Industry Collaborations/Intellectual Property/Technology Transfer. [Former course Medical Sciences 464CR.] [S/U grading only.]—IV. (IV.) Kon, Wun

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 DNS in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM/CTSC training program. The nine NIH-managed modules: Data Acquisition and Reporting, Mentor Training, Publication Practices and Authorship, Peer Review, Collaborative Science, Human Subjects, Research with Animals, Conflict of Interest, Research Misconduct, and Entrepreneurship/Industry Collaborations/Intellectual Property/Technology Transfer. [Former course Medical Sciences 465CR.] [S/U grading only.]—IV. (IV.) Yang

220. Basics of Stem and Progenitor Cells (2)
Lecture—1 hour. Prerequisite: Molecular, Cellular, and Integrative Physiology 200, 200L; consent of instructor; graduate standing or consent of instructor. Seminars presented by guest lecturers on subjects of current interest to the greater research community. [S/U grading only.]—I, II, III

221. Pre-doctoral Clinical Research Training Program Research Integration (1)
Seminar—0.5 hours; discussion—0.5 hours. Prerequisite: consent of instructor and enrollment in the Pre-doctoral Clinical Research Training Program in the Clinical, School of Medicine. Participation in journal club, seminar/discussion, and research integration sessions. May be repeated times for credit [S/U grading only.]—I, II, III, IV. (I, II, III, IV) Kenyon

250. Integrating Medicine into Basic Science (6)
Lecture—3.75 hours; discussion—6 hours; seminar—2.5 hours; clinical—8 hours. Prerequisite: consent of instructor; graduate standing; acceptance into HHMI Integrating Medicine into Basic Science program. Four-week summer institute consisting of didactic lectures, reading assignments, group discussions, and clinical rotations to acculturate students to the human medical environment; integrate medical and biological principles, physiology and pathophysiology into basic research; introduce high-impact clinical studies related to medicine and health. [S/U grading only.]—IV. (IV.) Kon, Wun

290A. Hot Topics in Clinical Research (1)
Seminar—1 hour. Prerequisite: graduate standing or consent of instructor. Seminars presented by guest lecturers on subjects of their own recent research activities. May be repeated for credit [S/U grading only.]—I, II, III

290B. Hot Topics in Stem Cell Biology (1)
Seminar—1 hour. Prerequisite: graduate standing. Seminars presented by guest lecturers on subjects of their own recent research. [S/U grading only.]—I, II, III
290C. Literature in Translational Research (1)
Discussion—1 hour. Prerequisite: graduate standing and consent of instructor. Critical presentation and analysis of recent journal articles in translational research by students. May be repeated for credit. (S/U grading only)—I, II, III, IV (I, II, III, IV) Knowlton

290D. Literature in Translational Research (1)
Discussion—1 hour. Prerequisite: consent of instructor; graduate standing. Critical presentation and analysis of recent journal articles in translational research by students. May be repeated for credit. (S/U grading only)—I—I (I) Knowlton

298. Group Study in Clinical Research (1-5)
Prerequisite: consent of instructor. Special topics in Clinical Research appropriate for group study at the graduate level. Restricted to students enrolled in the Mentored Clinical Research Training Program. (S/U grading only)

299. Clinical Research (1-5)
Prerequisite: consent of instructor. Independent research and special topics in clinical research appropriate for graduate level. Restricted to students enrolled in the Mentored Clinical Research Training Program. (S/U grading only)

Dermatology (DER)

Upper Division

192. Internship in Cutaneous Biology (1-4)
Internship—8-20 hours; final report. Prerequisite: upper division standing or consent of instructor. Approval of project prior to internship by preceptor. Supervised work experience involving research on the skin. (P/NP grading only)—Isseroff, Izumiya, Liu, Murphy, Takada

199. Special Study in Cutaneous Biology (1-4)
Prerequisite: advanced undergraduate standing and/or consent of instructor. Special study by individual arrangement of specialized topics in biology of skin. May include clinical, laboratory research or a combination. (P/NP grading only)—Isseroff, Izumiya, Liu, Murphy, Takada

Graduate

299. Research in Cutaneous Biology (1-12)
Laboratory—3-36 hours. Prerequisite: consent of instructor. Independent research in cellular and biochemical mechanisms of cutaneous biology and pathophysiology. (P/NP grading only)—Isseroff, Liu

Professional

420. Integumentary System (2)
Lecture/discussion—3 hours; clinical activity—0.25 hours. Prerequisite: approval of School of Medicine Committee on Student Promotions. Restricted to Medical students only; student must have passed all SOM Year 1 courses. Cell biology, pathology, and physiologic and pathologic diagnosis of the skin. Recognition of normal variations and common or important dermatoses. Patient demonstration of select conditions. (P/F grading only)—I, II (I) Espen, Isseroff

460. Dermatology Clinical Clerkship (6)
Clinical activity (inpatient/outpatient service)—40 hours for four weeks. Prerequisite: completion of three years of medical school; consent of instructor. Observation and participation in dermatology clinics/practice and participation in Ward Rounds and Dermatology Clinics at UC Davis Medical Center, Kaiser, and private practitioner offices. Limited enrollment—1, II, III, IV (I, II, III, IV) Fazel

465. Specialty Externship in Dermatology (3-16)
Clinical Activity—30 hours. Prerequisite: consent of instructor. Externship provides in-depth exposure to a variety of sub-specialties in Dermatology. May be repeated for credit. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) Fazel

466. Away Acting Internship in Dermatology (3-18)
Clinical Activity—6-12 hours; lecture—6 hours. Prerequisite: 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. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) Fazel

470. Introduction to Dermatopathology (6)
Clinical—20 hours; independent study—20 hours; lecture/discussion—6 hours. Prerequisite: previous rotation in a Dermatology Clerkship, consent of instructor. Restricted to fourth-year medical student. Integrated, multi-specialty approach to the microscopic diagnosis of inflammatory and neoplastic skin disorders. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) Bar, Funkenstein, Konen

480. Insights in Dermatology (1-3)
Clinical activity—3-9 hours. Prerequisite: first-and second-year medical students in good academic standing; consent of instructor. Clinical experience limited to observation of delivery of dermatologic care and attendance at some conferences. (H/P/F grading only)—I, II, III, IV (I, II, III, IV)

495. Wound Healing: From Bench to Bedside (6)
Clinical activity—12 hours; laboratory—8 hours; autotutorial—15 hours; term paper. Prerequisite: medical students only. An integrated, multi-specialty approach to clinical soft tissue wound healing.—I, II, III, IV (I, II, III, IV) Armstrong

499. 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 readings and/or clinical examination of selected patients. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) 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: graduate student in good academic standing at UC Davis; consent of instructor. This course is intended to give the undergraduate student an opportunity to conduct "hands-on" clinical research in the Emergency Department. Through the lecture/discussion, students will learn the basics of conducting and developing clinical research studies, using examples from ongoing studies. May be repeated for credit up to four units. Units awarded will depend on hours worked.—I, II, III, IV (I, II, III, IV) Panacek

192. Internship in Emergency Medicine (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 "hands-on" clinical research in the Emergency Department. Through the lecture/discussion, students learn the basics of conducting and developing clinical research studies. May be repeated twice for credit. (P/NP grading only)—I, II, III, IV (I, II, III, IV) Panacek

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 "hands-on" clinical research in the Emergency Department. Through the lecture/discussion, students learn the basics of conducting and developing clinical research studies. May be repeated twice for credit. (P/NP grading only)—I, II, III, IV (I, II, III, IV) Panacek

465. Externship in Emergency Medicine (4.5-6)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery and Pediatric Externships. 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 clinical format. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) Jones

470. Pediatric Emergency Medicine Clerkship (6)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery and 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 an Emergency Medicine Attending. Emphasis on recognition and management of the acutely ill pediatric patient and treatment of common pediatric complaints. (H/P/F grading only)—I, II, III, IV (I, II, III, IV) Vanceness

480. Emergency Medicine Health Policy (1-6)
Lecture—4 hours; discussion—16 hours; independent study—10 hours. Prerequisite: consent of instructor. Current health policy issues affecting emergency medicine in California. Participation in policy discussions, attend meetings with California Medicine, School of 403

Quarter Offered: I-Fall, II-Winter, III-Spring, IV-Summer; 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE): Arts/Humanities; Sciences; Engineering, Social Sciences; Div=Dominant Diversity; Writ=Writing Experience

Fall 2011 and on Revised General Education (GE): Arts/Humanities; Science and Engineering; Social Sciences; ACGH=American Cultures, DD=Dominant Diversity, OL=Oral Skills, SL=Scientific, VL=Visual, WC=World Cultures, W=Writing Experience
403. SJPV Longitudinal Primary Care Clerkship at UCSF (C) (2)
Clinical activity—45 hours; lecture—2 hours; work- shop—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.)—II. (III.) Eidson-Ton, Vierra

430TA. TeachMS Longitudinal Primary Care Clerkship (A) (4)
Clinical activity—45 hours; lecture—2 hours; work- shop—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.)—I, II, III, IV. (I, II, III, IV.) Hitzeman

430TB. TeachMS Longitudinal Primary Care Clerkship (B) (6)
Clinical activity—45 hours; lecture—2 hours; work- shop—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.)—II, III, IV. (II, III, IV.) Vierra

430TC. TeachMS Longitudinal Primary Care Clerkship (C) (2)
Clinical activity—45 hours; lecture—2 hours; work- shop—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.)—I (I, II, III, IV.) Eidson-Ton, Henderson, Holt, Vierra

434. Primary Care Clinics-Clinica Tepeiti (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 physician. Provides exposure to special health care needs of various ethnic and poverty-level populations. May be repeated for credit. (P/F grading only.)—I, II, III, IV; (I, II, III, IV.) Fong

435. Primary Care Clinics-Imani Clinic (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. Learn counseling, diagnosis and treatment of patients with chronic and acute disease under supervision of physician. Provides exposure to special health care needs of various ethnic and poverty-level populations. May be repeated for credit. (P/F grading only.)—I, II, III, IV; (I, II, III, IV.) Smith

436. Continuity Clinic in Primary Care—Shifa Clinic (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. Learn counseling, diagnosis and treatment of patients with chronic and acute disease under supervision of physician. Provides exposure to special health care needs of various ethnic and poverty-level populations. May be repeated for credit. (P/F grading only.)—I, II, III, IV; (I, II, III, IV.) Smith

Quarter Offered: I=Fall; II=Winter; III=Spring; IV=Summer, 2015-2016 offering in parentheses
Pre-Fall 2011 General Education (GE): AH=Arts and Humanities; SCI=Science and Engineering; SOC=Social Sciences; Div=Domestic Diversity; Wrt=Writing Experience
Fall 2011 and on Revised General Education (GE): AN=Arts and Humanities; SE=Science and Engineering; SS=Social Sciences; ACH=American Cultures; DD=Domestic Diversity; OL=Oral Skills; G=Quantitative; SL=Scientific; VL=Visual; WC=World Cultures; WE=Writing Experience
ous ethnic and poverty-level populations. May be repeated for credit (P/F grading only)—I, II, III, IV.

437. Primary Care Clinics-Knights Landing (3)
Clinical activity—2-3 hours; lecture—1 hour. Must complete an application and interview prior to regist-
tering. Care of patients, diagnosis and treatment of patients with chronic and acute disease under super-
vision of physician. Provides exposure to special health care needs of various ethnic and poverty-level popula-
tions. (Deferred grading only.)—I, II, III, IV. 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 instruc-
tor. Open to medical students only. Comprehensive primary medical care of patients on a family medi-
cine hospital service. Usually includes inpatient and outpatient experience. May be repeated up to 12
units of credit. (H/P/F grading only)—I, II, III, IV. Eidson-Ton

475. Combined Inpatient/Outpatient Clinical Elective in Family Medicine (3-12)
Clinical activity—40 hours. Prerequisite: completion of third-year of medical school or consent of instruc-
tor. Open to medical students only. Combined inpa-
tient and outpatient elective. Consists of comprehensive primary medical care of patients in a family med-
cine outpatient clinic. May be repeated up to 12 units of credit. (H/P/F grading only)—I, II, III, IV. Eidson-Ton

488. Selected Studies in Family Practice (1-9)
Prerequisite: medical students with consent of instruc-
tor. Assigned readings in family practice to increase understandings on selected topics relating to family medicine. Usually includes inpatient and outpatient experience. May be repeated up to 9 units of credit.—I, II, III, IV. (P/F grading only.)—I, II, III, IV. Eidson-Ton

490. Health Care to Underserved Populations (1)
Lecture—I hours. Prerequisite: Sociology, Political Science, or Applied Behavioral Science background recommended, or registration in medical school. Discussed sociocultural perspectives of underserved populations impacting health; roles of family/inter-
personal relationships in making health care deci-
sions; 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. (P/F grading only)—I, II, III, IV. Nesbitt

493. Aging and Health (6)
Seminar—12 hours. Prerequisite: consent of instruc-	or. Is disease risk under the inevitable conse-
quence 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. (P/F grading only)—I, II, III, IV. (I, II, IV, Lin, Neyhart

495. LGBTIQQA Healthcare Lecture Series (1)
Lecture—6 sessions. Increase the awareness of medi-
cal issues surrounding the LGBTIQQA community and arm students with knowledge of the health dis-
parities the community faces. Provide better quality care to the LGBTIQQA patients cared for as physi-
cians. May be repeated for credit. (P/F grading only)—I, II, III, IV. (P/F grading only.)—I, II, III, IV. Eidson-Ton

499. Research (1-12)
Prerequisite: consent of instructor. Research in various aspects of the health care delivery system. (P/F grading only.)
Medicine, School of

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.)

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—3-12 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.)—I., II, III, IV (I., II, III, IV) Guerrero

192. Internship in Internal Medicine (1-12)
Internship—3-36 hours, final report. Prerequisite: upper division standing. Supervised work experience in internal medicine and related fields. (P/NP grading only.)

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.)—I., II, III, IV (I., II, III, IV) Kumsaagi

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 (1-3)
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 for today’s clinic. May be repeated one time for credit. (S/U grading only.)—I.

220D. Cardiovascular System (2.5)
Lecture/discussion—5.5 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 related disorders. (P/F grading only.)—II. Laslett

250. Medicine and the Law (3)
Lecture/discussion—2 hours; project—2 hours. Legal and bioethical principles and concepts in medicine. Topics include standard of care, informed consent, reproductive medicine, and end-of-life issues. (S/U grading only.)—II. Rich

290C. Controversies in Clinical Research (1)
Seminar—3 hours. Clinical Research Study design and data analysis related to controversial research areas. Presentations scheduled and agreed to by faculty/student teams. May be repeated for credit. (S/U grading only.)—III. III, Lane, Meyers

Professional

414. One Health: A Course on Global Health (1)
Conference—8 hours. Global health problems are complex and require culturally-sensitive, socially-acceptable, and action-oriented approaches to create practical and cost-effective solutions. Will examine major health problems created by the convergence of human, animal, and environmental influences. May be repeated for credit. (P/F grading only.)—I., II, III, IV, (I., II, III, IV) Wilkes

416. Summer Institute on Race and Health (6)
Independent study—30 hours. Prerequisite: consent of instructor. Limited enrollment. Using field trips, media, readings, and clinical experiences, 8-10 first year medical students will explore issues of race, health disparities and related issues in a 4 week institute during the summer break. (P/F grading only.)—II. Fancher, Fernandez, Garcia, Murray-Garcia

420A. Hematology (2)
Lecture/discussion—1 hour; discussion—1 hour. Prerequisite: consent of instructor. Restricted to Medical students only. Major blood diseases, blood coagulation, and transfusion therapy. Covers acute leukemia, myelodysplasia, myeloproliferative disorders, lymphoma, and myeloma. (P/F grading only.)—I. I. O’Donnell

420B. Gastrointestinal System (2.5)
Lecture—2 hours; discussion—2 hours. Prerequisite: approval of Committee on Student Progress; medical student only. Basic pathophysiologic principles of digestive diseases on which clinical concepts and judgments can be developed. Emphasis on pathophysiological basis of gastroenterological and hepatic disorders with discussion of major disorders and their diagnosis and management. (P/F grading only.)—II. (II) Terrado

420C. Pulmonary & Critical Care Medicine (2.5)
Lecture/discussion—5.5 hours. Prerequisite: approval of SOM’s Committee on Student Promotions. Restricted to Medical students only; student must pass all SOM Year 1 courses. Clinical aspects of respiratory anatomy and physiology, and pathology. Diagnostic procedures and a description of the major pulmonary diseases & disorders, and critical care medicine. (P/F grading only.)—I. (I) Stollwerck

420D. Cardiovascular System (2.5)
Lecture/discussion—5.5 hours. Prerequisite: Approval of the School of Medicine Committee on Student Promotions. Restricted to Medical students only; student must pass all SOM Year 1 courses. Principles of etiology, mechanisms, diagnosis and management of the major diseases of the cardiovascular system. Included are ischemic, valvular, hypertensive, cardiomyopathic, pericardial, and related disorders. (P/F grading only.)—I. Venugopal

420E. Nephrology (2)
Lecture—2 hours; discussion—2 hours; laboratory—2 hours. Prerequisite: approval of Student Progress Committee. Fundamentals of the pathophysiologic disorders of body water, electrolytes and acid/base balance; major categories and mechanisms of parenchymal renal diseases; urinary tract infections. (P/F grading only.)—II. Yuen

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 UCSF Fresno and Kaiser Hospitals. 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.)—II. (II) Aronowitz, Juhl

430A. SJVP Longitudinal Medicine Clerkship at UCSF (A) (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.)—I. (I) Aronowitz, Juhl

430B. SJVP Longitudinal Medicine Clerkship at UCSF (B) (6)
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.)—III. (III) Aronowitz, Juhl

430C. SJVP Longitudinal Medicine Clerkship at UCSF (C) (2)
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.)—I. (I) Aronowitz, Juhl

430TA. TeachMS Longitudinal Medicine Clerkship (A) (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. 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.)—I. (I) Aronowitz, Juhl

430TB. TeachMS Longitudinal Medicine Clerkship (B) (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. 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.)—II. (II) Aronowitz, Juhl

430TC. TeachMS Longitudinal Medicine Clerkship (C) (2)
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. 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.)—III. (III) Aronowitz, Juhl

439D. Directed Clinical Studies in Internal Medicine (1-12)
Clinical activity—40 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for modified curriculum. May be repeated for a clinical rotation following a leave of absence. May be repeated for credit. (P/F grading only.)—I., II, III, IV, (I., II, III, IV)
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.)—I, II, III, IV, (I, II, III, IV)
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 organ, 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 all 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; deferred grading only, pending completion of set sequence.)—I, II, III, IV. Welborn

420A. Oncology (4)
Lecture—2 hours. Prerequisite: consent of instructor. Restricted to Medical student only. 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.)—II. Welborn

460. Hematology—Oncology Acting Internship (1-18)
Clinical activity—full time [4-12 weeks]. Prerequisite: fourth-year medical student in good academic standing. Acting intern on inpatient hematology/oncology ward service. May be repeated for credit. Limited enrollment. (H/P/F grading only.)—I, II, III, IV, (I, II, III, IV)

461. Hematology—Oncology Consult Clerkship (6-12)
Clinical activity—full time [4-8 weeks]. Prerequisite: fourth-year medical student in good academic standing. 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. Limited enrollment. (H/P/F grading only.)—I, II, III, IV, (I, II, III, IV)

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.)—I, II, III, IV, (I, II, III, IV)

493. Cancer as a Process (1-6)
Seminar—10 hours; clinical activity—14 hours; autotutorial—6 hours; independent study—10 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Covers cancer as a process, beginning with risks and prevention, p53/Neoplasia, microinvasion, treatment options, metastases and systemic therapy, pain medicine and palliative care, and cancer communication. Format includes traditional lectures, student-fed case discussions, and problem-based learning. (H/P/F grading only.)—I, II, III, IV, (I, II, III, IV) Meyer, van Friederichs Fitzwater
499. Research (1-12)  
Prerequisite: consent of instructor. (H/P/F grading only.)

Internal Medicine—Infectious Diseases (IDI)  
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 nature of the causative organism, modern diagnostics, treatment and prevention strategies, and the role of infectious diseases in contemporary society and throughout human history. (P/NP grading only.)—I. (I.) 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, additional physical and biochemistry preferred), biology through basic bacteriology (in addition, microbiology and immunology preferred), 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 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.—III. DeKriemer, 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.)—I, II, III, IV.

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. Lecture 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.)—I, II, III, IV.

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 for fourth-year medical students. Patients ill with infectious diseases, including AIDS, will be evaluated and presented at rounds and case conferences. Patients are also seen in the Infectious Diseases Clinic. Instruction in clinical microbiology and the proper use of the laboratory will be provided. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Cohen.

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 instructor and via seminar presentation. (H/P/F grading only.)

Internal Medicine—Nephrology

Upper Division

192. Internship in Nephrology (1-12)  
Internship—3-36 hours; final report. Prerequisite: upper division 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.)—I, II, III, IV. (I, II, III, IV.) Tynell

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 medical school. Design of Doctoring curriculum for medical students in specific clinical topic areas to be announced annually. Students will design sessions, consider resource needs, and work with IORs to initiate the curriculum. (P/F grading only.)—IV. (IV.)

460. Nephrology and Fluid Balance (3-6)  
Clinical activity—3.5-9 hours; inpatient/outpatient clinical activities, attendance at specific conferences at UC Davis Medical Center covering the field of nephrology and fluid-electrolyte disorders. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Feun

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 inhaled toxicity, oxidants or 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 education, 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.)—I, II, III, IV. (I, II, III, IV.) Stolwen

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 susceptible patients. May be repeated for credit. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Stolwen

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 variation 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.)—I, II, III, IV. (I, II, III, IV.) Stolwen

475. Encounters in Ethics in the ICU (3-6)  
Clinical Activity—12 hours; lecture/discussion—6 hours; independent study—6 hours. Prerequisite: 4th year Medical Student. Care for critically ill adults with complex medical diseases with little unique ethical roles and duties for the physician. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Black

480. Pulmonary-Critical Care Medicine Insights (1-3)  
Clinical activity—3-9 hours. Prerequisite: student in good academic standing and consent of instructor. Student will attend respiratory outpatient clinics and inpatient pulmonary consultation rounds and medical intensive care rounds. Introduction to diagnosis and treatment of common pulmonary problems. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Albertson

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.)—I, II, III, IV. (I, II, III, IV.)

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 Presentations 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 interrelationships. Focus on areas of immunology not currently covered in the basic and advanced immunology courses. Oral presentation, written review and grant preparation.—II. (II.) Van de Water
298. Topics in Rheumatology and Clinical Immunology (1-5)
Lecture—2 hours. Prerequisite: consent of instructor. Participation in seminars and/or laboratory work as required. (S/U grading only.)—Gershwin

299. Research in Autoimmune Disease (1-12)
Lecture—2 hours. 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, polymyositis and drug hypersensitivity. (S/U grading only.)

Professional

460. Rheumatology Clinical Clerkship (1-18)
Clinical activity—2-40 hours. Prerequisite: Medical Sciences 431 and consent of instructor. Participation 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)—I, II, III, IV. (I, II, III, IV.) McMillian

461. Allergy Clinical Clerkship (3-18)
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, asthma, allergic rhinitis. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.) Torres

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 with illnesses where no cure is possible. Emphasis on symptom relief, end of life issues, physician assisted suicide. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.) McMillian

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)—I, II, III, IV. (I, II, III, IV.) 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)—I, II, III, IV. (I, II, III, IV.)

Medical Microbiology (MMI)

Upper Division

130. Medical Mycology (2)
Lecture—2 hours. Prerequisite: a course in pathogenic microbiology and consent of instructor. Varieties 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.)—II. 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/U grading only.)—I, II. Torres

192. Internship in Medical Microbiology (1-12)
Internship—3-26 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)—I, II, III, IV. (I, II, III, IV.) Gershwin

194F. 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 of 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)—I, II, III, IV. (I, II, III, IV.)

198. Group Study 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.)

199. Research in Medical Microbiology (1-5)
Prerequisite: research standing and consent of instructor. Individual research. (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. (II.) Baumer, Beamam

210A. Critical Analysis of Contemporary Research on Animal Models of Human (1)
Lecture/discussion—1 hour. Prerequisite: students funded by the Animal Models of Infectious Diseases Training Grant; consent of instructor. Topics will include diverse vertebrate and invertebrate models of human infectious diseases. Limited enrollment. May be repeated for credit. (S/U grading only)—II. (II.) Bevins, Solnick

210B. Comparative Analysis of Animal Models of Human Infectious Diseases (1)
Lecture/discussion—1 hour. Compares the major vertebrate and invertebrate 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)—II. (II.) Bevins, Solnick

215. Medical Parasitology (3)
Lecture—1.5 hours; discussion—1.5 hours. Prerequisite: a course in medical parasitology, diagnostic methods and current literature discussion of protozoa, helminths and arthropods of medical importance. (II.) Dawson, Luckhart

280. The Endogenous Microbiota in Lifespan Health and Disease (3)
Lecture—3 hours. Prerequisite: graduate standing. Recent research into host-associated microbial communities has yielded important insights into the microbial composition of mucosal surfaces, and how the composition of these communities contributes to normal development, metabolism, education of the immune system, and disease susceptibility. Not open for credit to students who have completed Internal Medicine Infectious Diseases 280.—III. (III.) Dandekar, Tsolis

291. Seminar in Microbiology and Immunology (1)
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)—I, II, III, IV. (I, II, III, IV.) Gershwin

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 by instructors to include a broad range of frontiers in biomedical literature. May be repeated for credit. (H/P/F grading only)—I. (I.) 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, pathogenesis and pathology, diagnosis and therapy. Offered in alternate years. (Same course as 130.) (H/P/F grading only)—II. (II.) Pappagianis

480A. Medical Immunology (2.5)
Lecture—2 hours, laboratory/discussion—0.5 hours. Medical student only. Helping to understand the immune system, the nomenclature and functional significance of the tissues, cells, proteins and genes of the immune system, as well as the normal regulatory mechanisms and pathologic outcomes related to the immune response. (P/F grading only; deferred grading only, pending completion of sequence)—II, III. (II, III.) Shacklett, Torres

480B. Medical Microbiology (5.5)
Lecture—2.75 hours; laboratory/discussion—1 hour. 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)—I, II, III, IV. (I, II, III, IV.) Luckhart, Mudity, Tsolis

497T. Tutoring in Medical Microbiology (1-5)
Tutoring—3-15 hours. Prerequisite: appropriate preparation in subject matter and consent of instructor. Assist instructor by tutoring medical students in 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. (P/F grading only)

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

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 Studies. 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 (PHS), on page 417.

**Required Units for Master of Public Health**

Core coursework

- **Biostatistics**
  - Preventive Veterinary Medicine 402
  - Preventive Veterinary Medicine 403
  - Public Health Sciences 210
- **Epidemiology**
  - Epidemiology 205A
- **Environmental Health Science**
  - Public Health Sciences 262
- **Health Services Administration**
  - Public Health Sciences 273
- **Social and Behavioral Influences on Health**
  - Public Health Sciences 222
- **General Public Health**
  - Public Health Sciences 201
  - Public Health Sciences 290
  - Public Health Sciences 297

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

**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.)—I, II, III, IV. (I, II, III, IV.)

**Graduate**

- **205. Problem Solving in Pharmacology (1)**
  - Lecture/discussion—1 hour. Restricted to Graduate Students in Pharmacology and Toxicology, Chemistry 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 development of a drug and will develop an experimental strategy for addressing the issue. Students will develop model systems for testing various classic 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) must take course for at least three years.—I, II, III, II, II, III) Hell

207. **Drug Discovery and Development (3)**

Lecture/discussion—2 hours; extensive writing—1 hour. Prerequisite: course 201, an equivalent course in general pharmacology, or knowledge of basic pharmacology. Intended for graduate students in Pharmacology and Toxicology, Chemistry and Clinical Research Graduate Groups, other students, including undergraduates, may be accepted with consent of instructors. Survey of the process by which a drug is discovered, developed and made available to the public. Topics include drug identification, characterization and optimization, safety testing, clinical evaluation, regulatory issues, intellectual property, formulation, and the global pharmaceutical industry. May be repeated for credit.—II. (Ill.) Horuk, Rogawski, Wulff

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 basic undergraduates) may be accepted upon consultation with the instructors. Detailed characterization of the mechanisms involved in cardiac excitation–contraction coupling, and other processes that occur in heart disease and pharmacological interventions. Topics include cardiac contractile apparatus, action potential, Ca2+ cycling, excitation–transcription coupling, cardiac inotropy, heart failure and arrhythmias.—III. (III.) Bassuyn, Despa, Rippinger

225. **Gene Therapy (3)**

Lecture/discussion—3 hours. Prerequisite: Genetics 201C and/or Molecular and Cellular Biology 221C 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. Offered in alternate years.—II. Anderson, Bauer, Notla, Segal

250. **Functional Genomics: From Bench to Bedside (3)**

Lecture/discussion—3 hours. Prerequisite: Genetics 201C and/or Molecular and Cellular Biology 221C, or equivalent. Functional genomics (how genetic variation and epigenetic regulation affects gene expression), with an emphasis on clinical relevance and applications. Topics include genetic variation and human disease, cancer therapeutics, and biomarker discovery.—III. (III.) Diaz, Lu, 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 when topics differ. [S/U grading only.]—I, II, III, IV. (I, II, III, IV.) Wulff

298. **Group Study (1-5)**

Prerequisite: consent of instructor.

299. **Research (1-12)**

Prerequisite: consent of instructor. ([S/U grading only.]—I, II, III, IV. (I, II, III, IV.) Wulff

**Professional**

400A. **Pharmacology (2)**

Lecture—1 hour; discussion/laboratory—0.3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; medical students 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.)—I, II, III, III. (I, III, III.) Gelli, Wulff

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 anesthesiology, neuropharmacology and sedation/hypnosis. ([P/F grading only.]—IV. (IV.) Diaz

400C. **Pharmacology (1.5)**

Lecture—1 hour; discussion—0.25 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Topics include the treatment of respiratory, cardiovascular, and CNS diseases. Specific topics include: pain management, treatment of depression and psychosis, acid reflux disease, irritable bowel syndrome, and general toxicology. ([P/F grading only.]—III. (III.) Segal

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. ([P/F grading only.]—III. (III.) 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.]—I, II, III, IV. (II, III, IV.)

497T. **Tutoring in Pharmacology (1-5)**

Lecture—1 hour; discussion/training—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.]—II, III, IV. (II, III, IV.)

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.]—I, II, III, IV. (I, II, III, IV.)

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.]—I, II, III, IV. (I, II, III, IV.)

**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 psychophysiology, single-unit electrophysiology and instrumentation are offered in Davis. ([P/F grading only.]—I, II, III, IV. (I, II, III, IV.)

**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.]—I, II, III, IV. (I, II, III, IV.)
Professional

451. Neurosurgical Critical Care Clerkship (3)
Clinical activity—full time (2 weeks). Prerequisite: third- or fourth-year medical student who has satisfactorily completed course 460; consent of instructor. Student participates in the care of neurosurgical patients in the NSICU and in the admission and surgical management of patients admitted through the Emergency Room. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

455. Clinical Pediatric Neurosurgery (6)
Clinical activity—full time (4 weeks). Prerequisite: third- or fourth-year medical student; consent of instructor. Admission and follow-up of pediatric patients. Neurological history, examination, and diagnostic procedures are emphasized. Students will participate in surgical procedures and are required to attend all pediatric neurosurgery conferences. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

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

464. Externship (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student having completed a neurosurgical clerkship. Clerkship in neurosurgery to be arranged at another institution with accredited residency program in neurosurgery under proper supervision. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

470. Advanced Clinical Neurosurgery (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student in good academic standing. Student will be involved in the neurosurgical service. Admission and management of patients. Neurological history, examination, diagnostic 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.)—I, II, III, IV. (I, II, III, IV.)

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 neurological care in emergency room, operating room, and hospital floors; attending neurosurgical rounds. (P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

498NE. Group Study in Neurology (1-6)
Prerequisite: medical student with consent of instructor. Directed reading and discussions with a comprehensive written examination at the end of course. (P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

499. Research (1-12)
Laboratory—2-24 hours. Prerequisite: consent of instructor. Approved for graduate degree credit. Laboratory investigation on selected topics. (H/P/F grading only for graduate and medical students.)

Neurosurgery (NSU)

Upper Division

199. Special Study in Neurosurgery for Advanced Undergraduates (1-5)
Prerequisite: graduate or 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 student with consent of instructor. Student may participate in ongoing neurosurgical projects or may pursue and design independent projects. (S/U grading only.)

Professional

451. Neurosurgical Critical Care Clerkship (3)
Clinical activity—full time (2 weeks). Prerequisite: third- or fourth-year medical student who has satisfactorily completed a neurological clerkship or consent of instructor. Students participate in the care of neurological patients in the NSICU and in the admission and surgical management of patients admitted through the Emergency Room. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

455. Clinical Pediatric Neurosurgery (6)
Clinical activity—full time (4 weeks). Prerequisite: third- or fourth-year medical student who has satisfactorily completed course 460; consent of instructor. Admission and follow-up of pediatric patients. Neurological history, examination, and diagnostic procedures are emphasized. Students will participate in surgical procedures and are required to attend all pediatric neurosurgery conferences. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

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

464. Externship (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student having completed a neurosurgical clerkship. Clerkship in neurosurgery to be arranged at another institution with accredited residency program in neurosurgery under proper supervision. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

470. Advanced Clinical Neurosurgery (6-18)
Clinical activity—full time (4-12 weeks). Prerequisite: fourth-year medical student in good academic standing. Student will be involved in the neurosurgical service. Admission and management of patients. Neurological history, examination, diagnostic 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.)—I, II, III, IV. (I, II, III, IV.)

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 neurological care in emergency room, operating room, and hospital floors, attending neurosurgical rounds. (P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

498NE. Group Study in Neurology (1-6)
Prerequisite: medical student with consent of instructor. Directed reading and discussions with a comprehensive written examination at the end of course. (P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

499. Research (1-12)
Laboratory—2-24 hours. Prerequisite: consent of instructor. Approved for graduate degree credit. Laboratory investigation on selected topics. (H/P/F grading only for graduate and medical students.)

Neurosurgery (NSU)

Upper Division

199. Special Study in Neurosurgery for Advanced Undergraduates (1-5)
Prerequisite: graduate or 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 student with consent of instructor. Student may participate in ongoing neurosurgical projects or may pursue and design independent projects. (S/U grading only.)
465. Away Acting Internship in OB/GYN (3-18)
Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and other third-year care clerkships; consent of instructor. Work at the level of a sub intern in Inpatient and/or Outpatient settings. Students are expected to provide direct patient management. (H/P/F grading only)—I, II, III, IV, V, VI

470. Gynecologic Oncology Acting Internship (3-18)
Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and the third-year care clerkships; consent of instructor. Four week elective primarily involves direct inpatient management of women with the DAW/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)—I, II, IV, V, VI, VII, VIII

471. Ambulatory Gynecology and Obstetrics Elective (3-18)
Clinical activity—35 hours. Prerequisite: third or fourth-year Medical Student who has successfully completed course 430; consent of instructor. Lectures on the Gynecologic Subspecialty of Family Planning. Counseling and provision of contraceptive methods, experience with pelvic ultrasounds, management of spontaneous, inevitable and induced abortion and postabortal care by both surgical and medical techniques are included. May be repeated for credit. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

472. Family Planning and Reproductive Health (1-6)
Clinical activity—30 hours; seminar—5 hours. Prerequisite: course 430; consent of instructor. Elective that will focus on the Gynecologic Subspecialty of Family Planning. Counseling and provision of contraceptive methods, experience with pelvic ultrasounds, management of spontaneous, inevitable and induced abortion and postabortal care by both surgical and medical techniques are included. May be repeated for credit. (H/P/F grading only)—I, II, III, IV

475. Labor & Delivery Acting Internship (3-18)
Clinical activity—40 hours. Prerequisite: satisfactory completion of course 430 and the third-year care clerkships; consent of instructor. Four week elective primarily involves direct inpatient management of women on the UCDM UDO 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)—I, II, III, IV, V, VI, VII, VIII

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 not covered in the summer courses. (S/U grading only)—I

493. Gender Specific Medicine SSM (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. Specialized, modules, a four week course on the topic: Basic Science Principles Relating to Gender Specific Medicine. (Same course as Cardiology 493.) (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

494. Shifa Clinic (1)
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 culturally diverse population. May be repeated up to three times for credit. (P/NP grading only)—I, II, III, IV, V, VI, VII, VIII

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 culturally diverse mixed population. May be repeated eight times for credit. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

494C. 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. May be repeated eight times for credit. (H/P/F grading only)—I, II, III, IV

199. Group Study (1-5)
Prerequisite: consent of instructor. Explore particular topics in-depth in Obstetrics and Gynecology. Extensive contact with and oversight by instructor. (H/P/F grading only)—I, II, III, IV, V, VI

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 for credit. (H/P/F grading only)

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 the department; 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)—I, II, III, IV

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 future primary care physicians and others. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

Adv. Subspecialty Ophthalmology (3-6)
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 cornea and external eye, glaucoma and retina. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

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 topics in visual 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. Medical student only. Basic and clinical science of orthopaedic surgery and rheumatology. (P/NP grading only)—I, II, III, IV, V

428. Ambulatory and Emergency Room Orthopaedics (3-6)
Clinical activity—full time (2-4 weeks). Prerequisite: fourth-year medical student in good academic standing and consent of instructor. Introduction to general orthopaedic problems and trauma and their management in an outpatient environment, including the emergency room. Students will conduct orthopaedic examinations, present patients for staff rotation through trauma, hand, pediatrics, adult and foot clinics. Orthopaedic physical examination and interpretation of x-rays. Limited enrollment. (H/P/F grading only)—I, II, III, IV, V, VI

462. Community Preceptorship (3-6)
Clinical activity—full time (2-4 weeks). Prerequisite: fourth-year medical student in good academic standing and consent of instructor. Acquaints student with private practice of orthopaedics in the community setting. Opportunity to observe and assist private practitioners in office, emergency room, operating room and inpatient environment. Student must provide own transportation. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

464. Acting Internship (6)
Clinical activity—full time (4 weeks). Prerequisite: fourth-year medical student in good academic standing and consent of instructor. Rotation designed to increase basic knowledge of musculoskeletal abnormalities at clinical level. Attention focused on selective case material. For those students who demonstrate proficiency, responsibility will be similar to that of intern. Limited enrollment. May be repeated for credit. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

466. Externship in Advanced Orthopaedics (3-6)
Clinical activity—40 hours. Prerequisite: fourth-year medical student in good academic standing and consent of instructor. Advanced Orthopaedic rotations at an approved institution. Topics may include Trauma, Spine, Pediatrics, Joint and/or Foot/Ankle. Students are expected to perform at the level of an intern. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

480. Insights in Orthopaedic Surgery (1-3)
Clinical activity—3-9 hours. Prerequisite: first- and second-year medical students in good academic standing; consent of instructor. Exposure to aims, methods and procedures in orthopaedics via attendance at grand rounds, patient care conferences, and group discussions. (H/P/F grading only)—I, II, III, IV, V, VI, VII, VIII

481. History of Medicine for Medical Students (1.5)
Lecture/discussion—2.5 hours (for six weeks). Prerequisite: third or fourth-year students in the School of Medicine or second-year students with consent of instructor. Overview of the history of medicine throughout the world to introduce medical students to landmark accomplishments and key figures in the development of health care and to provide an
499. Orthopaedics Research (1-12)
Clinical activity—3 hours to full time [to be arranged with individual faculty]. Prerequisite: third- or fourth-year medical student in good academic standing; consent of instructor or clinical investigator on selected topics. May be repeated for credit. (H/P/F grading only.)

500. Clinical Otolaryngology Elective (1-18)
Clinical activity—full time. Prerequisite: third- and fourth-year medical students with consent of instructor; open to graduate students. Approved for graduate degree credit. Total involvement in clinical activities of the department. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Diaz

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 otolaryngological and related literature and recent advances. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.)

498. Individual or Group Study (1-5)
Lecture/discussion—1-2 hours; laboratory—1-4 hours. Prerequisite: consent of instructor. Introduction to basic research in Otolaryngology. Lectures, discussion and laboratory study of sensory and motor systems. (P/F grading only.)

400. Principles of Speech, Hearing and Equilibrium (3)
Lecture/discussion—3 hours. Prerequisite: graduate students; medical students; advanced undergraduates with consent of instructor. Presentation and discussion of faculty and student research in otolaryngology. (S/U grading only).—I, II, III.

291. Principles of Speech, Hearing and Equilibrium (3)
Lecture—1 hour. Prerequisite: graduate students; medical students; advanced undergraduates with consent of instructor. Presentation and discussion of faculty and student research in otolaryngology. (S/U grading only).—I, II, III.

299. Individual Study in Otolaryngology for Advanced Students (1-5)
Prerequisite: advanced graduate student with consent of instructor. (P/N grading only).—I, II, III, IV.

Graduate

290C. Research Conference in Otolaryngology (1)
Lecture—1 hour. Prerequisite: consent of instructor. Participation and discussion 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.—II, III, IV.

299. Individual Study in Otolaryngology for Advanced Students (1-5)
Prerequisite: advanced graduate student with consent of instructor. (S/U grading only.)

Professional

403. Basic Principles of Reconstructive Surgery (1)
Lecture—4 hours; laboratory—2 hours; seminar—2 hours. Prerequisite: consent of instructor. Review of the basic principles of reconstructive surgery including wound healing, treatments of lacerations, skin and bone grafts, flaps, 2-plastics and revision of scars. Laboratory session utilizing animal tissues.—II. (II.)

440. Otolaryngology Required Clerkship (3-6)
Clinical activity—30 hours. Prerequisite: consent by Committee on Student Evaluation and Promotion. Provide fundamental knowledge of otolaryngologic diagnosis and principles, develop facility with basic ENT instruments, provide an understanding of treatment for ear, nose and throat problems and provide knowledge of what patients should be referred for otolaryngologic care. (S/U grading only).—I, II, III, IV. (I, II, III, IV.)

450. Fourth Year Otolaryngology Elective (6)
Clinical activity—35 hours; lecture—2 hours; film viewing—0.25 hours; discussion—1 hour. Prerequisite: third- or fourth-year medical student; consent of instructor. Participation in Otolaryngology Clinic and operating room. Evaluation and management of common Otolaryngologic diseases. (H/P/F grading only).—I, II, III, IV. (I, II, III, IV.)

410. General and Endocrine Pathology (2)
Lecture—1 hour; laboratory—2 hours. Prerequisite: Consent of instructor; open to medical students with consent of instructor. Restricted to Medical students only. Anatomical and clinical pathologic of organ system human disease with an emphasis on integration with clinical medicine. Topics include hematopoietic pathology and clinical pathology, hematopoietic, oncologic pathology, and nephropathology. (Deferred grading only, pending completion of sequence. P/F grading only).—I, II, III. (I, II, III.)

475. Anatomic and Clinical Pathology (3-6)
Lecture—1 hour; laboratory—2 hours. 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 bench techniques, laboratory management, and quality control. Can be repeated for credit. (H/P/F grading only).—I, II, III. (I, II, III.)

410A. General and Endocrine Pathology (2.5)
Lecture—4 hours; laboratory/discussion—4.5 hours. Restricted to Medical students only. Pathologic mechanisms 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; deferred grading only, pending completion of sequence).—I, II, III, IV. (I, II, III, IV.)

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. Anatomical and clinical pathology of organ system human disease with an emphasis on integration with clinical medicine. Topics include hematopoietic pathology and clinical pathology, hematopoietic, oncologic pathology, and nephropathology. (Deferred grading only, pending completion of sequence. P/F grading only).—IV. (IV.)

470. Sub-Specialty in Didactic Pathology (3-16)
Lecture/demonstration—25 hours. Prerequisite: consent of instructor. Internship provides in-depth exposure to one of a variety of subspecialties in Pathology. May be repeated for credit. (H/P/F grading only).—I, II, III, IV. (I, II, III, IV.)

474. Anatomical Pathology Acting Internship (6)
Clinical activity—40-80 hours. Prerequisite: fourth-year medical student or consent of instructor. Restricted to medical student only. Anatomical Pathology AI will permit students to gain skills needed for first year Pathology Residency. Students will perform autopsies and take full responsibility for a variety of surgical pathology cases. A mix of outpatients and inpatient cases is expected. (H/P/F grading only).—I, II, III, IV. (I, II, III, IV.)

475. Anatomical and Clinical Pathology AI (3-9)
Clinical activity—40-80 hours. Prerequisite: fourth-year Medical Students or consent of instructor. Restricted to Medical Students only. Clerkship is to acquaint students contemplating a career in pathology with the activities of both anatomic (first two weeks) and clinical pathology (second two weeks). May be repeated for credit. (H/P/F grading only).—I, II, III, IV. (I, II, III, IV.)
493. Interdisciplinary Study of Gastrointestinal Cancer (6)
Lecture—5 hours; clinical activity—12 hours; laboratory—3 hours; clinic/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 medicine. Participating departments include pathology, surgical oncology, medical oncology, gastroenterology, radiology and radiotherapy.
(Same course as Surgery 493D.) [H/P/F grading only.]—I, II, III, IV. Khatri, Olson, Ruebner

497T. 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.)

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 with consent of instructor. Research in an area of molecular, cellular, and applied pathology. Limited enrollment. (H/P/F grading only.)

Pediatrics (PED)
Upper Division
199. Special Study in Pediatric Research (1-5)
Prerequisite: undergraduate student with consent of instructor based upon adequate preparation as determined by instructor. [P/NP grading only.]

Graduate
299. Pediatric Research (1-12)
Prerequisite: graduate students who are candidates for a degree in some area of biology or behavioral sciences; consent of instructor. (S/U 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. Opportunity to observe and participate in pediatric clinical care in a practicing pediatrician’s office. Participation in history-taking and physical examination will be at discretion of preceptor and dependent on student’s experience. Evaluation by student. (P/NP grading only.)—I, II, III, IV. [I, II, III, IV.]

402. Clinical Experience in Private Practice (1-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: third-year fourth-year medical student; course 430; consent of preceptor and Chairperson. Opportunity to participate in practice of preceptor, performing such tasks as history taking, physical examination, and patient management. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

420. Human Genetics (2)
Lecture—3 hours; conference—2 hours. Restricted to Medical students only. Introduction to medical genetics and the clinical consequences of genetic abnor-
malities. (P/F grading only.)—I. (I)

430. Pediatric Clerkship (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Prog-
ress. 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 UCSDMC and affiliated clinical sites. Rounds, conferences, student presentations ongoing. (H/P/F grading only.)—I, II, III, IV. Butani, Plant

430F. SJVP Pediatric Clerkship at UCSF (12)
Clinical activity—45 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to medical students. Students will be placed with preceptors who will help the student learn the responsibilities of caring for the pediatric patient by participating in nursery, ambulatory and inpatient services at UCSF Fresno. Rounds, conferences, student presentations ongoing. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.] Botani, Plant

439D. Directed Clinical Studies in Pediatrics (1-12)
Clinical activity—40 hours. Prerequisite: consent of instructor. Individual directed studies in extended preparation for remedi-
aton of all or part of clinical rotation. Clinical studies 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.)—I, II, III, IV. [I, II, III, IV.]

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 remediation of all or part of clinical rotation. Clinical studies 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.)—I, II, III, IV. [I, II, III, IV.]

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. The Ward Acting Intern functions in a manner similar to that of a pediatric intern. The Act-
ing Intern takes an active role in the regular sequence and is expected to take night call. The Acting Intern can expect to manage between six and ten patients at a time. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

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

461. Pediatric Inpatient AI in Hematology/Oncology (3-9)
Clinical activity—37.5 hours; lecture—7.5 hours. Prerequisite: satisfactory completion of course 430; consent of instructor. Inpatient and outpatient experience in diagnosis and management of oncologic and hematologic disorders in children. Limited enrollment. (P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

462. Elective in Pediatric Endocrinology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: completion of second-year study or the equiva-
 lent; consent of instructor. Inpatient and outpatient experience in diagnosis and management of endo-
crine disorders in children. Laboratory experience and participation in clinical investigation may be arranged. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

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 issues, abuse exams, child and parent interactive therapy and visits to community organizations. May be repeated for credit. (P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

464. Acting Internship in Neonatology (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequi-
tive: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member. Diagnostic and therapeutic aspect of the medical management of neonatal patients. Student is expected to take night call. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

465. Pediatric Specialty Clinic Elective (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: satisfactory completion of course 430; consent of instructor. Supervised experience in a variety of pediatric subspecialties. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

466. Elective in Pulmonary Medicine (3-18)
Clinical activity—full time (2 to 12 weeks), daily rota-
tion, two weekly outpatient clinics. Prerequisite: pediatric clerkship. Inpatient and outpatient manage-
ment of pediatric patients with pulmonary diseases. These will include but will not be limited to cystic fibrosis, asthma, and other forms of pulmonary diseases as well as congenital abnormalities. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

468. Elective in Pediatric Nephrology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: satisfactory completion of course 430; consent of instructor. Inpatient and outpatient experience in diagnosis and management of renal disorders in children. Laboratory experience and participation in clinical investigation may be arranged. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

469. Elective in Pediatric Infectious Disease (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: satisfactory completion of course 430; consent of instructor. Inpatient and outpatient experience in detection and treatment of infectious diseases in infants and children. Laboratory and clinical investi-
gation may be arranged. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

470. Elective in Pediatric Gastroenterology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: satisfactory completion of course 430, Internal Medicine 430, Obstetrics and Gynecology 430, and Pediatrics 430 and consent of instructor. Inpa-
tient and outpatient experience in diagnosis and management of neurological disorders in children. Students will also participate in other pediatric sub-
specialty clinics which serve children with neurologi-
cal disorders. This course does not satisfy the fourth year neurology requirement. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

471. Elective in Pediatric Gastroenterology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequi-
tive: satisfactory completion of course 430; consent of instructor. Inpatient and outpatient experience in diagnosis and management of neurological disorders in children. Laboratory experience and participation in clinical investigation may be arranged. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. [I, II, III, IV.]

472. Clinical Rotation in Adolescent Medicine (3-9)
Clinical activity—39 hours; lecture—1 hour. Prerequi-
tive: fourth year Medical Student; consent of instructor. Under supervision of attending physicians, students will see patients in the UCD clinic and at a number of community-based sites. Emphasis on the socially-medi-
adisaids that face adolescents, including
substance abuse, STD’s, pregnancy, depression and suicide. One hour of lecture each week. (H/P/F grading only.)—I, II, III, IV. Wilkes

473. Acting Internship in Pediatrics (6-18)
Clinical activity—40 hours; lecture—6 hours. Prerequisite: satisfactory completion of Pediatrics Clerkship; consent of Pediatrics faculty member. Evaluation and support of critically ill children and general, student expected to take night call every third night during rotation. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. Butani

476. Acting Internship in Pediatric Intensive Care (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequisite: completion of course 430 with grade of A or consent of instructor of record; letter of recommendation from Pediatrics faculty member. Evaluation and support of critically ill infants and children. In general, student expected to take night call every third night during rotation. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. Davis

493. Ethical, Legal and Social Issues in Clinical Genetics (6)
Seminar—12 hours; clinical activity—18 hours; autotutorial—8 hours; independent study—2 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Develop advanced knowledge, communication skills and attitudes necessary to provide compassionate, knowledgeable and patient behavior that may be at increased genetic risk for disease. Seminars cover ethical and legal principles, epidemiology, and genetics. (H/P/F grading only.)—II. (II) Rich, Wilkes

493B. 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.)—I, II, III, IV. (I, II, III, IV) Hansen

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. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV)

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] in which student works in a subspecialty area under the guidance of a faculty member. Independent research by students 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. Communication, coordination 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, in community and increase awareness of rehabilitation goals. —II.

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

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

Graduate

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

Professional

440. Rehabilitation Medicine Clerkship (3)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor; completion of Internal Medicine clerkship. Surgery 430. Rehabilitation and comprehensive care of physically disabled and physical medicine management of neurologic, neuromuscular and musculoskeletal disorders. Emphasis on evaluation and comprehensive care of spinal disorders, sports injuries and neuromuscular disease. Emphasis on inpatient rehabilitation, pediatrics, spine or sports possible. (H/P/F grading only.)—I, II, III, IV. Davis

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 to provide a broad overview of PM&R practice for students interested in residency training in the specialty. Emphasis on evaluation and comprehensive care of spinal disorders, sports injuries, neuromuscular disease, neurological and non-operative orthopedic problems requiring rehabilitative management. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV) Davis

493. Applied Musculoskeletal Anatomy: Sports & Spine SSM (6)
Lecture—5 hours; lecture/laboratory—10 hours; laboratory —16 hours; seminar—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.)—I, II, III, IV. (I, II, III, IV)

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.)

499. Research for Medical Students (1-12)
Prerequisite: consent of instructor. Research on any of a variety of topics in physical medicine and rehabilitation. (H/P/F grading only.)

Psychiatry (PSY)

Lower Division
92. Willow Clinic (1-2)
Clinical activity—2-6 hours; seminar—1-2 hours. Open to lower division undergraduate students. Student run clinic for undergraduate students interested in learning about patient care needs for the homeless population. May be repeated for credit. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV) Han, McCarron

Upper Division
192. 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. Student 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.)—I, II, III, IV. (I, II, III, IV) Han, McCarron

198. Directed Group Study (1-5)
Prerequisite: advanced standing and consent of instructor. (P/NP grading only.)
418. 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.—I, II, III, IV, [I, II, III, IV].)

420. Acting Internship in Psychiatry (62)
Clinical activity—40 hours. Prerequisite: course 430 and/or consent of course coordinator. Acting internship with patients under the supervision of an attending psychiatrist, psychology, or allied health professionals. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV].)

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 Clinic under the supervision of a preceptor to provide primary care to medical students. Clinic care patients as well as primary care patients for psychiatric care. May be repeated for 2 times. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV].)

422. Readings in Psychiatry (1-3)
Readings discussion—3-9 hours. Independent reading of a selected topic in psychiatry. Supervision and discussion with a psychiatric faculty member. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV, Scher].)

423. Willow Clinic (12)
Prerequisite: open to medical students in all four years of medical school. Students rotate with medical students interested in learning about and meeting the unique health care needs for the homeless population. May be repeated for credit. (P/F grading only.—I, II, III, IV, [I, II, III, IV].) Han, McCarron

424. Functional Genomics (2)
Lecture—1 hour; discussion—1 hour. Prerequisite: graduate standing or consent of the instructor. The theory and methods of 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.—I, II, Choudhary)

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 from preclinical years; emphasis on diagnostic, therapeutic and interpersonal skills. Area of focus include patient management, interviewing skills, mental status exam, differential diagnosis, pharmacology, crisis assessment, intervention and care referrals. (H/P/F grading only.—I, II, III, IV, Cox)

430FA. SJVP Longitudinal Psychiatry Clerkship (A) (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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—I, II, III, IV.) Ton

430FB. SJVP Longitudinal Psychiatry Clerkship at UCSF (B) (6)
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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—I, II, III, IV.) Ton

430FC. SJVP Longitudinal Psychiatry Clerkship at UCSF (C) (2)
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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—III, III, Ton)

430TA. TeachMS Longitudinal Psychiatry Clerkship (A) (3)
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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—I, II, III, Ton)

430TB. 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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—II, III, IV, Ton)

430TC. 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. Ongoing patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.—II, III, IV, Ton)

439D. Directed Clinical Studies in Psychiatry (1-5)
Clinical activity—40 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 as directed by the Committee on Student Progress and approved by the course IOR. May be repeated for credit. (P/F grading only.—I, II, III, IV, [I, II, III, IV].)

439R. Directed Studies in Psychiatry (1-12)
Clinical activity—30 hours; independent study—10 hours. Directed studies. Individual directed studies in extended preparation for remedi- cation of all or part of clinical rotation. Clinical studies 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.—I, II, III, IV, [I, II, III, IV].)

480. Insights in Psychiatry (1-3)
Clinical activity—3-9 hours. Prerequisite: first- or second-year medical students, 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. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV].) Cox

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 smaller number of patients, greater supervision, and responsibility for the ongoing care of assigned patients. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV].)

493. Culture, Medicine and Society (6)
Seminar—12 hours; clinical activity—16 hours; independent study—8 hours; discussion—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. Students will learn about the educational health disparities and barriers to access to care. The course will cover (1) Epidemiology/Health Disparities; (2) Sociology and Medicine; (3) Cinemeducation; (4) Reflection/Integration. (H/P/F grading only.—I, II, III.)

498. Directed Group Study (1-5)
Prerequisite: consent of advisor. 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/NP grading only.)

Upper Division

101. Perspectives in Community Health (3)
Lecture—3 hours. Prerequisite: undergraduate standing. Covers comprehensively the responsibilities, obligations, roles and professional activities of various health care disciplines in the community, provides students with perspectives on preventive medicine in society. (I, III.)

132. Health Issues Confronting Asian Americans and Pacific Islanders (4)
Lecture-discussion—3 hours. Health issues confront- ing Asian Americans and Pacific Islanders. (Same course as Asian American Studies 132.) GE credit: SoscSci = SS; —II, III, IV.)

160. General Health Education and Preventive Health (5)
Lecture—4 hours; discussion—1 hour. Restricted to students in the internship program for the Health Edu- cation Program only. Topics include addiction, substance abuse, prevention, nutrition, stress management, physical fitness, body image, reproductive anatomy and physiology, contraception options, safer sex, sexual health, healthy relationship skills, and other general wellness/health promotion topics. Practice in peer counseling and outreach pre- sentations. Limited enrollment. (P/NP grading only.—IV, IV.) Ferguson

161. Campus Alcohol/Drug Abuse Prevention Program Peer Educator Training (4)
Lecture/discussion —3 hours; practice—1 hour. Prerequisite: course 160 (may be taken concurrently); consent of instructor. Preparing the intern in campus and community substance abuse prevention and educational intervention. Addiction and other physiological responses to alcohol and other drugs. Harm-reduction strategies for individuals and target patients, greater supervision, and responsibility for the ongoing care of assigned patients. (H/P/F grading only.—I, II, III, IV, [I, II, III, IV].)
Lecture—2 hours; laboratory—2 hours. Restricted to gahn
the health of communities.—III. (III.) Cassady, Zie-
health professionals—all stakeholders in improving
learning more about the educational potential for
Lecture/discussion—2 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.—III. (III.) 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, group, community, and
environmental levels. Examples include: transtheoret-
ical model, social networks, and social marketing.
Theories are applied to solve common public health
problems (cancer, smoking, and HIV/AIDS).—II. (II.) De Vogli
232. Health Communication (4) Seminar—3 hours; term paper. Prerequisite: gradu-
ate standing or consent of instructor. Health commu-
nication theories and research traditions. Topics
include consumer health information seeking; physi-
cian-patient interaction; information, social market-
ing, “edutainment,” and media advocacy campaigns;
social networks and coping; media influences on
health, and new communication technologies in
health promotion and healthcare delivery. [Same course as Communication 232. Offered in alternate
years.—II. (II) De Vogli
244. Introduction to Medical Statistics (4)
Lecture—discussion—6 hours; laboratory/discus-
—3 hours. Introduction to statistical methods and
software in clinical, laboratory, and population medi-
cine. Graphical and tabular presentation of data,
probability, binomial, Poisson, normal, f, and Chi-
square distributions, elementary nonparametric
methods, simple linear regression and correlation,
ilife tables. Only one unit credit for students who
have completed Statistics 100 or Preventive Veteri-
inary Medicine 402.—IV (IV) Yang
250. Applied Analytic Epidemiology (3) Seminar—3 hours; additional writing or dis-
—1 hour. Topics include: focus on gene expression arrays and other high-through-
put biological assay technologies. Offered in alternate
years.—III. Rocke
254. Biostatistics for Clinical Research (4) Lecture—3 hours; laboratory/discussion—1 hour. Prerequisite: course 244 and 247; consent of
instructor. Priority given to K30 training program in the School of Medicine. Analysis of data and
 design of experiments for laboratory, medical, and
clinical research. Include emphasis on expression gene arrays and high-through put
biological assay technologies. Offered in alternate
years.—III. Rocke
256. Applied Analytic Epidemiology (3) Seminar—3 hours; additional writing or dis-
—1 hour. Topics include: focus on gene expression arrays and other high-through-
put biological assay technologies. Offered in alternate
years.—III. Rocke
264. Public Health Econometrics (2) Lecture—3 hours; laboratory/discussion—1 hour. Principles, approaches and issues related
to the public.—I. (I.) Bennett
267. Health Services Administration (3) Laboratory—3 hours. Prerequisite: consent of instruc-
tor required. Structure and function of public and pri-
ivate medical care. Topics include categories and
trends in national medical spending, predictors of patient use, causes of death, managed care, CHAMP,
Medicaid, cost of technologies, and medical care in other countries. Limited enrollment.—II. (II) Leigh
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 on key issues and cur-
rent topics in public health. Course begins in August
SSII. Students must enroll in August, then Fall and
Winter. The course is a series but grades and units are
given at end of each quarter. May be repeated four times for credit. (S/U grading only.)—II, III, IV.
I, II, IV. (IV) 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 coun-
tries. Topics include health care institutions, the
impact of political strife on health, the health care
professional in international settings. (S/U grading
only.)—III. (III) Kogo, Schembri
297. Public Health Curriculum (1-16) Prerequisite: consent of instructor. Open to Master of Public Health students. Practical fieldwork experi-
ence in public health. Placement site will vary based
on the interest and experience of each student. May be repeated for credit. (S/U grading only.)—I, II, III, IV. (IV) 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)—I, II, III, IV.

299. Research in Community and International Health (1-12)
Prerequisite: graduate standing; consent of instructor. Student will 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. (S/U grading only)—I, II, III, IV. (I, II, III, IV.)

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 in Spanish. (H/P/F grading only)—II, III, IV. (III, IV.)

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 participating in treatment at several clinic sites in Yolo County. Topics include primary care, environmental health, maternal and child health, jail health, and preventive health care for the aged. (S/U grading only)—II, III, IV, (II, III, IV.)

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 ongoing investigations into current public health problems, e.g., birth defects, cancer control, diabetes, hypertension, injury control, infectious diseases, aging, Alzheimer’s disease, and smoking and tobacco use control. (H/P/F grading only)—I, II, III, IV. (II, III, IV. IV.)

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 Medicine Unit. Major activity is 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)—I, II, III, IV. (II, III, IV.)

470. Clinical Selective in Occupational and Environmental Medicine (3-6)
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 UC Davis and other sites, as arranged. Gain experience in the implementation of medical conditions, use of medical literature resources, the worker’s compensation system, and toxicological principles. Students may take up to four weeks for six units. (H/P/F grading only)—II, III, IV. (III, IV.)

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. Observation and participation 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)—I, II, III, IV, (II, III, IV.)

495. International Health (2)
Lecture/discussion—2 hours. Prerequisite: medical student in good academic standing, 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. (P/F grading only)—III, III, Koga, Schenker

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

498. Study in Public Health Sciences (1-6)
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)—I, II, III, IV. (I, II, III, IV.)

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 infectious diseases, hypertension, 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)—I, II, III, IV. (I, II, III, IV.)

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 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)—I, II, III, IV. (III, IV.)

Graduate

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

299. Independent Study and Research (1-12)
Laboratory—3-40 hours. Prerequisite: enrollment with a Graduate Group for Ph.D. candidacy and consent of Group Advisor and Sponsor. Research under supervision of Radiation Oncology faculty. Work must be appropriate to fulfill the requirements for the Ph.D. degree. (S/U grading only)—I, II, III, IV. (I, II, III, IV.)

419. Medicine, School of

Radiology—Diagnostic (RDI)

Professional

413. Radiological Diagnosis II (Physics of Diagnostic Radiology) (5)
Lecture—49 hours total; laboratory—6 hours total. Prerequisite: consent of instructor. Physics of diagnostic imaging, x-ray production and interaction; image formation; modulation contrast; fluoroscopy; cine fluoroscopy; stereoradiography; computed and geometrical tomography; magnetic resonance and ultrasound. Principles of radiation protection in imaging will be covered. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.)

414. Medical Radiation Biology (3)
Lecture—27 hours total. Prerequisite: consent of instructor. Medical radiation biology; molecular cellular and organ system responses to acute and chronic irradiation; radiation carcinogenesis 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)—III. (III.)

461. Advanced Clinical Clerkship in Diagnostic Radiology (3-6)
Clinical activity—35 hours; conference—4 hours; discussion/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 per rotation; open to visiting medical students from accredited programs. Work with clinical Radiologists in image interpretation of CT, MRI, and fluoroscopy. Computerized and geometrical tomography; magnetic resonance and ultrasound. Principles of radiation protection in imaging will be covered. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.)

462. Diagnostic Imaging of Acquired and Congenital Heart Disease (2)
Lecture—55 hours; conference—5 hours per week. Prerequisite: fourth-year medical student in good academic standing and course 461 (may be taken concurrently). Main emphasis on radiology of acquired and congenital heart disease, but also on magnetic resonance, nuclear medicine, and echocardiography of heart diseases. (H/P/F grading only)—III. (III.)

473. Advanced Clinical Clerkship in Neuroradiology (3-6)
Clinical activity—35 hours; conference—4 hours; independent study—1 hour. Prerequisite: fourth-year medical student with interest in Diagnostic Radiology, Neuroradiology, Nuclear Medicine, Psychiatry, Psychology, or related field; satisfactory completion of course 461, or the equivalent, is strongly encouraged. Restricted to one student per 2/4 week rotation. Work with radiologists in image interpretation of CT, MRI, and fluoroscopy. Opportunity to participate in assessment of Neurointerventional procedures and to observe Neurointerventional procedures. Daily conferences in...
476. Advanced Clinical Clerkship in Musculoskeletal Radiology (MSK) (3-6)
Clinical activity—35 hours; conference—4 hours; discussion/laboratory—1 hour. Prerequisite: fourth-year medical student with interest in Musculoskeletal Radiology, Orthopedic Surgery, Sports Medicine, PM&R, or related field; satisfactory completion of course 461, or the equivalent, encouraged. Restricted to two students per 2/4-week rotation. Participation in the radiological care of Pediatric patients; evaluate the patient receiving the radiographic study, including pertinent historical/physical findings. Students expected to write up case files on interesting cases encountered during their rotation. Credit limited to 3 units for 2 weeks, or 6 units for 4 weeks. May be repeated for credit. (H/P/F grading only)—I, II, III, IV. (I, II, III, IV.) Batenski

477. Advanced Clinical Clerkship in Nuclear Medicine (RNU)
Upper Division
198. Directed Group Study (1-5)
Prerequisite: upper division standing and consent of instructor. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.) Hagge

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: upper division standing and consent of instructor. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.) Hagge

Graduate
299. Research: Special Study for Graduate Students (1-12)
Prerequisite: graduate standing and consent of instructor. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.)

Professional
430. 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 UCSDMC. Daily core material presentations and reading assignments. Student involvement includes work-up and care of surgical patients. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Wisner

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 UCSF Fresno. Daily core material presentations and reading assignments. Student involvement includes work-up and care of surgical patients. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Wisner

439D. Directed Clinical Studies in Surgery (1-12)
Clinical activity—40 hours. Prerequisite: partial completion of a Clinical Rotation; 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.)—I, II, III, IV. (I, II, III, IV.)

439R. Directed Studies in Surgery (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.)—I, II, III, IV. (I, II, III, IV.)

460A. Clinical Surgical Elective (6-18)
Clinical activity—full time. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430. Rotation through Surgery Specialty Clinics: Vascular, GI, GU, Thoracic, Plas-
475. Pediatric Surgery (6-9)
Clinical activity—full time (4-6 weeks). Prerequisite: fourth-year medical student or third-year medical student with completion of course 430. Core of patients with neonatal congenital surgical problems. Fluid and electrolyte management in infants. General experience with acquired surgical diseases in children. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Marr

476. Surgical Consultant Service (6-9)
Clinical activity—full time (4-6 weeks). Prerequisite: fourth-year medical student or third-year medical student with completion of course 430. Students function as acting interns working in parallel with the interns on the service. They consult on all non-trauma patients in the emergency room and on the wards and also participate in the operating room. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Young

477. Clinically Oriented Anatomy (3)
Clinical activity—40 hours. Prerequisite: completion of three years of medical school. Anatomy of selected regions of the body using cadaver dissection, prosections and interactive CD-ROMs. Anatomical relationships relevant to common surgical procedures. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Wiener

478. Surgical Preceptorship: Off Campus (6-18)
Clinical activity—full time. Prerequisite: fourth-year medical student and consent of instructor. Student participates in direct supervision of critically ill surgical patients in a twelve-bed surgery ICU. Each student devotes one month. Provides in-depth experience with management of critically ill patients. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Coccaro

479. Surgical Oncology (3-9)
Clinical activity—full time (2 to 6 weeks). Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430. Students actively participate in management of patients requiring surgery for cancer, endocrine disease and selected general surgical problems. Cases include malignant melanoma, sarcomas, gastrointestinal cancer, head and neck pathology, and metastatic malignancies. Attending rounds daily. Four teaching conferences weekly. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Bold

480. Cardiothoracic Surgery Clerkship (6-9)
Clinical activity—full time (4 to 6 weeks). Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430. Student works as an extern on one of the two general surgery teams, participating in resuscitation and management of critically injured patients. Team hours consist of 24 hours on, and 24 hours off. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Marr

481. Interactive Clinical Case Presentation (ICCP) (3)
Clinical activity—1 hour. Prerequisite: fourth year medical students; open for third and fourth year student observers; maximum of 10-15 students in good standing. Case presentation of common clinical scenarios (i.e. chest pain/MI; fever/pneumonia; abdominal pain/acute cholecystitis, etc.) from various discipline held in an auditorium with real patients exposure. Interactive session to review history, physical findings and case management. Students are asked to perform and H&P. Course taught as one session (4 hours) per month for three quarters (July to March). The students who enroll can earn up to three credits and the minimum requirement at least six sessions. Students can do all nine sessions and work toward an honor. For the written part students will have to pick two of the nine case presentations and write a case conference on it. (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Khatri

493. Clinically-Oriented Anatomy Special Study Module (6)
Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor. Restricted to School of Medicine students only. Reviews aspects of the anatomy of the head and neck, thoracic cavity, abdomen, pelvis, extremities, vascular system, peripheral nervous system and skeletal system. Focus on the understanding of anatomy related to common surgical procedures. (Cell Biology and Human Anatomy 493.) (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Khatri

483. 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 gastroenterological, hepatic and pancreatic cancer. Emphasis on an integration of basic science and clinical medicine. Participating departments include pathology, surgical oncology, medical oncology, gastroenterology, radiology and radiotherapy. (Same course as Pathology 493C.) (H/P/F grading only)—I, II, III, IV (II, II, III, IV) Cota, Horner

494H. 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 comprehensive 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)—I, II, III, IV (II, II, III, IV) 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. Clinical: contact with UC Davis surgical 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)—I, II, III, IV (II, II, III, IV) Jon

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

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 others. (H/P/F grading only)—I, II, III, IV (II, II, III, IV)

Quarter Offered: I-Fall; II-Winter; III-Spring; IV-Summer; 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE): AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; A—Arts; D—Diverse Diversity; WE—Writing Experience

Fall 2011 and on Revised General Education (GE): AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; A—Arts; D—Diverse Diversity; WE—Writing Experience

AGCH-American Cultures; DD—Diverse Diversity; OL—Oral Skills; QQ—Quantitative; SL—Scientific; VL—Visual; WC—World Cultures; WE—Writing Experience
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 students; Surgery 430; consent of instructor. Total involvement in patient care involving surgical preparation, treatment, operative care, and follow-up. Developing and understanding reconstruction and aesthetic plastic surgery. Microvascular surgery (VME), on page 539. See Medicine and Epidemiology

Medicine and Early Modern Studies

[College of Letters and Sciences] .........................., Ph.D., Program Director

Program Office

176 Voorhis Hall

Committee in Charge

Emily Albu, Ph.D. (Classics)
Carlson Arnott, Ph.D. (German/Russian)
Seeta Chaganti, Ph.D. (English)
A. Katie Harris, Ph.D. (History)
Sally McKee, Ph.D. (History)
Baki Tezcan, Ph.D. (History/Religious Studies)

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 interdisciplinary program, the major includes studies in history, literature, philosophy, religion, 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, 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:

Preparatory Subject Matter .................................. 22

Medieval Studies 20A, 20B ................................. 10
Three additional courses from: Art History 18, 1C; Comparative Literature 2, 10A, 10B, 10C, 10D, 10E; English 10A, 46A; German 48; History 4A, 4B, Humanities 1 *; 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:

Art History 135, 150, 178A, 178B, 178C, 179B, 190B, 190C

Classics 110

Comparative Literature 139, 164A, 164B, 164C, 166A, 180*

English 111, 113A, 113B, 117, 117D, 120A, 153*, 165*, 185A*, 188*, 189*

French 115, 116, 117A, 118B, 141*

German 101A, 112*, 120, 121, 122*, 124*, 131*, 134*, 160


Medieval Studies 130A, 130B, 131, 189, 190

Music 121*, 124A, 124B

Philosophy 105, 145, 168, 170, 172

Political Science 115, 116, 118A

Religious Studies 102, 115, 130*

Spanish 130, 133N, 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...... 24

The minor in Medieval and Early Modern Studies is a coherent program of interdisciplinary study. Medieval and early modern periods may be taken in any order, or for 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 of Thomas Aquinas, the Chronicles of Froissart, Chaucer’s Canterbury Tales, and Dante’s Divine Comedy. GE credit: ArtHum, Writ | AH, WC, WE—II. [I.]

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 Peasants Revolt, the Renaissance, Reformation and Counter-Reformation, and the Baroque. GE credit: ArtHum, Writ | AH, WC, WE—II. [II.]

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

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

Upper Division

130A. Special Themes in Medieval Cultures (4)

Lecture—3 hours; discussion—1 hour. Each offering concentrates on an interdisciplinary aspect of medieval culture in the Middle East and Europe: the idea of the hero, mysticism, urban development. Extensive readings focused on medieval source material. May be repeated for credit. GE credit: ArtHum, Writ | AH, WC, WE—II. [I.]

130B. Special Themes in Renaissance Culture (4)

Lecture—3 hours; discussion—1 hour. Each theme illuminates an interdisciplinary aspect of Renaissance culture in the eastern and western hemi-