UCSF GENERAL CATALOG

UNIVERSITY OF CALIFORNIA SAN FRANCISCO

GENERAL CATALOG

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COURSES

This chapter represents a compendium of all the courses of instruction offered at the University of California San Francisco. The courses are arranged in numerical order by subject. The information included in each course has been arranged according to the following rules:

Course Description—Course information is arranged in two paragraphs with periods separating items. The first paragraph includes (1) course number; (2) course title; (3) units in parenthesis; (4) session offered; (5) prerequisite; (6) lecture, laboratory, clinic, etc.; and (7) instructor in charge. The second paragraph describes the course content.

Abbreviations—These abbreviations are used where applicable: Su = summer term, SS = summer session, F = fall quarter, W = winter quarter, Sp = spring quarter, Yr = three consecutive quarters: A = course taught in the fall quarter, B = course taught in the winter quarter, and C = course taught in the spring quarter.For courses where units are followed by a §, the courses so designated are open to graduate academic students for credit. Hospitals are designated by the following initials:

A, Alta Bates Hospital, Berkeley.
C, Children's Hospital and Adult Medical Center, San Francisco.
CC, Crippled Children's Hospital, Phoenix, Arizona.
CCP, Center for Training in Community Psychiatry, Berkeley.
CHMC, Children's Hospital Medical Center of Northern California, Oakland.
CHS, Community Hospital of Sonoma County, Santa Rosa.
CM, Cowell Memorial Hospital, Berkeley.
F, Franklin Hospital and Medical Center, San Francisco. Refer to RDMC.
FR, French Hospital, San Francisco.
GS, Good Samaritan Hospital, San Jose.
H, Highland General Hospital, Oakland.
IMBB, Irwin Memorial Blood Bank, San Francisco.
K, Kaiser Foundation Hospital, San Francisco.
KP, Kaiser Permanente Medical Center, Oakland.
KSSF, Kaiser Foundation Hospital, South San Francisco.
L, Letterman Army Medical Center, San Francisco. (Formerly Letterman General Hospital)
LPNI, Langley Porter Neuropsychiatric Institute, San Francisco.
MC, Maricopa County Hospital, Phoenix, Arizona.
MG, Marin General Hospital, Ross.
MM, Mills Memorial Hospital, San Mateo.
MZ, Mt. Zion Hospital and Medical Center, San Francisco.
NRMC, Naval Regional Medical Center, Oakland. (Formerly Oak Knoll)
OC, O'Connor Hospital, San Jose.
P, Peralta Hospital, Oakland.
PH, Peninsula Hospital and Medical Center, Burlingame. (Formerly Peninsular Hospital)
PHS, United States Public Health Service Hospital, San Francisco.
PMC, Pacific Medical Center, San Francisco.
Q, Queen's Medical Center, Honolulu, Hawaii. (Formerly Queen's Hospital)
RDMC, Ralph K. Davies Medical Center, San Francisco. (Formerly Franklin Hospital)
RLA, Rancho Los Amigos Hospital, Downey.
S, Stanford Medical Center, Palo Alto.
SCC, Santa Clara Valley Medical Center, San Jose.
SFCH, San Francisco Community Health Service, San Francisco.
SFGH, San Francisco Medical Center, San Francisco. (Formerly San Francisco General Hospital)
SGH, Scenic General Hospital, Modesto.
SH, Shriners Hospital for Crippled Children, Honolulu, Hawaii.
SJ, San Joaquin General Hospital, Stockton.
SM, Samuel Merritt Hospital, Oakland.
SRM, Santa Rosa Memorial Hospital, Santa Rosa.
SSF, Shriners Hospital for Crippled Children, San Francisco.
STA, St. Agnes' Hospital and Medical Center, Fresno.
STJ, St. Joseph's Hospital, San Francisco.
STL, St. Luke's Hospital, San Francisco.
STM, St. Mary's Hospital and Medical Center, San Francisco.
T, Tripler Army Medical Center, Honolulu, Hawaii.
UC, University of California Hospitals and Clinics, San Francisco. (Includes UC, Moffitt, and Ambulatory Care Center)
VA, Veterans Administration Hospital, San Francisco.
VAF, Veterans Administration Hospital, Fresno.
VAP, Veterans Administration Hospital, Phoenix, Arizona
VAPA, Veterans Administration Hospital, Palo Alto.

VMC, Valley Medical Center of Fresno, Fresno.
VPC, Valley Park Convalescent Hospital, Mill Valley.

Course Numbers—All courses are numbered according to the following system: 100 series = upper division professional course, 200 and 300 series = graduate academic course, and 400 series = postdoctoral professional course. The meanings of the second (tens) and first (units) digits vary among the schools. A detailed explanation of course numbering is available from the Office of the Dean of each school.

Ambulatory and Community Medicine

101. Fundamentals of Epidemiology. (3) W or Sp. Prerequisite: Microbiology 100A-B, or equivalent. Lecture 3 hours, Seminar 1 hour. **Petrakis**

Lectures and seminars dealing with distribution and determinants of diseases in population. Emphasis is placed on uses of epidemiologic concepts and techniques in clinical, investigative, and community medicine.

110. Required Clinical Clerkship in Ambulatory and Community Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Completion of 24 weeks of clinical clerkship, including Pediatrics 110 and either Medicine 110 or Surgery 110 and 111. **Crede**

Integrated ambulatory clerkship experience of wide scope offered in a diversity of patient settings, including Adult Comprehensive, Family Care, Pediatric, and Dermatology Clinics, Home Care Service, Community Health programs, with additional assignments and seminars in radiology, psychiatry, and emergency care.

130. Introduction to Patient Care. (2) W or Sp. Prerequisite: Psychiatry 130. **Crede, Malloy**

An interdepartmental course including the sequence of medical events in patient care, the nature of physician-patient interaction, and the basic methods of identifying and solving problems in patient care. Lectures, small group discussion, and clinical section work.

140.02. Clinical and Community Health Programs. (1½ per week) Su, F, W, Sp. Prerequisite: Determined by students' clinical experiences and elective for which they are applying. **Staff**

Elective experience for two weeks to three months in community health projects of varied nature. Students may study and participate in unique health care programs such as Indian Health Service, Diabetic Summer Camp, Planned Parenthood Program, and Family Practice preceptorships.

140.03. Occupational Medical Practice. (1½ per week) F, W, Sp. Prerequisite: Consent of instructor. **Hine, Milby**

Clerkship at an industrial medical dispensary, two to four weeks; supervised instruction in diagnosis of industrial disease, surveillance of industrial hazards and health promotion activities.

140.04. Preceptorship in Primary Care. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Vandervoort, H. Davis**

Students work with a family practitioner, general internist or pediatrician in the office, observing the practice and performing duties as training permits. Experience will teach common health problems and primary care in a community setting. Rural preceptorships will be encouraged.

140.05. Social Medicine Pathway Selective. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Werdegar**

Field work experience or research germane to social medicine individually arranged with consideration of student's major area of interest.

140.06. Community Rehabilitation Medicine. (1½ per week) F, W, Sp. Prerequisite: Consent of instructor. **Sykes, Crede**

Students will be assigned to a variety of community medicine and other rehabilitation facilities for two to four weeks. Emphasis will be on the interprofessional approach to rehabilitation, and the selection of patients who are suitable for rehabilitation.

140.08. Family Practice Clerkship at *CHS.* (1½ per week) Su, F, W, Sp. Prerequisite: Third or fourth year standing. Medicine 110 and Pediatrics 110. Obstetrics and Gynecology 110 and Surgery 110 recommended. **R. Barnett, Dervin**

Involvement in comprehensive primary medical care of families (outpatient); participation in team approach to medical care, involving family physicians and allied health personnel, and experience in utilizing appropriate community health resources in solution of medical and family problems.

140.20. Family Practice Clerkship at *VMC.* (1½ per week) Su, F, W, Sp. Prerequisite: Third or fourth year standing. Medicine 110 or Surgery 110, plus Pediatrics 110 or Obstetrics and Gynecology 110. **R. Smith**

Involvement in comprehensive primary medical care of families (inpatient and outpatient); participation in team approach to medical care involving family physicians and allied health personnel; experience in utilizing appropriate community health resources in solution of medical and family problems.

140.21. Emergency Medicine Clerkship at *VMC.* (1½ per week) Su, F, W, Sp. Prerequisite: Fourth year standing. Medicine 110, Obstetrics and Gynecology 110, Pediatrics 110 and Surgery 110. **R. Daily, Crede**

A clerkship offering training in various aspects of emergency medicine. Primary responsibility for patients is included. The elective is divided into the following rotations: ambulatory patients, including minor lacerations, acutely ill patients, and experience with paramedic ambulance systems.

140.22. Problem-Oriented Clinical Clerkship at *STA.* (1½ per week) Su, F, W, Sp. Prerequisite: Third or fourth year standing. Medicine 110 or Ambulatory and Community Medicine 110, and working knowledge of problem-oriented medical records. **Joseph, Crede**

Practical experience in supervised patient work-up, using problem-oriented medical records for case review, patient management and audit of student's progress. Introduction to private hospital administration and community health activities.

140.23. Rehabilitation Medicine Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 or Ambulatory and Community Medicine 110. **Kirby, K. Holmes, Crede**

Practical experience in techniques of rehabilitation in a model community hospital rehabilitation center.

140.24. Primary Care Clerkship in a Semi-Rural Community Hospital at *Visalia.* (1½ per week) Su, F, W, Sp. Prerequisite: Third or fourth year standing. Pediatrics 110, or Medicine 110, or Ambulatory and Community Medicine 110. **Sharrer, Crede**

Supervised work-up of ambulatory patients with emphasis on interdisciplinary patient management in a private practice setting, close association with the medical community and introduction to a semi-rural locale.

150.01. Community Health Field Work. (1½ per week) F, W, Sp. Prerequisite: Consent of instructor. **Crede, Howard**

Field work to explore one area or more in social medicine or community health. Faculty from Schools of Medicine, Public Health, Nursing, Dentistry, and Social Welfare participate where needed.

160.01. Clinical Aspects of Community Medicine. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Barbaccia, Howard**

Students are assigned to community health agencies where they will have contact with patients. Seminars may be used to clarify issues in community health. Faculty from Schools of Medicine, Public Health, Nursing, Dentistry, and Social Welfare participate where needed.

160.02. Clinical Occupational Medicine. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Hine**

Clinical demonstrations and case presentations representative of occupational and environmental disease.

160.05. Centro Latino Elective. (1-2) Su, F, W, Sp. Prerequisite: Consent of instructor. **Sanchez, Pascoe**

Students participate in a program serving the needs of the Latino population at all age levels, from prekindergarten to elderly. Health care, free breakfast, and lunch programs are conducted at the Centro Latino, 1292 Potrero Avenue.

160.06. Latino School Elective. (3) Su, F, W, Sp. Prerequisite: Consent of instructor. Seminar 3 hours, Lab 6 hours. **Sanchez, Pascoe**

This project is a continuous outreach program dealing primarily with Spanish-speaking children, parents, teachers, and administrators in Mission District elementary schools. Students participate in teaching, dissemination, and delivery of health care.

160.07A-B. The Family: Health, Illness, and Care. (2-2) F, W. Two quarter course. **Ransom, Massad**

Students meet in small group seminars led primarily by family physicians. Through seminar discussion, reading, a preceptorship, and continuing contact with families undergoing medical care, students will be introduced to family medicine in the broadest sense.

160.08. Introduction to Family Therapy. (1) F, W, Sp. Seminar 3 hours. **Ransom, Schroder**

This course provides an introduction for students expecting to take more advanced training in family therapy. Students will not see families themselves, but will participate in

videotaped role playing exercises aimed at practicing basic techniques.

170.01. Aspects of Social Medicine in Community Health Agencies. (1-5) F, W, Sp. Prerequisite: Consent of instructor.
Crede, Howard

Seminars explore one area or more in social medicine or community health. Faculty from Schools of Medicine, Public Health, Nursing, Dentistry, and Social Welfare participate where needed.

170.05. Rehabilitation Medicine. (1-5) F, W, Sp. Prerequisite: Consent of instructor.
Sykes, Crede

According to the student's interest in areas such as chronic or crippling disease in children, surgical specialties, or disorders of special senses, individualized programs will be arranged to investigate rehabilitation services and related facilities.

171. Computers and Problem Solving with Applications to Health Care. (3) § Sp.
Wasserman, Tuttle, Blois

The nature of information processing. Concepts of problem solving with the digital computer. Representation of information within a computer system. Introduction to programming and systematic programming methodology. Examples of present and potential applications of computer systems to the medical environment.

172. Legal Medicine (2) § F, Sp.
Tennenhouse

Fundamental legal principles and procedures affecting medical practice including civil, criminal, administrative, business, and insurance law, with emphasis on medical negligence, the physician's role in litigation and the hazardous areas of medical practice which most frequently occasion litigation.

173. Clerkship Seminar In Primary Care. (1) F, W, Sp. Prerequisite: Must be entering core clerkship (seminar cycle begins in April of second year). **Cook**

The seminar relates core clerkship experiences to the provision of primary care. A practicing family physician leads the discussion of topics that are stimulated by clerkship assignments, and introduces students to the issues and demands of primary care.

175.01. The Medical Attitude. (1) F, W, Sp. Prerequisite: Consent of instructor.
Guttentag

An exploration of the philosophical premises on which medicine rests, of medicine's relationship to other disciplines, of the structure of the patient-physician relationship, and of medicine's operational concepts, such as optimal versus inadequate or superfluous exam.

175.02. Philosophical Problems of Clinical Medicine. (1) Su, F, W, Sp. Prerequisite: Consent of instructor. **Guttentag**

Seminar on selected writings and of topics discussed in Ambulatory Medicine 175.01.

180. Introduction of Social and Preventive Medicine. (1-2) F. **Werdegar**

Lectures and seminars introduce entering students to social, political, economic, and environmental factors influencing community health and provision of care. Topics include clinical preventive health care, community health planning, and formulation of social health policy.

182. Public Health Programs. (2) Sp. Prerequisite: Third or fourth year standing for Pharmacy students (required course); consent of instructor for other students.
Petrakis

Survey of major world health problems, and programs and agencies concerned with their control. Relationships of pharmacy to such topics such as emergency medical services, communicable diseases, nutrition, sanitation, occupational health, maternal and child hygiene, mental health, and public health administration.

184. Contemporary Spanish-Speaking Subcultures. (3) § F, W. Prerequisite: Consent of instructor. **Sanchez**

Investigation of selected theories of migration, urbanization, assimilation, and conflict with emphasis on diverse Spanish-speaking populations in urban areas; relationships between this grouping and formal institutions, such as education, law enforcement. and medical services.

185. Health Care Systems. (3) § Sp. Lecture 1 hour, Seminar 2 hours.
Barbaccia, Adamson

Lecture-seminar format is used to cover aspects of the organization and function of the health care system and its subsystems, including manpower, hospitals, ambulatory care, planning regulation and control, economics, government programs, and health services research.

186. Work/Health Problems in a Clinical Setting. (1½-2) F, Sp. Lecture 1½ hours. Student project or research required for 2 units.
Werdegar, Brodsky

Presentations of different types of patients with specific health problems. Students interview patients struggling with unresolved employment problems imposed by medical diagnosis.

187.01. Practitioner-Patient Relationship I. (1) § F. Seminar 1½ hours.
Schroder, Dienst

Explores communication skills and varieties of interviewing techniques in medicine and related fields. Direct observation of interviews conducted by physicians and other practitioners; post-interview discussion with providers and/or patients. Analysis of key elements of practitioner-patient interaction through videotape review.

187.02. Practitioner-Patient Relationship II. (1) § W. Seminar 1½ hours.
Schroder, Dienst

Provides experience in various interviewing contexts through role playing and other simulation situations. Objective of the course is the development of self-awareness as well as recognition of basic skills in practitioner-patient interaction.

188.01. Health Policy Seminar (2) § F.
P. Lee and Staff

An introductory series relating health care issues to health policy and ethical analysis, specifically, "Primary Health Care."

188.02. Health Policy Seminar. (2) § W.
P. Lee and Staff

An introductory series relating health care issues to health policy and ethical analysis, specifically, "Principles of Health Policy and Ethical Analysis—A Case Study Review."

188.03. Health Policy Seminar. (2) § Sp.
P. Lee and Staff

An introductory series relating health care issues to health policy and ethical analysis, specifically, "Financing Health Care."

188.04. Practitioner in Therapeutic Relationships: An Interdisciplinary View. (2) § W. **P. Lee, Shenkin**

Descriptions of practitioner-patient interactions, followed by explanation of practitioner's actions by past forces of education, social class, personality, and present work organization. Psychological, sociological, economic, political and health policy viewpoints examined. Discussion of articles and Freidson's "Profession of Medicine."

188.08. Health and Human Rights. (3) § Sp. **Jonsen, Parker**

Concepts of patients' rights, right to care, right of informed consent, right to treatment, are analyzed in legal and ethical cases. Objective is to increase awareness of claims to certain "rights" which impose duties on providers of health care.

189. Bioethics Workshop. (1) § F.
Jonsen, Garland, P. Lee

Lecture and workshop discussion of several health care situations in light of their ethical and public policy dimensions. Confidentiality, genetic screening and counseling, therapeutic experimentation in hopeless cases and testing of pharmaceutical products are discussed.

189.01. Workshop in Ethics and Medical Care. (1) § W. **Jonsen, P. Lee, Garland**

Lecture and workshop discussion of several medical care situations in respect to their ethical and policy dimensions: care of endangered and defective newborns, experimentation using normal children, public funding of sterilization programs, and chronic disease and quality of life.

189.02. Workshop in Ethics and Biomedical Issues. (1) § Sp.
Jonsen, P. Lee, Garland

Lecture and workshop discussions of ethical and policy dimensions of several current biomedical issues: aging and health care, fetal research, behavior technology, and the role of the pharmaceutical industry in health care.

190. Family Counseling and Psychotherapy. (1) § F, W, Sp. Prerequisite: Consent of Instructor. Seminar 3 hours.
Ransom, Schroder

Students observe family therapy sessions, both live and on videotape. Role playing family situations and therapeutic strategies will be emphasized. Appropriate readings are assigned and discussed in seminar.

198. Supervised Study in Ambulatory and Community Medicine. (1-5) § Su, F, W. Sp. Prerequisite: Consent of instructor.
Staff

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

200. Scientific, Ethical and Legal Design of Clinical Research Involving Human Subjects. (2) § W. Prerequisite: Graduate standing. **Jonsen, M. Parker, Sheiner**

Analysis of protocols for clinical research in terms of criteria for scientific validity and legal suitability; description of current local and national review process for approval of funded research.

201. Ethical Theory. (4) § F. Prerequisite: Consent of instructor. Lecture 3 hours, Indepedent study 3 hours. **Jonsen, Lebacqz**

The basic concepts and methods of philosophical ethics, with particular emphasis on respect for persons and justice, will be traced in classical and modern authors. Emphasis will be placed on critical analysis of ethical argument.

400. Family Practice: Seminars in Medical Literature. (½) Su, F, W, Sp. **Gude**

Monthly seminars are held on recent literature in the major clinical disciplines and subspecialties as pertains to the training and practice of the family physician.

401. Family Practice: Seminar in Diagnostic Radiology. (1) Su, F, W, Sp. **Scheibel, Fishbein**

Radiologists on attending staff present systematic review of techniques of interpretation of X rays as needed by the family physician. Roentgen findings in selected medical, surgical, pediatric, urological, obstetric, and orthopaedic problems are covered. Normal findings and their variants are stressed.

402. Family Practice: Office Counseling and Family Therapy at *CHS*. (1½) Su, F, W, Sp. **Ransom, Grace**

Theory and techniques for working with common emotional, behavioral and interpersonal problems are developed. The process is facilitated by the use of a one-way mirror, video-recording, and case conferences.

403. Family Practice: Staff Conferences at *CHS*. (3) Su, F, W, Sp. **Menachof**

Family practice residents and members of attending staff prepare and present case histories of patients as well as clinical reviews of selected problems in pediatrics, adolescent medicine, and family practice.

404. Family Centered Health Care at *CHS*. (4) Su, F, W, Sp. Lecture 3 hours, Lab 3 hours. **Grace, Ransom**

Theory and techniques of family-centered health care are presented through a series of cases observed directly through a one-way mirror and on video tape. Readings are discussed in seminars and role playing is occasionally used.

405. Family Practice: Visiting Professor Program at *CHS* and *VMC*. (2) Su, F, W, Sp. *CHS* **R. Barnett,** *VMC* **Mohaupt**

Weekly lectures, rounds, informal seminars, and case presentations are conducted by visiting faculty members from the University of California San Francisco representing diverse clinical disciplines and basic sciences.

406. Family Practice: Conferences in Obstetrics and Gynecology at *CHS*. (2) Su, F, W, Sp. **R. Adams**

Family practice residents and members of attending staff prepare and present case histories of patients as well as clinical reviews of selected problems in obstetrics and gynecology.

406.01. Family Practice: Staff Conferences in Internal Medicine at *CHS*. (4) Su, F, W, Sp. **Gude**

Family practice residents and members of attending staff prepare and present case histories of patients as well as clinical reviews of selected problems in family practice, internal medicine, and its various subspecialties.

406.02. Family Practice: Conferences in Surgery at *CHS*. (1½) Su, F, W, Sp. **Cary, Fraser**

Family practice residents and members of attending staff prepare and present case histories of patients as well as clinical reviews of selected problems in general surgery and its various subspecialties.

406.03. Family Practice: Conferences in Orthopaedics at *CHS*. (3) Su, F, W, Sp. **Campbell, Gulish**

Family practice residents and members of attending staff prepare and present case histories of patients as well as clinical reviews of selected problems in various aspects of orthopaedic surgery.

407. Family Practice Preceptorships at *CHS*. (1½ per week) Su, F, W, Sp. **Dervin, Neal**

Resident physicians spend blocks of time in clinical practice settings learning aspects of applied family medicine, office management, and how to function as a member of the health care team.

408. Introduction to Rural Health at *CHS*. (1) Su, F, W, Sp. **Rodnick**

Resident physicians are exposed to problems in health care delivery with emphasis on Mexican-American and counter-culture issues in two rural settings.

409. Seminar on Issues in Family Practice at *CHS*. (1½) Su, F, W, Sp. **R. Barnett, Dervin**

Resident physicians meet weekly to discuss a broad range of issues and problems related to family practice and family practice training. Topics range from the management of specific cases to the role of the family physician in the health care system.

430. Family Practice: Family Seminar at *SFGH*. (1½) Su, F, W, Sp. **Sluzki**

A seminar teaching a systems approach to the understanding of family dynamics and family therapy; utilizes lectures, case discussions, and technique demonstrations in seminar format.

431. San Francisco Family Forum at *SFGH*. (1½) Su, F, W, Sp. **Sluzki**

A series of conferences on family process and family change, utilizing speakers prominent in the field of family therapy. A forum type atmosphere is encouraged with interchange between speaker and audience.

432. Family Practice: Clinical Conferences at *SFGH*. (1½) Su, F, W, Sp. **Massad**

Conferences on medical subjects relevant to ambulatory care with participation by members of the faculty of the Family Practice Residency and appropriate representatives of diverse clinical specialties. Series of meetings about specific problems are scheduled.

433. Community Seminar at *SFGH*. (1½) Su, F, W, Sp. **Barnes, Donsky**

A series of seminars in which specific projects of Family Practice residents are presented, or in which broad issues are discussed that relate health care problems to the patients' sociocultural milieu.

450. Clinical Ambulatory and Community Medicine Residency Program. (1½ per week) Su, F, W, Sp. Prerequisite: One year postinternship in medicine or pediatrics. **Crede**

Clinical training is predominantly in an ambulatory setting, but limited hospital assignments may be provided. Residents are encouraged to participate in community health activities under the supervision of the faculty and are expected to participate in undergraduate medical student instruction.

460. Clinical Primary Care—Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Medicine 460. **Crede and Staff**

Interns in the Primary Care Track of Internal Medicine are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Medicine Internship Program as well as related clinical services, e.g., Dermatology, Neurology.

461. Clinical Primary Care—Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Medicine 461. **Crede and Staff**

Residents in the Primary Care Track of Internal Medicine are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Medicine Residency Program as well as related clinical services, e.g., Dermatology, Neurology.

462. Clinical Primary Care—Pediatrics. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Pediatrics 462. **Grumbach, Dower**

Interns in the Primary Care Track of Pediatrics are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Pediatrics Internship Program as well as related clinical services, e.g., Dermatology, Otolaryngology.

463. Clinical Primary Care—Pediatrics. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Pediatrics 463. **Grumbach, Dower**

Residents in the Primary Care Track of Pediatrics are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Pediatrics Residency Program as well as related clinical services, e.g., Dermatology, Otolaryngology.

Anatomy

100A. Systemic, Regional and Developmental Anatomy. (5) § F. Lecture 3 hours, Lab 6 hours. **A. Evans**

The gross structure of the human body is studied by means of dissection, demonstration, X ray, surface, developmental and cross-sectional anatomy with special reference to the functional aspects of the structures examined.

100B. Systemic, Regional and Developmental Anatomy. (4) § W. Lecture 2 hours, Lab 6 hours. **A. Evans and Staff**

The gross structure of the human body is studied by means of dissection, demonstration, X ray, surface, developmental and cross-sectional anatomy with special reference to the functional aspects of the structures examined.

100C. Systemic, Regional and Developmental Anatomy. (6) § SS. Lecture 4 hours, Lab 12 hours. **Asling and Staff**

The gross structure of the human body is studied by means of dissection, demonstration, X ray, surface, developmental and cross-sectional anatomy with special reference to the functional aspects of the structures examined.

100D. Systemic, Regional and Developmental Anatomy. (3) § F. Lecture 2 hours, Lab 3 hours. **Asling and Staff**

The gross structure of the human body is studied by means of dissection, demonstration, X ray, surface, developmental and cross-sectional anatomy with special reference to the functional aspects of the structures examined.

102. Histology. (5) § F. Lecture 3 hours, Lab 4 hours. **Long**

The course deals with the microscopic structure of cells, tissues, and organs except for the endocrine and reproductive systems.

103. Nervous System: Form and Function. (4-6) § Sp. Prerequisite: Consent of instructor required for graduate students. Lecture 5 hours, Lab 4 hours.
Ralston, Fields and Staff

The structure and function of the mammalian nervous system studied in lectures, conferences, demonstrations and laboratories, with emphasis on the human nervous system and its organization. Intended for students in the School of Medicine and as an introductory graduate course.

115. Histology. (3) § Sp. Lecture 2 hours, Lab 3 hours. **Mills and Staff**

A study of the microscopic structures of the tissues and organs of the human body by means of lectures, demonstrations, and microscope slides. Functional aspects of the structures are stressed.

116. Gross Anatomy. (3) § W. Lecture 2 hours, Lab 3 hours. **A. Evans and Staff**

A study of the macroscopic structure of the human body by means of lectures and dissections. Functional aspects of the structures are stressed.

117A-B. Gross Anatomy. (4-6) § F, W. F: Lecture 2 hours, Lab 6 hours. W: Lecture 3 hours, Lab 9 hours. **Coleman**

Gross anatomy of the trunk, upper extremity, and head and neck are studied by laboratory dissection and demonstration. The course includes an introduction to neuroanatomy. Emphasis is placed on the functions of the structures and systems examined.

118. General Histology. (3) § F. Lecture 2 hours, Lab 3 hours. **McDowell**

The microscopic structure of tissues and organs of the body are studied with their histophysiological considerations.

119. Neuroanatomy. (3) § Sp. Lecture 2 hours, Lab 3 hours.
S. Sutherland, Wong-Riley

The structure and function of the nervous system studied in lectures and laboratory.

150.01. Gross and Regional Anatomy. (1½ per week) § Su, W, Sp. Prerequisite: Program nust be approved by department and adviser during quarter previous to enrollment. **Asling**

Individual or group dissection; review of gross anatomy.

156. Survey of General and Head and Neck Anatomy. (6) F. Lecture 3 hours, Lab 9 hours. **Coleman**

The systems of the body are studied by lectures and laboratory demonstrations. The structures of the head and neck, including the central nervous system, receive major consideration. Emphasis is placed upon function and anatomic relationships.

170. Advanced Head and Neck Anatomy. (1-5) Sp. Prerequisite: General histology, gross anatomy of the head and neck, and oral histology. **Coleman**

Designed for postgraduate specialty certificate students enrolled in the clinical specialty training programs in the School of Dentistry. Seminar presentation and demonstrations of head and neck anatomy are correlated in their relation to clinical dentistry.

170.01. Problem Areas in Clinical Anatomy. (1) Su, F, W, Sp. Prerequisite: Prior or concurrent enrollment in Anatomy 100. First year standing in School of Medicine.
Lindner

Discussions of important areas in clinical anatomy such as hernia, thyroid, perineum and peritoneal cavity. Course is correlated with Anatomy 100.

170.02. Survey of Congenital Defects. (2) W. Prerequisite: Gross anatomy and consent of instructor.
Monie, R. Armstrong, Gilbert

This elective course provides information on the more common human congenital defects. Environmental and genetic factors which produce malformations are considered and possible mechanisms discussed. Course is intended primarily for physical therapist students.

170.05. Congenital Abnormalities. (2) § Prerequisite: Anatomy 100 or equivalent and consent of instructor. Enrollment limited.
Monie

Weekly seminars on experimental teratogenesis as a tool to understanding the formation of congenital abnormalities in man.

170.06. Experimental Endocrinology. (2) Su, F, W, Sp. Prerequisite: Offered in alternate years. **Lostroh, Papkoff**

Basic information on animal hormones, their structure, function and interrelationships. Concepts regarding hormonal actions are derived from chemical structure-function and biological *in vivo, in vitro* studies.

170.08 Regional and Topographical Anatomy. (1) F, W, Sp. Prerequisite: Second and third year medical students. **Lindner**

Living clinical anatomy is stressed; the diaphragm, complete review of the neck, and abdominal contents. Clinical congenital anomalies are discussed in detail regarding their relationship to clinical medicine.

170.09. The Language of Anatomy. (1) § Su, F, W. Prerequisite: Concurrent enrollment in Anatomy 100. **Asling**

A three-component elective, to foster vocabulary-building in anatomico-medical terminology, to reflect history of medical and cultural themes influencing development of anatomical nomenclature, and through student oral reports on eponymic terms, to introduce some major figures in anatomy.

170.11. Research in Electron Microscopy. (1) § F, W, Sp. Prerequisite: Anatomy 102. Lecture ½ hour, Lab 3½ hours.
Jones

This course offers training in electron microscopic techniques applicable to basic research and clinical problems.

170.12. Advanced Research in Electron Microscopy. (1) § F, W, Sp. Prerequisite: Anatomy 170.11. Lecture ½ hour, Lab 3½ hours. **Jones**

This course offers advanced training in electron microscopic techniques applicable to basic research and clinical problems.

180. Anatomy of the Lower Extremity. (1-2) Sp. Prerequisite: Anatomy 117A-B. Lab 3-6 hours. **Savostin-Asling**

Course is for students desiring to supplement required course work in anatomy (School of Dentistry) with additional dissection of the lower extremity.

198. Supervised Study in Anatomy. (1-5) § Su, F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Anatomy. (1-5) § Su, F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

201. Radiation Effects on Genes and Chromosomes. (2) § W. Prerequisite: Consent of instructor. **S. Wolff**

Concepts and mathematics of target theory relating to damage of genetic apparatus. Biophysical and biochemical studies on induction of intragenic and intergenic mutations that give insight into the structure of chromosomes and the interaction of radiation with biological material.

202. Seminar Course on Tissue Culture Methods in Biological Research. (1) § W. Prerequisite: Basic knowledge of biological principles and consent of instructor.
Elias, R. Armstrong

Course covers potentials and limitations of culture methods, advantages of assessing effects of various agents (e.g., hormones and vitamins) in controlled environment and use of culture methods with other research tools (e.g., autoradiography of electron microscopy). Papers will be discussed.

205. Biology of Mammalian Development. (3) § F. Prerequisite: Undergraduate course in embryology or consent of instructor. **Calarco and Staff**

Aspects of preimplantation and postimplantation mammalian development are considered. Topics include gametogenesis, fertilization, cleavage, *in vivo* development, implantation, placentation, differentiation, tissue interaction, fetal development of systems, teratogenesis and carcinogenesis.

215. Cell Structure and Function. (2 or 4) § Sp. Prerequisite: An elementary knowledge of cell ultrastructure and biochemistry and consent of instructor to enroll for 4 units.
Long

An advanced presentation of the relationships between structural organization and the physiological activities of cells.

216. Developmental Biology. (1-4) § F, W, Sp. Prerequisite: Consent of instructor. Enrollment limited. **Glass**

Laboratory or library research in mammalian embryology or directed reading on current developments in gametogenesis, fertilization, cleavage, implantation, organogenesis, or molecular differentiation.

217. Anatomy of the Head and Neck for Advanced Students. (2-6) § Sp. Prerequisite: Anatomy 117A-B or its equivalent and consent of instructor. Lecture 2 hours, Lab 0-12 hours. **Coleman**

Course is a critical analysis of selected topics and methods in head and neck anatomy. The topics are correlated with appropriate laboratory experience and are presented by students, staff, and guests.

220. Seminar (0-1) § F, W, Sp. **Staff**

A seminar series concerned with current topics in biology. Presentations are structured for graduate students and faculty.

225. Brain Organization. (4) § W. Prerequisite: Consent of instructor. Lecture 3 hours, Lab 3 hours. **Ralston**

Examination of the neuronal organization of the nervous system, including neuro-

cytology, development and plasticity of neural networks, the manner in which neurons form systems of the brain. Lectures, laboratory and seminars are included.

226. Neuroanatomy Seminar. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Ralston**

A seminar series dealing with current literature in neuroanatomy and neurophysiology.

230. Comparative Placentology and Foetal Endocrinology. (2) § F. **Contopoulos**

A series of discussions covering the comparative anatomical and physiological aspect of placentation and its relation to the development and the physiology of the foetal endocrine glands.

231. Molecular and Cellular Analysis of Development (3) § W. Prerequisite: Consent of instructor. **Calarco**

Molecular and cellular events relating to differentiation and development. A variety of developmental phenomena will be surveyed and related to genetic and epigenetic control mechanisms.

250. Research. (1-8) § F, W, Sp. **Staff**

298. Thesis (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the dissertation for the Ph.D. degree.

300. Practicum in Teaching. (1-4) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Training in teaching in a course offered by the Department of Anatomy under the supervision of instructor in charge. It includes laboratory teaching, presentation of lecture material, experience in setting up and correcting of examinations and participation in course critiques.

Anesthesia

110. Clinical Clerkship in Anesthesia. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 130, Psychiatry 130, Ambulatory and Community Medicine 130, Medicine 131A-B-C, Physiology 100, and Pharmacology 100A-B.
SFGH **Barber,** *UC* **Willenkin,** *VA* **M. Harper**

The course consists of instruction and experience in operating room anesthesia including preoperative and postoperative evaluation and care. Cardiopulmonary resuscitation and care of the unconscious patient are stressed. The course is conducted at *SFGH, UC* and *VA* hospitals.

140.01. Clinical Anesthesia. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C, Pharmacology 100A-B, Physiology 100, and Anesthesia 110. **Hamilton and Staff**

Clerkship at *UC, SFGH,* or *VA* hospitals. Supervised experience in operating room anesthesia, care of unconscious patients, management of pain problems. Informal seminars and departmental teaching conferences.

140.02. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C, Pharmacology 100A-B, Physiology 100, Anesthesia 110, and consent of instructor. **Hamilton**

Clinical clerkship in approved hospitals by special arrangement and approval of the chairman of the department.

140.03. Intensive Care Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Limited to fourth year students with consent of instructor. **Don**

Familiarizes students with intensive care techniques, emphasizing clinical respiratory and circulatory physiology applied to support patients with cardiopulmonary insufficiency. Seminar and discussion groups, active participation in techniques utilized in diagnosis, care and management of the critically ill.

140.04. Obstetrical Anesthesia. (1½ per week) Su, F, W. Prerequisite: Anesthesia 110, Obstetrics and Gynecology 110 and consent of instructor. **G. Levinson, Shnider**

Course covers anesthesia and analgesia for vaginal delivery and cesarean section. Emphasis is placed on effects of anesthetic techniques and drugs on normal physiologic changes in labor and delivery, placental transfer of drugs and resuscitation of the newborn.

178. Anesthesiology. (6) Sp. Prerequisite: interns and residents. Clinic. **Hamilton and Staff**

The systemic effects of the various muscle relaxants, sedatives, and stimulants and the administration of general anesthetic agents.

400. Anesthesia Staff Conferences. (2) F, W, Sp. **Stevens, Miller**

Course includes didactic lectures in sciences basic to the specialty of anesthesia, as well as case reviews, clinical discussions, and seminars on current medical literature in anesthesia.

450. Anesthesia Clinical Work. (1½ per week) Su, F, W, Sp. Required during first year of residency, also during either second or third year. *UC* **Hamilton**

Residents are responsible for anesthetic care and management of patients in the operating rooms and outpatient departments, under immediate supervision of the staff. Preoperative and postoperative evaluation of patients, oxygen therapy, and resuscitation are covered.

460. Anesthesia Special Assignments. (1½ per week) Su, F, W, Sp. Residents during either second or third year. *UC* **Eger**

Assignments include instruction in anesthesia for children, problems related to open heart surgery, cardiology, and opportunity for research in related fields.

Animal Science

162. Principles of Laboratory Animal Science. (3) § W. Lecture, 1 hour, Lab 6 hours. **Spinelli**

Introduction to the selection, anatomical and physical peculiarities and preoperative and postoperative care of animals. Laboratory experiments in anesthesia, surgical exercises, drug administration, perfusion techniques, and individual experiments are included.

Anthropology

181. Anthropology of Sex Roles. (3) § Sp. Prerequisite: Consent of instructor. **Lewin**

A cross-cultural view of sex roles through critique of anthropological research, concentrating on factors affecting women's status and role. Resultant perspectives will be applied to selected current issues and discussed in terms of the implications for change.

201A-B-C. Topics in Medical Anthropology. (1-1-1) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Students, staff or guests present selected topics based on their current work.

211A-B-C. Research Training Seminar. (3-3-3) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Fundamentals of anthropological research and research methods through lectures, readings, and field assignments.

221A-B. History and Theory of Anthropology. (3-3) § F, W. Prerequisite: Consent of instructor. Generally limited to students in anthropology. **Ruffini**

A review of the history and development of anthropology and its major theoretical approaches. Lectures, discussion and readings focus on major issues, trends, personalities, and present concerns in the field.

230A-B. Culture and Personality. (3-3) § F, W. Prerequisite: Consent of instructor. **Kiefer**

Exploration of the relationship between culturally conditioned ways of perceiving, thinking, and communicating, and individual behavior and personality development.

231. Ethnopsychiatry. (2-3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, plus 3 hours independent study for 3 units. **M. Clark, Hartog, Lauer, Maduro**

Course examines principles of healing systems in the treatment of mental disorder including folk healing, crosscultural comparisons, research methods, and implications for community psychiatry. Students study local examples of folk healers or folk-healing institutions.

233. The Anthropology of Aging. (2-3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, plus research project for 3 units. **M. Clark**

Cross-cultural approaches to roles, statuses and problems of aged populations. Cultural factors influencing the condition and adaptation of the aged in American society. Topics to be covered include cultural attitudes and values, social relationships and health problems.

234. Culture and Symbolism. (2-3) § F. Prerequisite: Anthropology 230A or equivalent, or consent of instructor. Lecture 2 hours, plus research project for 3 units. **Maduro**

Symbolic expressive behavior is considered from psychocultural life-cycle and psychoanalytic perspectives. Various projective systems are analyzed: psychological tests, dreams, folklore, myths, religious rituals, altered states of consciousness, and healing procedures.

235. Transcultural Aspects of Childhood. (3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, plus research paper. **Koss**

A review of child development, child rearing and family dynamics in various nonwestern cultures and in selected ethnic subcultures of the United States. Cultural contexts of personality formation, deviations in

development and childhood illnesses will be discussed.

237. Hallucinogens and Culture. (3) § Sp. Prerequisite: Consent of instructor. **deRios**

A cross-cultural survey of the use of mind-altering plants in religion, treatment of disease and magic. A wide range of non-Western societies will be included, from hunters and gatherers, incipient agriculturalists, intensive farmers, to the ancient civilizations.

240. Urban Anthropology. (2-3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, plus 3 hours independent study for 3 units. **Ablon**

The culture of modern cities. Evaluation of theories and methods for understanding urban behavior. Ethnic, racial, and subcultural pluralism in modern cities. The relevance of anthropological concepts for health planning. Field research project required.

241. Social Deviance. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, plus field research project. **Ablon**

A review of theory and concepts dealing with social and cultural deviance. Focus will be on deviant life styles and subcultural groups in urban areas.

242. Anthropological Considerations in the Community Mental Health Field. (2-3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, plus research project for 3 units. **Ablon, Zarrugh**

Course surveys principles and practice in the community mental health field. Emphasis is on the significance of sociocultural factors in the determination of community needs and the delivery of mental health services.

243. Interfaces between Law and Medicine: An Anthropological Perspective. (2-3) § Sp. Prerequisite: Consent of instructor. **Todd, Ruffini**

Cross-cultural survey of problems at law-medicine interface, including medical determinants of legal status; complementary/conflicting approaches to alcoholism, drugs, sexual conduct; therapeutic functions of social control procedures (witchcraft, gossip); conflicts between religious beliefs and medical/legal practices.

244. Legal Gerontology. (2-3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, plus 3 hours independent study for 3 units. **Todd, Ruffini**

A cross-cultural examination of the legal problems, needs, and behavior of the elderly, relating data from other societies to problems in the contemporary United States. Concepts, theories, and methods drawn from anthropological, legal, medical, and gerontological literature.

245. Health and Human Migration. (2-3) § Sp. Prerequisite: Consent of instructor. **Zarrugh**

Examination of a variety of types of migration, including the cross-cultural comparisons, research, methodology, and psychological, social and health implications of these population movements. Special emphasis is placed on migration on the North American continent.

246. Comparative Medical Systems. (2-3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, plus 3 hours independent study for 3 units. **M. Clark, Dunn, Koss**

A comparative examination of traditional and contemporary systems of health care delivery with special attention to theories of disease including notions regarding etiology, prophylaxis, treatment and treatment settings, and the therapeutic encounter.

248. Group Study. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Groups of two or more collaborate on special problems in anthropology under the direction of faculty. Students may select areas related to their long-term interest and future research program.

249. Directed Reading. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Independent study.

250. Research. (1-8) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

255A-B-C. Seminar in Medical Anthropology. (2-4, 2-4, 2-4) § F, W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours. Independent study 3 or 6 hours for additional units. **M. Clark, Dunn**

Core seminar in medical anthropology offered in Berkeley in fall and spring, and San Francisco in winter. A review of the principal fields of medical anthropology with emphasis on current research and methods.

260. Epidemiology and Medical Anthropology. (2-3) § F. Prerequisite: Consent of instructor. Lecture: 2 hours, plus 3 hours independent study for 3 units. **Dunn**

A review of the interactions between epidemiology and medical anthropology. Emphasis is on the medical ecological perspective in epidemiology. Particular attention is given to behavioral epidemiology and transdisciplinary collaboration in research.

262. Statistical Methods in Medical Anthropology. (2) § F. **M. King**

Experimental design and statistical methods of data analysis applicable to medical anthropology. Discussion is based on proposed research projects of students in the course.

263. Biological Perspectives on Growth and Development. (2) § Sp. Prerequisite: Consent of instructor **Pawson**

Examination of the human growth process with emphasis on: cellular growth and differentiation; biochemical basis of the growth process; critical periods of growth—fertilization, implantation, pre-natal development, birth, early postnatal development, adolescence, senescence; and developmental adaptation and racial differences in growth.

265. Principles of Human Variation. (2) § W. **M. King, Pawson, Petrakis,**

Exploration of the extent, origins, and significance of biological variation among human populations. Emphasis is placed on genetic, morphological, and functional aspects of this variation, and how these are maintained by evolutionary mechanisms.

270. Research in Population (2) § W. **Ernster**

Population research issues and methods, covering sources of demographic data and studies on family planning, evaluation of the impact of birth control programs on population and health, and considerations relevant to the use and acceptability of contraceptive methods.

297. Special Study. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Independent study.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

Biochemistry

100A-B. Cell Structure and Function. (5-5) § F, W. Prerequisite: Consent of instructor. **Rutter**

Lectures and conferences in biochemistry and molecular biology presenting fundamental knowledge and illustrating its applicability to medicine. Primarily for medical students.

110A-B. Cellular Structure and Function. (3-3) § F, W. **Fineberg and Staff**

Lectures in biochemistry include aspects of cell physiology and cellular ultrastructure, with some emphasis in the area of connective and mineralizing tissues. Fundamental knowledge is presented in the context of its applicability to clinical health sciences. Primarily for dental students.

111. Special Study for First Year Students. (2) F. Prerequisite: A general course in biochemistry. Lecture and Seminar 2 hours. **Newbrun and Staff**

Discussion of biochemical problems of interest in dentistry including enamel, saliva, mineralization, connective tissue, plaque, and oral bacterial metabolism.

120A-B. Cellular Structure and Function. (4-4) § F, W. Prerequisite: Consent of instructor. **Rutter**

Lectures and conferences in biochemistry include aspects of cell physiology and cellular ultrastructure, with some emphasis in the area of drug metabolism. Fundamental knowledge is presented in the context of its applicability to clinical medicine. Primarily for pharmacy students.

130. Biochemistry of Genetic Diseases. (3) W. Prerequisite: Biochemistry 120A-B or equivalent. **Eiler**

The genotype, phenotype, and biochemistry of causation and treatment will be considered with the clinical laboratory data for each disease. Students provide a written report of the literature research on a disease of their choice.

150.01. Research in Biochemistry. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Research in biochemistry.

198. Supervised Study in Biochemistry. (1-5) § F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Biochemistry. (1-5) § Su, F, W, Sp. Consent of instructor. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

200A-B-C. General Biochemistry. (3-3-3) § F, W, Sp. Prerequisite: Calculus, physical chemistry, organic chemistry, introductory biochemistry, and an advanced course in biology are recommended. Students with adequate background may enter at any quarter with the consent of instructor. **H. M. Goodman, McCarthy, Boyer**

A comprehensive, year-long course of lectures, problems, and group discussions

concerning general biochemistry. This course alternates biennially with Biochemistry 200D-E-F.

200D-E-F. General Biochemistry. (3-3-3) § F, W, Sp. Prerequisite: Calculus, physical chemistry, organic chemistry, introductory biochemistry, and an advanced course in biology are recommended. Students with adequate background may enter at any quarter with the consent of instructor. **Santi, Ramachandran**

A comprehensive, year-long course of lectures, problems, and group discussions concerning general biochemistry. This course alternates biennially with Biochemistry 200A-B-C.

201A. Physical Biochemistry I. (3) § Sp. Prerequisite: A year each of organic and physical chemistry or consent of instructor. **Yang**

Application of physical concepts and experimental methods to the study of the structure and function of biopolymers.

201B. Physical Biochemistry II. (3) § Sp. **Cooke**

Interaction of electromagnetic radiation with matter. Theory of light scattering. Spectroscopic methods useful in studying biological systems. Laser light scattering and molecular flexibility; applications of NMR, ESR and spin labels, flourescence, X ray diffraction, electron microscopy, and X ray spectroscopy.

202. Computation in Biochemistry and Physiology. (3) § F, W. Prerequisite: Consent of instructor. **Martinez**

Methods of digital and analog computation with applications to biochemical and physiological research. Elements of Fortran programming, numerical analysis, and data processing. Demonstrations and exercises on computers.

203. Introduction to Biomathematics. (3) § Sp. **Landahl, Martinez, Peller**

Mathematical modeling of enzyme kinetics, metabolic and hormonal control mechanisms, cooperative interactions of macromolecules, diffusion, passive and active transport, membrane models, excitation and conduction, flow, irreversible thermodynamics. Course offers student experience in problem formulation and reading of current literature.

207. Biochemistry of Connective Tissues. (2) § W. Prerequisite: Biochemistry 110A-B or equivalent and consent of instructor. Offered in alternate years. **Newbrun**

Lectures and assigned reading on chemistry, structure, and metabolism of the mucopolysaccharides, collagen, and elastin. Principles of histochemical reactions of connective tissues.

210. Current Topics. (0-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Discussion of selected areas of biochemistry, biophysics, and biomathematics.

211. Biological Transport Systems. (1) § Sp. Prerequisite: Biochemistry 100A-B, Physiology 100, and Physical Chemistry 110A-B, or equivalents. **Edelman**

Advanced seminar course on mechanisms of passive transport in biological and model membranes, kinetics of passive and active transport, the role of specific proteins and enzymes in these processes, and biochemical pathways involved in the regulation of rates of transport.

213A-B. Bio-Organic and Enzyme Mechanisms. (2-2) § F, W. **Santi**

Biochemically important chemical transformations from the physical organic point of view, emphasizing catalytic mechanisms pertinent to enzymic reactions, and to the development of enzyme model systems. Intermolecular forces and enzyme-substrate interactions. Techniques of investigating enzyme mechanisms.

215. Preparation for Research in Biochemistry and Biophysics. (3) § F, W, Sp. Prerequisite: Consent of instructor. Lab 9 hours. **H. M. Goodman**

A laboratory rotation course to familiarize new departmental graduate students with various approaches to biochemical and biophysical research.

220. Seminar. (0) § F, W, Sp. Lecture 1 hour. **H. M. Goodman**

Lectures and discussion on topics of current interest in biochemistry and biophysics.

221. Student Seminar. (0-1) § F, W, Sp. Lecture 1 hour. **Spudich**

Presentations of selected topics in biochemistry by graduate students in the Department of Biochemistry.

250. Research. (1-8) § F, W, Sp. **Staff**

297. Special Study. (1-3) § F, W, Sp. **Staff**

Reading and conferences for properly qualified students under the direction of a member of the staff.

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the dissertation for the Ph.D. degree.

Biomaterials

110B-C. Biomaterials Science. (1-1) W. Sp. **Jendresen**

Students are introduced to the physics, chemistry, and metallurgy of materials used in dentistry and how use effects physical and chemical properties of materials. The material systems studied are gypsum, cements, resins, waxes, colloids, and metals.

120. Biomaterials Science. (1) W. **Jendresen**

Students are presented with the rationale for the use of clinical restorative materials. Each major restorative material system is studied in respect to material manipulation and clinical application.

130. Biomaterials Science. (1) Sp. **Jendresen**

Students are taught to analyze accurately clinical and laboratory problems with respect to major material systems. Emphasis is placed on understanding why clinical failures occur with selected materials and what biological responses can be expected.

156. Dental Materials Survey. (1) W. Lecture 1 hour, Lab 1 hour. **Jendresen**

An introduction for the dental hygienist to the basic concepts associated with selected dental materials. Emphasis is placed on the use and manipulation of materials commonly used in the practice of dentistry.

180. Biomaterials Science. (1) Sp. **Jendresen**

A survey of current research in the dental materials field, including evaluations of recently introduced materials and a review of the limitations and indications for all basic materials commonly used.

199. Laboratory Project in Biomaterials. (1-5) F, W, Sp. Third or fourth year standing and approval of the Dean. Lecture 1 hour, Lab 0-12 hours. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Biomathematics[11]

193A-B-C. Advanced Calculus and Differential Equations. (3-3-3) § F, W, Sp. Prerequisite: Biomathematics 190C or equivalent. **Landahl and Staff**

Ordinary differential equations. Systems of algebraic and differential equations. Laplace transform, matrix algebra, vectors. Partial differential equations, boundary value problems. Applications to problems of physiology, pharmacology, biochemistry, and biophysics.

214. Endocrine Dynamics. (3) § W. Prerequisite: Biomathematics 190A-B-C and 193A-B-C, or equivalents, or consent of instructor. **Licko**

Review of relevant parts of compartmental and tracer analysis and control theory. Analysis of dynamics of secretory process, distribution, binding and metabolism of hormones, and hormonal control. Differential equations and both analog and digital computers are utilized throughout the course.

Biophysics

250. Research. (1-8) § F, W, Sp. **Staff**

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the dissertation for the Ph.D. degree.

Biostatistics

151B. Biostatistics. (2) W. **Mizis**

Elementary statistical concepts including mean, median, mode, centiles, standard deviation, z-scores, probability, the binomial distribution, normal curve, and one-sample hypothesis testing. Simple group research projects are undertaken. Examples taken from dentistry, biology and medicine.

151C. Biostatistics. (2) Sp. **Citron**

Pearson-r, two-sample tests, standard error, large and small sample theory, t-test, and chi-square tests are covered. Group research projects will be undertaken summarizing dental research literature, and statistical tests will be performed on data gathered in the clinic.

180.03. Introductory Statistical Treatment of Clinical and Laboratory Problems. (2-3) F. Lecture 2 hours, Lab optional 0-3 hours. **Zippin**

[11] See Biochemistry 202 and 203.

Basic concepts and techniques for the planning and analysis of clinical studies and scientific experiments. Introduction to statistical techniques to summarize qualitative and quantitative data and to draw inferences, taking into account the design and execution of the investigation.

190. Introduction to Biostatistics. (3) § F. **Zippin**

Principles of collection and tabulation of data; measures of morbidity, mortality, and health services; standardization techniques; planning surveys; descriptive and inferential statistics.

191B-C. Introduction to the Theory of Statistics. (2-2) § W. Sp. Prerequisite: Differential and integral calculus or consent of instructor. **Zippin**

Introduction to probability, distribution theory, and stochastic processes in biology and medicine.

197. Introductory Statistics. (3) § F. **Zippin, Heilbron**

A modern introduction to statistics emphasizing the data analysis school of statistics. The course is a systematic introduction to statistics and makes full use of the progress in statistics that has occurred in the last few years.

202. Regression, Analysis of Variance, and Design of Experiments. (4) § W. Prerequisite: Biostatistics 197. Lecture 3 hours, Lab 2 hours. **Zippin**

This course considers analysis of variance and covariance, regression, and the statistical design of experiments.

263A. Practicum in Biostatistical Consultation. (3) § F. Prerequisite: Consent of instructor. **Zippin**

Supervision in statistical consulting.

263B. Practicum in Biostatistical Consultation. (3) § W. Prerequisite: Consent of instructor. **Zippin**

Supervision in statistical consulting.

Chemistry

11. Organic Chemistry. (3) F. Prerequisite: Chemistry 1A-B-C or equivalent. **R. B. Meyer, Oppenheimer**

An introductory study of the structure, stereochemistry, reactivity, and functionality of compounds of carbon.

12. Organic Chemistry. (3) W. Prerequisite: Chemistry 11. **Craig**

A continuation of the study of compounds of carbon including some aromatic compounds.

16. Organic Chemistry—Laboratory. (3) W. Prerequisite: Chemistry 11. Lecture 1 hour, Lab 6 hours. **Ortiz de Montellano**

Laboratory techniques in organic chemistry. The preparation and study of organic compounds, with an introduction to quantitative organic analysis.

113. Organic Chemistry. (3) Sp. Prerequisite: Chemistry 12. **Kenyon**

A continuation of the study of compounds of carbon including some aromatic, hydroaromatic, and heterocyclic compounds.

115. Physical Chemistry. (5) F. Prerequisite: Chemistry 5 or equivalent laboratory course in quantitative analysis and differential and integral calculus. Lecture 4 hours, Conference and demonstration 3 hours. **Shetlar, Kuntz**

Elementary physical chemistry with particular emphasis on thermodynamics.

116. Physical Chemistry. (2) W. Prerequisite: Chemistry 115 or equivalent. Lecture 1½ hours, Conference and Demonstration 1½ hours. **T. James**

Elementary physical chemistry with emphasis on chemical kinetics.

150. Survey of Physical Chemistry. (2) F. Prerequisite: Differential and integral calculus and college physics. **Shetlar, Kuntz**

Intent of course is to serve as background for Chemistry 160, 161, and 162 for advanced students who lack proficiency in basic physical chemistry.

151. Physical Chemistry. (3) Sp. Prerequisite: Chemistry 116 or equivalent. **Crippen, Shafer**

An elective continuation of Chemistry 115 and 116. Elementary physical chemistry emphasizing aspects of spectroscopy and quantum mechanics.

155. Chemical Toxicology. (2) F. Lecture 1 hour, Lab 3 hours. **K. H. Lee**

The methods of chemical detection and analysis of the common poisons. Normally open to third and fourth year students.

157. Organic Chemistry—Laboratory. (3) § Sp. Prerequisite: Chemistry 12 and 16. Conference 1 hour, Lab 8 hours. **Craig and Staff**

A course with some flexibility depending on the student's interest in the area of qualitative organic analysis or organic synthesis, dealing in part with compounds of pharmaceutical interest.

158. Physical Chemistry—Laboratory (1) Sp. Prerequisite: Concurrent enrollment in Chemistry 151. Lab 3 hours. **Crippen, Shafer**

Laboratory exercises in conjunction with Chemistry 151.

159. Organic Chemistry—Laboratory. (3) Sp. Prerequisite: Chemistry 16. Lecture 1 hour, Lab 6 hours. **Castagnoli, Wolff**

Advanced experiments in organic chemistry intended to broaden students' knowledge of experimental procedures.

160. Advanced Physical Chemistry. (3) § Sp. Prerequisite: Two quarters of physical chemistry or consent of instructor. **Tuck, Shafer**

Chemical thermodynamics.

161. Advanced Physical Chemistry. (3) § W. Prerequisite: Chemistry 116 or equivalent. **Shetlar**

Theory and applications of chemical kinetics.

162. Advanced Physical Chemistry. (4) § F. Prerequisite: Chemistry 151 or equivalent. Knowledge of differential equations recommended. **Kollman**

Quantum mechanics and applications to molecular problems.

165. Organic Chemistry—Analytical Methods. (4) § Sp. Prerequisite: Chemistry 113. Lecture, 1 hour, lab 9 hours. **Weinkam**

A study of the reactions of organic compounds by applying a system of qualitative analyses to the determination of characteristic groups.

170. Group Studies Course. (1-4) F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Group studies of selected topics in chemistry.

198. Supervised Study in Chemistry. (1-5) F, W. Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Chemistry. (1-5) F, W. Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

202. Advanced Organic Chemistry. (4) § Sp. Prerequisite: Chemistry 113, 116, 157, and 165 or equivalent. **Ketcham**

A study of the detailed processes associated with organic reactions.

203. Advanced Organic Chemistry. (4) § W. Prerequisite: Chemistry 113, 115, and 165 recommended. **Ortiz de Montellano**

Physical organic chemistry; the structure of molecules and its relationship to mechanisms of reaction.

204. Organic Chemistry: Reactions and Synthetic Methods. (2) § F. Prerequisite: Chemistry 113 and 157, or equivalent. Chemistry 165 recommended. Lab 6 hours. **Craig**

A course in advanced laboratory work exemplifying the major reactions and newer synthetic methods used in organic chemistry.

205. Recent Advances in Synthetic Methods. (2) § F. Prerequisite: Chemistry 113 and 157, or equivalent. Chemistry 165 recommended. **Craig**

Recent advances in synthetic methods, comprising specific oxidizing agents, specific reducing agents, and other specific reagents.

208. Advanced Organic Chemistry. (3) § Sp. Prerequisite: Chemistry 113 and 157, or equivalent. Chemistry 165 recommended. **Craig, Wolff**

Terpenes and steroids. Occurrence, chemistry, stereochemistry and structure-function relationships of natural products such as carotenoids, fat-soluble vitamins and steroids, and their precursors.

209. Chemistry of Heterocyclics. (3) § Sp. Prerequisite: Chemistry 113 and 157, or equivalent. **Craig, Castagnoli**

A survey of the main nitrogen, oxygen, and sulfur-containing heterocycles.

Clinical Dentistry

409. Clinical Dentistry. (0-10) F, W, Sp. Clinic 0-30 hours. **Staff**

Responsibility for patient dental care in the wards and comprehensive clinic under the direction of the attending staff. Dental consultations and treatment are coordinated with medical care. Residents take histories and perform physical examinations, laboratory tests, and dental treatment.

Clinical Laboratory Science

102A-B. Instrumentation in the Clinical Laboratory. (2-2) § F, W. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 2 hours. **Seidlitz**

Development of student's ability to make critical evaluation of existing and proposed clinical laboratory instrumentation; principles of operation and electronic, optical, and other physical characteristics of various clin-

ical instruments; calibration procedures, methods for determining accuracy, and procedure of test results.

103A-B. Immunohematology. (1-1) § W, Sp. Prerequisite: Clinical Laboratory Science 103A is prerequisite to 103B. Lecture 1 hour, Lab 1 hour. **Vyas**

Blood banking and related topics of immunohematology will be covered by formal lectures, demonstrations, case discussions, and seminars on blood groups, compatibility test, tissue typing, hemolytic anemias, isoimmunization in pregnancy, blood component therapy, and transfusion reactions.

104. Pharmacology. (1) § Sp. Prerequisite: Pharmacology 126B or equivalent. **Sheiner**

This course completes the pharmacology requirements of Clinical Laboratory Science students. Course content is similar to that of Pharmacology 126C, but is much briefer. Emphasis is placed on laboratory aspects of drug therapy.

105. Clinical Laboratory Computer Science. (2) § W. Prerequisite: A.B. in physical or biological science. **Henley**

A review of the fundamentals of computer science as they relate to clinical laboratory information systems and a detailed examination of the current clinical laboratory systems.

120. Statistical Methods Applicable to Quantitative Patient Data. (2) § Sp. Prerequisite: Consent of instructor; a familiarity with basic statistical and biostatistical concepts. **Sheiner, Elashoff**

An overview of modern statistical approaches to the analysis and understanding of quantitative patient data, primarily as available through the clinical laboratories. Topics include: quality control, normal values, multivariate structure including parametric and non-parametric approaches, and forecasting and classification methods.

199. Laboratory Project in Clinical Laboratory Science. (1-5) § F, W, Sp. Prerequisite: Enrollment in Clinical Laboratory Science master's program. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

201A-B-C. Clinical Chemistry. (2-2-2) § F, W, Sp. Prerequisite: Degree in Chemistry or Medical Technology license. **Nussenbaum**

Principles and evaluation of chemical laboratory methods used to diagnose abnormalities in metabolism and organ function.

207A-C. Enzymology. (2-2) § F, Sp. Prerequisite: Consent of Instructor. **Joyce**

The fundamental concepts of enzyme kinetics are reviewed; enzyme measurement and automation; enzyme profiles in various diseases and specific enzyme methodology are presented.

209. Quality Control. (2) § W. Prerequisite: Enrollment in Clinical Laboratory Science master's program. **Barr**

A review of principles of statistics and their application to quality control in the clinical laboratory; legal aspects of quality control, preventive maintenance.

210A-B. Clinical Pathology Seminars. (1-1) § F, W. Prerequisite: Consent of instructor. **Brecher, Loken**

Specialists on various established and proposed laboratory tests will present interpretation and evaluation of tests as related to pathophysiology.

212A-B. Laboratory Management. (2-2) § W, Sp. Prerequisite: Enrollment in Clinical Laboratory Science master's program. **Bennington, Westlake**

A survey course in management principles important to the clinical laboratory. Special emphasis will be given to laboratory organization, budgeting, and cost analysis.

215. Clinical Toxicology. (2) § Sp. Prerequisite: Consent of instructor. **P. Reynolds, McKnie**

This course acquaints students with the implications as well as the systematic schemes and specific techniques of volatiles, acidic, neutral and basic drugs, metals, and miscellaneous drugs and toxic agents encountered in clinical and forensic laboratories.

216. Clinical Toxicology Laboratory. (2) § Sp. Prerequisite: Consent of instructor. **Staff**

This course will be given as a three week traineeship program in one of the most active toxicology laboratories in the Bay Area.

230A. Clinical Microbiology. (2) § Su, F, W, Sp. Prerequisite: Consent of instructor. **Hadley**

Principles of clinical laboratory methods for diagnosis of infectious disease are reviewed. Newer detection methods (immunofluorescence, radioimmunoassay, gas chromotography) are examined. *In-vitro* methods of susceptibility testing and assay of antimicrobials are discussed and critically evaluated.

230B. Clinical Microbiology. (2) § Su, F, W, Sp. Prerequisite: Consent of instructor. **Hadley**

Principles of clinical laboratory methods for diagnosis of infectious disease are reviewed. Newer detection methods (immunofluorescence, radioimmunoassay, gas chromatography) are examined. *In-vitro* methods of susceptibility testing and assay of antimicrobials are discussed and critically evaluated.

250. Research. (1-8) § Su, F, W, Sp. **Hadley, Senyk**

254. Clinical Immunology. (2) § F, W, Sp. Prerequisite Consent of instructor. **Senyk**

Principles of antigen-antibody reactions and the evaluation of their usefulness in the diagnosis of disease. The role of cellular and humoral immunity in host defenses against infections.

298. Thesis. (0) § Su, F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Hadley, Senyk**

For students engaged in writing the thesis for the master's degree.

Clinical Pharmacy

110. Orientation in Pharmacy. (2) F. Conference and Field observation 3-4 hours. **deLeon, Herfindal, Beste**

An introduction to the scope of pharmaceutical practice including field trips to and participation in various settings where the pharmacist and patient interact.

130. Clinical Pharmacy. (5) F. Prerequisite: Pharmacology 125 and Pharmacy 129. Lecture 4 hours, Conference 2 hours. **Kimble, Benet and Staff**

Orientation to selected areas of medical practice, the clinical evaluation and comparison of drugs used in these areas, and the biopharmaceutics of drug combinations and products.

131. Clinical Pharmacy. (6) W. Prerequisite: Clinical Pharmacy 130. Lecture 5 hours, Conference 2 hours. **Winter, Riegelman and Staff**

Continuation of Clinical Pharmacy 130.

132. Clinical Pharmacy. (7) Sp. Prerequisite: Clinical Pharmacy 131. Lecture 6 hours, Conference 2 hours. **Ignoffo, Benet and Staff**

Continuation of Clinical Pharmacy 131.

135. Preclerkship Orientation and Drug Information Analysis Service (DIAS) Rotation. (3) F, W, Sp. Prerequisite: Third year standing. **McCart, Shimomura, McSweeney**

Orientation to clinical services, including patient interview techniques and monitoring, training and actual experience in literature retrieval, and analysis and dissemination of drug information.

145. Senior Clinical Conference. (1) F. Prerequisite: Clinical Pharmacy 132. Conference 2 hours. **T. Dunphy and Staff**

Orientation to selected areas of medical practice, the clinical evaluation and comparison of drugs used in these areas, and the biopharmaceutics of drug combinations and products.

146. Senior Clinical Conference. (1) F, W. Prerequisite: Clinical Pharmacy 145. Conference 2 hours. **T. Dunphy and Staff**

Continuation of Clinical Pharmacy 145.

147. Senior Clinical Conference. (1) W, Sp. Prerequisite: Clinical Pharmacy 146. Conference 2 hours. **T. Dunphy and Staff**

Continuation of Clinical Pharmacy 146.

148. Inpatient Clinical Clerkship. (13) F, W, Sp. Prerequisite: Clinical Pharmacy 132, 135 and Pharmacology 136. **Kayser, Gambertoglio and Staff**

Supervised experience in the patient care area of pharmacy service. Course may not be repeated for credit.

149. Outpatient Clinical Clerkship. (8) F, W, Sp. Prerequisite: Clinical Pharmacy 132, 135 and Pharmacology 136. **Dong, Levin and Staff**

Supervised experience in the Ambulatory and Community Medicine Outpatient Clinics, including Comprehensive Care, Pediatrics, and Primary Care Clinics. Course may not be repeated for credit.

152. Problems in Drug Induced Diseases. (3) F, W, Sp. Prerequisite: Pathology 135 and third year standing or higher. Lecture 2 hours, Conference and Special project 4 hours. **Tong**

The phenomena of inatrogenic diseases will be studied with major emphasis on their significance, pathology, and management. Assessment of collection and analytic methods of adverse drug reaction information and evaluation of literature will be considered. Special projects will be assigned.

153. Pharmacy Systems. (3) F, Sp. Prerequisite: Third year standing or higher. Lecture 1 hour, Conference and Special project 6 hours. **deLeon, Herfindal, Beste**

Orientation to inpatient and outpatient pharmacy systems. Projects in design, justification and implementation of distribution systems such as unit dose, intravenous additive services, computer applications are the major grading criteria. Evaluation will be based on the ability to implement a program.

154. Seminar in Intraprofessional Communications. (2) F. Prerequisite: third or fourth year standing and consent of instructor. Seminar 1 hour. Field trips.
deLeon, Beste

Students serve as preceptors for Clinical Pharmacy 110 to gain experience in leading group conferences, discussing the role of the pharmacist, and identifying and implementing concepts related to patient oriented pharmacy. Course may be repeated for credit once.

156.01. Clinical Clerkship at Ross Valley Pharmacy. (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. Consent of instructor. **Kimble, Lofholm, Wilson**

Students interview patients, maintain medication records, explain medication usage to patients and answer drug therapy questions generated by physicians, pharmacists, and patients in a pharmacy located within a group medical practice.

156.02. Clinical Pharmacy Clerkship at the South of Market Health Center. (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. Consent of instructor.
Kimble, Whooley, Torigoe

Students collect data for a problem-oriented medication record, dispense medication, educate patients as to proper medication usage, and provide drug therapy recommendations for patients assigned to the pharmacist for chronic therapy management.

156.20. Clinical Pharmacy Clerkship in Inpatient Pediatrics at *UC.* (1-8) F, W. Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Cupit**

Students participate in the activities of the inpatient Pediatric Service. Activities include routine review of patient charts, monitoring patient response to durg therapy, attendance at conferences, seminars and rounds, and participation in selected therapeutic consultations.

156.22. Clinical Pharmacy Clerkship in Pediatrics Specialty Clinics at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **R. H. Levin**

Students work under supervision of a clinical pharmacist and physicians in preparation of a therapeutic management plan for selected patients. They participate in conferences and seminars, and perform selected therapeutic consultations for the clinical staff.

156.25. Clinical Pharmacy Clerkship in Renal Medicine at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Gambertoglio**

Students participate in the activities of the Renal Medicine Service, including patient monitoring, attendance at conferences, seminars and rounds, and application of pharmacokinetics to drug therapy. Where appropriate, students will prepare detailed consultations regarding individual patient therapy.

156.26. Clinical Pharmacy Clerkship in Thyroid Clinic at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Dong**

Students participate in the activities of the Thyroid Clinic, including patient monitoring, attendance at conferences and seminars. They will work under supervision of the clinical pharmacist and physicians in the chronic management of selected patients.

156.27. Clinical Pharmacy Clerkship in Dermatology Clinic at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 132 and Pharmacy 155. Consent of instructor.
Kimble, Yoshimura

Experience in various subspecialty areas in the Dermatology Clinic. Students take medication histories and instruct patients on proper medication usage. They participate in conferences, seminars and rounds, and provide therapeutic consultations where appropriate. Special projects are assigned.

156.30. Clinical Pharmacy Clerkship in Pediatrics at *K.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132, and 148 or 149. Consent of instructor. **Kimble, Pigeon**

Students participate in the activities of the inpatient Pediatric Service. Activities include routine reviewing of patient charts, providing therapeutic consultations where appropriate, monitoring patient response to drug therapy, attending conferences, seminars and rounds. Special projects are assigned.

156.35. Clinical Pharmacy Clerkship in Infectious Diseases at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Kimble, Barriere**

Students review Infectious Disease Service therapeutic consultations and evaluate patients' responses to recommended therapy by following chart records and by direct interviews. Attendance at conferences, seminars and rounds. Special projects are assigned.

156.40. Clinical Pharmacy Clerkship at Sunset Mental Health Clinic. (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 149 or concurrent enrollment. Consent of instructor.
Kimble, Wong

Students work with the clinical pharmacist to evaluate psychiatric patients' response to drug therapy, and present consultations reviewing overall patient therapeutic management in weekly seminars.

156.42. Clinical Pharmacy Clerkship at Haight-Ashbury Heroin Detoxification Unit. (1-8) F, W, Sp. Prerequisite: Consent of instructor. **Kimble, Inaba**

Students work as co-therapists under the supervision of a clinical pharmacist and physicians to develop individual therapy plans for drug detoxification. Where needed, students will develop detailed drug information reports appropriate to specific patient care.

156.50. Clinical Pharmacy Clerkship in Inpatient Medical Service at *VA.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 and consent of instructor.
Kimble, Nagata and Staff

Experience in various medical services at VA. Activities include interviewing patients, monitoring drug therapy, consultation with house staff, and participation in conferences, seminars and rounds. Special projects are assigned.

156.52. Clinical Pharmacy Clerkship in Inpatient Medicine at *VAPA.* (1-8) F, W. Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Kimble, Furtado**

Experience in various medical services at VAPA. Activities include monitoring drug therapy, consulting with house staff, and participation in conferences, seminars and rounds. Students will provide selected therapeutic consultations where appropriate.

156.60. I.V. Additives and Parenteral Fluid Therapy at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 and consent of instructor. **Kimble, Chan**

Students participate in I.V. fluid therapy selection and preparation, and monitor patients receiving intravenous medications. Conferences will be held on topics related to problems in the use of intravenous fluid therapy in various disease states.

156.70. Clinical Pharmacy Clerkship in Drug Information Analysis Service at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132 and 135. Consent of instructor. **McCart and Staff**

Advanced experience in drug information retrieval and analysis. Activities include participation in conferences, seminars and selective teaching assignments in Clinical Pharmacy 135. Special projects are assigned.

156.72. Clinical Pharmacy Clerkship in the Drug Information Service at *A.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 132 and 135. Consent of instructor.
Kimble, Fleckenstein

Experience in collection, evaluation and dissemination of drug information in a community based drug information service. Activities include answering drug information requests from community practitioners.

156.78. Clerkship in Clinical Pharmacology at *SFGH.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149 or equivalent. Consent of instructor. **Tong**

Students, in an interdisciplinary setting, assess clinical problems relating to the selection, pharmacodynamics, and therapeutic merits of drugs and drug products. Activities include participation in rounds and conferences, collaboration on selected consultations, and retrieval and evaluation of drug literature.

165. Hospital Pharmacy. (1-5) F, W, Sp. Conference and special projects.
Beste, Owyang, Herfindal

Course is intended and recommended for students who plan to apply for the resident program in hospital pharmacy. Other students may enroll with consent of instructor.

170. Group Studies. (1-4) Su, F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Group studies of selected topics in clinical pharmacy.

196.01. Clinical Clerkship at Co-op Pharmacy in Berkeley. (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, and 132. Consent of instructor. **Kimble, Kamil**

Students take patient medication interviews, explain medication usage to patients, and answer drug therapy questions generated by physicians, pharmacists and patients in a community pharmacy setting.

196.03. Clerkship in I.V. Additive Services at Mary's Help Hospital. (1-4) F, W, Sp. Prerequisite: Fourth year standing.
Kimble, Kotabe, Rupp

Students participate in the preparation of I.V., irrigation and inhalation solutions and are exposed to various types of I.V. equipment. Conferences will be held on topics related to the clinical use of parenteral therapy and drug distribution systems.

196.04. Clerkship in Unit Dose Systems at Mary's Help Hospital. (1-4) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132 and 148 or 149. **Kimble, Scarpace, Kahl**

Practical experience in a community hospital pharmacy unit dose system. Conferences will be held on topics related to the principles and theory of the unit dose system, drug therapy problems encountered in monitoring, and interprofessional relationships.

196.27. Pediatric Specialty Clerkship at *SFGH.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132 and 148 or 149. Consent of instructor. Enrollment limited. **Tong**

Students participate with the pediatric staff in dealing with problems frequently encountered in general pediatric medicine, in addition to those which afflict children from low income, overcrowded and substandard conditions. Activities include rounds, conferences and participation in special projects.

196.30. Clinical Pharmacy Clerkship in Obstetrics and Gynecology at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Kimble, Ruggiero**

Experience in various subspecialty areas in the Obstetrics and Gynecology Clinic. Students work with other health professionals, participating in conferences and seminars. They will prepare detailed consultations regarding drug therapy where appropriate.

196.35. Clinical Pharmacy Clerkship in the Home Care Service of the Ambulatory and Community Medicine Division at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Dong**

Participation in an interdisciplinary health care team to provide home care service to ambulatory patients. Activities include reviewing prescription and proprietary medication utilization, providing patient education, and therapeutic consultations to physicians.

196.42. Clinical Pharmacy Clerkship in Medicine at *GS.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. Consent of instructor. **Kimble, Rainey**

Experience in various medical services at a private community hospital. Students will interview patients, monitor drug therapy, consult with house staff and nursing service, and prepare drug information reports appropriate to patient care.

196.44. Clinical Pharmacy Clerkship in Medicine at *STJ.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. Consent of instructor. **Kimble, Miya**

Students attend rounds with physicians and pharmacists, participate in seminars with the pharmacy staff, monitor drug therapy, and research drug therapy questions formulated by physicians and pharmacists.

196.48. Clinical Pharmacy Clerkship in Medicine at *MM.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 and consent of instructor. **Kimble, Chann**

Experience in various medical services at a private community hospital. Students interview patients, monitor drug therapy, consult with house staff and nursing service, and prepare drug information reports appropriate to patient care.

196.55. Medical Specialties Clerkship at *SFGH.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 196.78. Consent of instructor. Enrollment limited. **Tong**

Students rotate through the Coronary Care, Chronic Dialysis and Communicable Disease Units where they participate in conferences, work rounds and seminars, monitor drug therapy, provide therapeutic consults and drug information retrieval and analysis.

196.59. Developmental Clinical Pharmacy Clerkship in Various Medical Specialty Clinics at *UC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132 and 148 or 149. Consent of instructor. **Kimble and Staff**

Exploration of the potential service roles of clinical pharmacists in various medical specialty settings.

196.76 Clinical Clerkship in Clinical Pharmacology at *S.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Kimble, Tatro**

Students participate in the activities of the Division of Clinical Pharmacology. Activities include utilization of computerized patient drug profiles to monitor adverse drug reactions, and participation in conferences and seminars. Special projects are assigned.

196.77. Clerkship Experience in Peer Review and Quality Assurance Programs in Health Care at Paid Prescriptions in Burlingame. (1-3) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149 or concurrent enrollment. **Kimble, Hirschman, Jinks, Spaulding**

Participation in peer review and quality assurance aspects of various health programs. Course includes selecting and preparing case histories for review, evaluating and making recommendations, and formally presenting cases to the peer review committee. Didactic instruction is also included.

196.78. Drug Utilization Review at *UC.* (2-4) F, W, Sp. Prerequisite: Fourth year standing. **McCart**

Students will design a prospective drug utilization review study. After receiving introductory material about the purpose and value of such studies, students will gather, evaluate, and interpret data for a final written report suitable for publication in the Hospital Pharmacy Bulletin.

196.81. Clerkship in Outpatient Clinics at *SF.* (4) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. **Kimble, R. Conte**

Students practice in adult specialty clinics, including those of anticoagulation, cardiac, chest, hypertension and medical screening. They consult with physicians and patients about drug therapy, provide limited primary care under supervision of a physician, and obtain drug histories.

196.90. Clinical Clerkship at *VPC.* (1-8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 or 149. Consent of instructor. **Kimble, R. Robertson**

Students interview patients, monitor drug therapy, provide nursing in-service education, provide drug information consultations to physicians, and conduct drug utilization and adverse drug reaction studies. Documentation of activities and findings to be presented in a written report.

196.93. Clerkship in Skilled Nursing Facilities at Hampshire Convalescent Hospital and Central Gardens Convalescent Hospital. (3-6) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131 and 132. **Kimble, Warren**

Students practice in a convalescent hospital and gain exposure to the pharmaceutical services provided to such institutions by a community pharmacist. Students review drug regimens, prepare case histories for presentation to preceptors, and attend various hospital committee meetings.

198. Supervised Study in Clinical Pharmacy. (1-5) Su, F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

450. Pharmacy Clinical Work. (8-12) F, W, Sp. Prerequisite: Resident standing. **Herfindal, Beste and Staff**

Residents provide pharmacy service to patients in the wards and outpatient clinics including taking drug use histories, preparing and monitoring medication profiles, providing drug use information and consultation, and related activities. In addition, there are administrative and teaching responsibilities.

451. Drug Information Analysis Work. (5) Su, F, W, Sp. Prerequisite: Resident standing and approval of program director. **Herfindal, McCart, Kayser**

Residents provide drug information and consultative services on request. Activities include literature searches, preparing reports and other communications, and teaching and administrative responsibilities involving the Drug Information Analysis Service.

452. Hospital Pharmacy Administrative Work. (5) Su, F, W, Sp. Prerequisite: Resident standing and approval of program director. **Herfindal, Beste and Staff**

Residents are responsible for carrying out assignments related to the administration of a modern hospital pharmacy service. Activities include preparation of budgets, supervision and development of staff, program planning, and related administrative assignments.

453. Pharmacy Clinical Research. (1-5) Su, F, W, Sp. Prerequisite: Resident standing and approval of program director. **Herfindal, Beste and Staff**

Research programs are arranged with appropriate faculty members on an individual basis.

469. Seminar in Hospital Pharmacy. (0) F, W, Sp. Prerequisite: Admission to the resident program in Hospital Pharmacy. **Beste, Herfindal and Staff**

Dental Auxiliary Utilization

109.01. Clinical Utilization of Dental Auxiliaries. (1½) F, W, Sp. Prerequisite: Dental Auxiliary Utilization 130. Concurrent enrollment in Pedodontics 109.01. **Ino**

Clinical training in four-handed, sit-down dentistry using full-time chairside dental assistants. Course is conducted in two-week blocks of five students in conjunction with the Division of Pedodontics.

120. Introduction to Use of Dental Auxiliaries. (½) Sp. Prerequisite: Preventive Dentistry and Community Health 111. Lecture 1 hour for one-half of quarter. **Ino**

Classroom instruction and demonstrations in the effective use of the dental assistant.

130. Introduction to Use of Dental Auxiliaries. (½) Sp. Prerequisite: Preventive Dentistry and Community Health 111. Lecture: 1 hour for one-half of quarter. **Ino and Staff**

Classroom instruction and demonstra-

tions in the effective use of the dental assistant. High productivity practice methods will be emphasized.

180. Managerial Aspects of Employing Auxiliary Personnel. (½) Sp. Prerequisite: Dental Auxiliary Utilization 130. **Ino, Fischer**

An elective course primarily designed to examine the theories and practice of personnel management as related to a small, single proprietorship business such as a dental practice.

Dental Health Education

150B. Introduction to Patient Education. (2) W. **Talbot**

The student is acquainted with theories and methods of the basic principles of education and learning. These are further applied to patient instruction, motivation, and attitude development. Students also participate in the design, research, and construction of table clinics.

150C. Chairside Dental Health Education. (2) Sp. Prerequisite: Dental Health Education 150B. **Francisco**

Students are acquainted with theories and methods of education and motivational techniques that apply to their role as a private practitioner. Appropriate experiences are provided to utilize this knowledge.

160A. Community Dental Health. (2) F. Prerequisite: Dental Health Education 150B and 150C. **Novak**

Students are acquainted with theories and methods of education and motivational techniques that apply to their role as a school dental hygienist. Appropriate experiences are provided to utilize this knowledge in local junior high schools.

160B. Community Dental Health. (2) W. **Novak**

Students are acquainted with theories and methods of education and motivational techniques that apply to their role as a professional resource person in the community. Appropriate experiences are provided to utilize this knowledge in local colleges and universities.

198. Supervised Study in Dental Health Education. (1-5) F, W, Sp. Prerequisite: Dental Health Education 150B, 150C, 160A, 160B and Biostatistics. **Francisco**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Dental Health Education. (1-5) F, W, Sp. Prerequisite: Dental Health Education 150B, 150C, 160A and 160B. Lecture 1 hour, Lab 0-12 hours. **Francisco**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Dental Hygiene

109. Clinical Dental Hygiene. (1-2) SS. Clinic 3-6 hours. Prerequisite: Dental Hygiene 155A-B, 159, and approval of the chairman of the division. **Poupard**

Provides additional clinical dental hygiene experience before entry into the second year clinic.

150A-B-C. Introduction to Dental Hygiene. (2-2-1) Yr. **Halterman**

The role of the dental hygienist in preventive dentistry is studied with emphasis on the objectives and principles of oral prophylaxis. Introduction to the anatomy and physiology of the oral cavity and to dental disease.

150.01. Dental Morphology. (2) F. Prerequisite: Concurrent enrollment in Dental Hygiene 150A. **Hartman**

The development and form of deciduous and permanent dentition and occlusion. Study of individual tooth and arch form to interarch relationships as well as endodontic morphology.

151. Orientation to Dentistry. (1) W. **Novak**

The systems of the body are studied through lectures and laboratory demonstrations. The structures of the head and neck, including the central nervous system, receive major attention through lectures and laboratory dissection. Emphasis is placed upon function and anatomic relationships.

155A-B. Introduction to Clinical Prophylaxes. (2-2) F, W. Lab 3 hours, Clinic 3 hours. **Gould and Staff**

Manikin as well as practical experiences in the laboratory and clinic for the purpose of learning instrumentation techniques of oral prophylaxis in addition to taking medical histories and performing oral inspections.

159. Clinical Oral Prophylaxes. (2) Sp. Prerequisite: Dental Hygiene 155A-B. Clinic 6 hours. **Gould**

Continuation of clinical experiences from Dental Hygiene 155A-B with emphasis on improved proficiency in all areas.

160A-C. Office Management and Ethics. (2-2) F, Sp. **Talbot**

Students identify their personal and professional roles as members of the dental health team and are informed of general office policies and procedures. Other subjects discussed include: selection of a position, taxes, ethics, jurisprudence, and insurance.

161A-B. Orientation to Dentistry. (2-2) F, W. Prerequisite: Dental Hygiene 151. **Novak**

Continuation of Dental Hygiene 151.

169A-B-C. Advanced Clinical Oral Prophylaxes. (3-4-4) Yr. Prerequisite: Dental Hygiene 155A-B. Clinic 11 hours. **Francisco**

Advanced oral prophylaxis techniques including work in institutional dental clinics.

189. Special Study. (0-4) F, W, Sp. Prerequisite: Fourth year standing and consent of instructor. **Poupard**

Students select an area of interest for independent study or research. These may include clinical, community, educational, institutional, or other areas.

189.01. Clinical Experience in Mobile Dental Clinics. (½-3) SS. Clinic Variable. **R. Miller**

Clinical experience in mobile dental clinics.

189.02. Community Health Clinical Practice. (½-2) F, W, Sp. Prerequisite: Winter or spring quarter standing of first year dental hygiene curriculum; or fall, winter or spring quarter standing of second year dental hygiene curriculum. **Poupard**

One-half unit of credit for every five three-hour visits made to off-campus clinics or institutions. Objective is to secure community experience and involvement. This elective is above the required eight visits to off-campus clinics and institutions.

199. Laboratory Project in Dental Hygiene. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Dental Jurisprudence

180. Dental Jurisprudence. (½) W. Lecture 1 hour, for five sessions. **Bradley**

The course broadens student insight into the legal problems and obligations of dental practice.

Dental Technics

115A-C. Basic Dental Technics. (1-1) F, Sp. Lab 3 hours. **Stark**

The first year student is oriented to the necessity for accuracy in manipulation of materials. Impression taking, pouring of casts, waxing technique, investing, casting, and soldering are covered. Manipulation of restorative materials will be demonstrated and used in the laboratory.

185. Introduction to Basic Dental Technics. (2) SS. Lab 18 hours, for three weeks. **Brigante**

Technical orientation to the basic technics taught in the first year of dentistry such as morphology, prosthodontics, biomaterials, operative dentistry.

Dermatology

First-Year Coordinated Instruction—Medicine 131A-B-C. Lecture-demonstrations and section work devoted to the supervised examination of patients.

Core Clerkship—Ambulatory and Community Medicine 110 includes lectures and case demonstrations on the examination and diagnosis of dermatological diseases. This includes instruction in history-taking, physical diagnosis, and diagnostic and therapeutic procedures.

140.01. Clinical and Research Dermatology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Cram**

Activities of enrollees are determined after an initial interview with the instructor. Emphasis is placed on routine outpatient and inpatient care and research methods, according to individual interest.

140.02. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **W. L. Epstein**

Clinical clerkship in approved hospitals by special arrangement and approval of the Dean and chairman of the department.

150.01. Research in Dermatology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Fukuyama**

A research project under the direction of a member of the faculty.

160.01. Clinical and Research Dermatology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **W. L. Epstein**

Activities of enrollees are determined after an initial interview with the instructor. Emphasis is placed on routine outpatient and inpatient care and research methods, according to individual interest.

160.02. Inpatient Management. (1) Su, F, W, Sp. Prerequisite: Third or fourth year standing. **Conant**

Daily rounds of inpatient dermatology patients. Informal discussions of diagnosis and management of the hospitalized dermatology patient.

160.03. Introduction to Dermatology. (1) W. Prerequisite: Second year standing. **Cram and Staff**

Introduction to the basic language, diagnostic techniques, and recognition of common skin disorders seen by the practitioner. Course includes patient demonstrations followed by open discussions and color slides of the pertinent disease.

199. Laboratory Project in Dermatology. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Fukuyama**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Dermatology Staff Conferences. (2) F, W, Sp. **W. L. Epstein and Staff**

Residents prepare and present case histories of patients at conferences making reference to appropriate literature, special studies, and laboratory work. Conferences include discussions of new developments and research investigation by staff members and professors from other UC departments and other universities.

401. Dermatopathology. (2) Su, F, W, Sp. *UC* **Goodman**

Lectures and demonstrations of the histopathology of skin diseases with special emphasis on correlation with clinical findings. Activities include the study of microscopic sections and discussions of material presented.

402. Seminar in Dermatological Literature. (1) F, W, Sp. **Maibach and Staff**

Seminar covers recent literature in dermatology. Included is assigned reading with required reports which are evaluated by members of the faculty.

403. Specialty Seminars. (2) F, W, Sp. **W. L. Epstein and Staff**

Seminars include discussions, required reading, and reports on dermatology and the related basic sciences: embryology, mycology, histopathology, and parasitology in relation to dermatologic conditions; and oncology as it relates to the skin.

404. Seminar in Clinical Dermatology. (1) F, W, Sp. **W. L. Epstein and Staff**

Seminar involves the evaluation of recent clinical cases of special interest. Cases are presented by the faculty and resident staff.

405. Research in Dermatology. (3) Su, F, W, Sp. Lab 9 hours. **Fukuyama**

Instruction in the conduct of research projects dealing with electron microscopy, biology, biochemistry, and immunology of the skin under normal and pathological conditions.

406. Basic Science Seminars. (1) Su, F, W, Sp. **W. L. Epstein and Staff**

In-depth discussion of the sciences basic to an understanding of the function and dysfunction of skin, including anatomy, physiology, microbiology, pharmacology, biochemistry, genetics and pathology. Over a three-year period, course covers all aspects of basic sciences relevant to dermatology.

407. Medical Cutaneous Microbiology. (2) Su, F, W, Sp. Prerequisite: Consent of instructor. **Aly**

Course is designed to familiarize dermatology residents with the techniques of isolation and identification of dermatophytes, skin bacteria and viruses. Occasional lectures on specialized topics are given.

450. Clinical Dermatology. (10) Su, F, W, Sp. *K* **McGinley,** *PHS* **Fasal, Hoke,** *UC* **Conant,** *SFGH* **Gellin,** *VA* **Tuffanelli**

Residents, under supervision, are responsible for patient care in the wards and outpatient clinic. Duties include history-taking, physical examinations, and consultations. In addition, the senior resident has certain administrative, teaching, and clinical responsibilities.

451. Clinical Dermatology. (1½ per week) Su, F, W, Sp. **J. H. Epstein**

Residents, under supervision, are responsible for patient care in the wards and outpatient clinic. Duties include history-taking, physical examinations, and consultation. In addition, the senior resident has certain administrative, teaching, and clinical responsibilities.

452. Clinical and Experimental Dermatology. (1½ week) Su, F, W, Sp. Prerequisite: Consent of instructor. **W. L. Epstein**

Assistant residents work at off-campus hospitals in the United States and other countries approved by the Dean and the chairman of the department. Course includes training in clinical and investigative dermatology.

Economics

150. Economics of the Health Services. (3) W. Prerequisite: Consent of instructor. **Staff**

Consideration of the health service sector of the economy. Study of its structure and the pricing, financing, and allocation of health services. Emphasis on questions of public policy.

151. Principles of Economics. (3) Sp. **Staff**

An introduction to the principles of economic analysis. Investigates the forces determining the allocation of resources, the composition of output, and the level of income and employment in the American economy. Not recommended for students who have received credit for either Economics 1A or 1B.

180A-B. Economics. (1-1) F, W. **Winters**

Lectures and group discussions related to dental practice. Subject areas covered include equipment selection, auxiliary personnel, consultation and financial procedures, recall, and accounting systems. Prepaid dental care programs and the role of professional organizations are presented by guest lecturers.

Endocrinology

190. Animal Hormones and Their Actions. (2) § Sp. Lecture 2 hours. Offered in alternate years. **Lostroh, Papkoff**

Basic information on animal hormones, their structures, functions, and interrelationships. Concepts regarding hormonal actions are derived from chemical structure-function and biological *in vivo, in vitro* studies. Where possible, mechanisms will be discussed.

191. Topics in Endocrinology. (1) § Sp. Prerequisite: Endocrinology 190 or consent of instructor. Offered in alternate years. **Papkoff, Lostroh**

Selected topics of current interest.

192. Structure and Function of the Hormones. (2) § W. Prerequisite: Course in basic biochemistry recommended. **Papkoff, Ramachandran**

Course will examine the chemical nature of the endocrines; the methods employed for purification, characterization, structural determination, and synthesis; the relationship of molecular structure to biological activity will be studied, as well as comparative and evolutionary aspects.

198. Supervised Study in Endocrinology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Endocrinology. (1-5) § Su, F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

202. Mechanisms of Hormone Action. (2) § F. Prerequisite: Physiology 101 and/or Human Biology 200A and 200B, or Biochemistry 100A-B or consent of instructor. **Goldfine, J. A. Williams**

Reading and discussion of classical and current literature concerning known and speculative mechanisms of hormone action. Major hormones covered are insulin, glucagon, thyroid and steroid.

220. Seminar in Experimental Endocrinology. (1) § F, W, Sp. Lecture 2 hours, given in alternate weeks. **Papkoff, Ramachandran**

Students will attend and participate in a seminar series devoted to topics of current interest in endocrinology.

222. Reproductive Endocrinology Seminar. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Weiner**

Seminar presentations in areas of current interest in reproductive endocrinology by guest lecturers and members of the Reproductive Endocrinology Center. Term paper required. Course may be repeated for credit.

230. Reproductive Endocrinology. (2) § W. Prerequisite: Consent of instructor. **Weiner**

Lectures and assigned readings in the reproductive endocrinology of the male and female. Topics include structure, function, and regulation of hypothalamic, pituitary and gonadal hormones, with special emphasis on humans.

250. Research. (1-8) § F, W, Sp. **Staff**

Endodontics

109. Clinical Endodontics. (0-2) F, W, Sp. Prerequisite: Operative Dentistry 115A-B-C and 125A-B-C. **Nguyen and Staff**

Clinical Endodontics. Minimum of 100 points or two units required for graduation.

189.01. Endodontics Clinical Practice. (0-9) F, W, Sp. Prerequisite: Approval of the division chairman. Clinic Variable. **Nguyen and Staff**

Clinical experience at the level of Endodontics 109.

189.02. Advanced Clinical Endodontics. (0-4) Sp. Clinic Variable. **Sapone**

Advanced instruction in the field of clinical endodontics.

189.03. Expanded Clinical Endodontics. (0-9) F, W, Sp. Prerequisite: Completion of endodontics graduation requirements and satisfactory progress toward graduation in all other divisions. Approval of Clinic Review Committee and instructor. Clinic Variable. Enrollment limited. **Nguyen and Staff**

Objectives of the course are to offer more extensive endodontic service, rather than extraction, to clinic patients; and to expand clinical experience in diagnosis and treatment for students showing interest in endodontics.

189.04. Undergraduate Clerkship in Endodontics. (16½) F, W, Sp. Prerequisite: Fourth year standing and completion of majority of graduation requirements. Lecture 5½ hours for five weeks. Clinic. **Nguyen, Sapone and Staff**

An endodontic clerkship offering advanced senior students the opportunity to rain in-depth experience in diagnosis, emergency care, all facets of non-surgical and surgical endodontics, as well as the related endodontic-pedodontic-periodontic problems.

Exfoliative Cytology

401A-B-C-D. Exfoliative Cytology. (14-14-14-14) Su, F, W, Sp. **E. King**

Lectures in cytology include normal, malignant, and abnormal nonmalignant cells. Instruction covers method of specimen collection; preparation, staining, and microscopic examination of specimens; development of speed and accuracy in microscopic examination; and correlation of cellular and tissue pathology.

Fixed Prosthodontics

109. Clinical Fixed Prosthodontics. (0-8) F, W, Sp. Prerequisite: Third year standing in fixed prosthodontics. Clinic Variable. **Sheets and Staff**

Clinical instruction must be taken concurrently with third and fourth year lecture courses.

110. Principles of Fixed Prosthodontics. (1) Sp. Prerequisite: Concurrent enrollment in Fixed Prosthodontics 115. **Allred**

Course provides material on the construction of a single three unit bridge (posterior) on the typodont models, specifically, preparation design, articulation principles, provisional restorations, waxing design and casting technique.

115. Techniques in Fixed Prosthodontics. (2) Sp. Prerequisite: Concurrent enrollment in Fixed Prosthodontics 110. Lab 6 hours. **Hamaguchi and Staff**

The basic techniques of fixed prosthodontics.

120A-B. Fixed Prosthodontics Technics Theory. (1-1) F, W. Prerequisite: Fixed Prosthodontics 110 and 115. **Lum, Eissmann**

125A-B. Fixed Prosthodontics Technics. (2-2) F, W. Prerequisite: Fixed Prosthodontics 110 and 115, Biomaterials 110B-C and Dental Technics 115A-C. Lab 6 hours. **Hamaguchi**

130A-B-C. Fixed Prosthodontics Theory. (1-1-1) SS, F, W. Lecture 1 hour, F, W. **Meli, Tueller, Noble**

170. Seminar in Fixed Prosthodontics. (2) F, W, Sp. Prerequisite: Students in Fixed Prosthodontics Certificate Program must register for this course each quarter and summer session. **Lorencki**

New concepts and theories are discussed and related to research and clinical practice. Students encouraged to develop new concepts in the application of basic sciences and research to fixed prosthodontics.

171.01A-B-C. Clinical Procedures in Fixed Prosthodontics. (3-3-3) F, W, Sp. Prerequisite: Admission to postdoctoral standing and consent of instructor. Lecture 1 hour, Clinic 6 hours. **Noble**

Instruction and practice in the diagnosis, treatment planning, and treatment of clinical patients.

171.02. Clinical Procedures in Fixed Prosthodontics. (2) SS. Prerequisite: Fixed Prosthodontics 171.01A-B-C. Clinic 6 hours. **Noble**

Clinical procedures in fixed prosthodontics. This course provides a continuation of clinical experience received in Fixed Prosthodontics 171.01 A-B-C.

172.01A-B-C. Advanced Clinical Procedures in Fixed Prosthodontics. (3-3-3) F, W, Sp. Prerequisite: Completion of first year and summer session of Fixed Prosthodontics Certificate Program. Lecture 1 hour, Clinic 6 hours. **Elssman**

Advanced instruction and practice in the diagnosis, treatment planning, and treatment in fixed prosthodontics.

172.02. Advanced Clinical Procedure in Fixed Prosthodontics. (2) SS. Clinic 6 hours. **Elssman**

Clinical procedures in fixed prosthodontics. This course provides a continuation of experience received in Fixed Prosthodontics 172.01A-B-C.

176A-B-C. Special Study for Postdoctoral Students. (1-5, 1-5, 1-5) F, W, Sp. Research 3-15 hours. **Lorencki**

Original investigation in the field of fixed prosthodontics.

180. Oral Rehabilitation. (1) W. Seminar 1 hour. **Lorencki**

The field of fixed prosthodontics and its relationship to other dental disciplines will be explored by means of case presentations to provide the student with a broad base of experience in oral rehabilitation techniques.

180.01. Special Study Seminar. (1) Sp. Seminar 1 hour. Enrollment limited. **Noble**

Individual staff members will offer seminar type instruction on selected topics related to fixed prosthodontics.

180.02. Senior Restorative Elective. (1) F. **Meli**

Advanced clinical restorative elective. Lectures describe the restorative general practice. Topics include those such as office layout, laboratory relations, treatment limitations, scheduling, financial arrangements, and treatment failures.

189.01. Fixed Prosthodontics Clinical Practice. (0-25) F, W, Sp. Prerequisite: Approval of the division chairman. Clinic Variable. **Sheets**

Clinical experience at the level of Fixed Prosthodontics 109.

189.02. Advanced Restoration Elective. (0-9) F, W, Sp. Prerequisite: Consent of instructor and approval of Clinic Review Committee. Lab variable. **Meli**

Advanced clinical restorative elective. Instruction in treatment of multiple restorative cases by quadrant or full arch approach. Students are selected to participate by the course director.

Forensic Pathology and Medicine

170.01. Forensic Pathology and Medicine. (1) Sp. Seminar 1 hour. **R. Wright**

The course covers basic legal principles; torts and contracts; medical records and documents; medical licensure and certification; forensic pathology; the expert witness; malpractice and professional liability.

General Dentistry

109. General Dentistry. (0-8) F, W, Sp. Prerequisite: Third year standing. Clinic Variable. **G. Hall**

An elective course in which the student performs patient treatment in a variety of clinical settings.

189.01. Advanced Clinical Clerkship in General Dentistry at *VA*. (0-24) Su, F, W, Sp. Prerequisite: Fourth year standing and approval of Clinic Review Committee. **Krol, G. Hall**

Students provide comprehensive dental care to patients assigned to them under supervision of staff in the medical and hospital environment. Attendance at seminars and conferences included.

Health Sciences Education

200. Introduction to Health Sciences Training. (2) § F. Prerequisite: Consent of instructor. **K. Jacoby**

Course focuses on instructional techniques and strategies useful for the beginning teacher. Emphasis is on the development of an effective personal teaching style. Open to advanced graduates, residents, teaching assistants and new faculty.

220A-B. Health Sciences Education Seminar. (2-2) § F, W. Prerequisite: Consent of instructor. **Rosinski**

Considers principles of learning, including individual student differences, techniques of instruction, and approaches to evaluation of student progress. Individual teaching plans are developed and critiqued. Emphasis is placed on the graduate and professional school student as a learner.

221. Allied Health Sciences Seminar. (2) § F, W, Sp. **Rosinski**

Graduate seminar integrating clinical experiences and academic course work of students enrolled in Kellogg Education Project. Relationships of course work experiences to future roles as allied health teachers are considered. Individual professional problems are analyzed.

300. Evaluation of Clinical Performance. (2) § F, W, Sp. Prerequisite: Consent of instructor. **Rosinski**

A seminar to review and develop objective techniques in assessing the clinical performance and competence of students and practitioners. Techniques will be developed and validated for a number of clinical disciplines.

History

180. History of Dentistry. (1) W. **Hartman**

Projections, based on a background of the growth and development of the profession, develop "curves of probability" of future technical and biological developments. Growing social impacts upon the present and future practice of dentistry are stressed.

History of Health Sciences

150. History of Pharmacy. (3) Sp. Prerequisite: Upper division standing. **Schwarz, Leake**

Emphasis is on the historical development of pharmacy, its relationship to the other health professions and the personalities who significantly contributed to the advancement of health care.

170.02. Medical History and Bibliography. (1-5) § F, W or Sp. **Saunders**

Lectures and informal seminars on aspects of medical history.

170.03. Evolution of American Medicine. (1-5) § F, W, Sp. **Brieger**

Lectures and informal seminars on the growth of American medicine from Colonial times to the present, with an examination of the sociopolitical and socioeconomic factors influencing that growth.

170.04. History of Psychiatry. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Veith**

Changing concepts of therapeutics from earliest times to the present, in relationship to the changing climate of thought on the nature of the psychic process and psychic disorders.

170.06. Introduction to the History of Medicine. (1-5) § F, W, Sp. **Veith**

An introductory course intended for all students in the health professions and graduate students interested in the broad conceptual developments influencing the growth of medical science and the health professions from the classical to the modern period.

170.07A-B. History and Philosophy of the Health Professions. (1-2, 1-2) SS. Lecture 1 hour. Paper required for 2 units. **Leake**

Survey of the history and development of the various health professions and services, with consideration of economic and ethical factors involved.

198. Supervised Study in History of Health Sciences. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Brieger and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

200. History of Historical Method and Methodology of Medical History. (2-4) § F, W, Sp. **Staff**

Special reading and discussion on historiography and historical method with biweekly seminars designed to teach students to do independent medicohistorical research and writing.

201. Introduction to the History of Biology. (1-2) § SS. **Leake**

An introductory course of broad scope on the evolution of biological thought.

202. Socioeconomic Factors in the Epidemiology of Medicine. (1-2) § Sp. **van der Reis**

A survey of various social and economic patterns in various cultures and their influence on disease.

203. Introduction to History of Neurology. (1-2) § F, W or Sp. **Schiller**

Introduction to the history of neurological concepts.

204. History of Non-Western Medical Systems. (1-2) § F, W or Sp. Prerequisite: History of Health Sciences 170.06 or 201. **Veith**

Seminars and directed readings on the philosophy of Asian, Indian, and other Non-Western systems.

205.01. Philosophical Foundations of Clinical Thought. (1-3) § F, W, Sp. Prerequisite: Consent of instructor. **Guttentag**

Reading and conferences.

205.02. Philosophical Foundations of Clinical Thought. (1-3) § F, W, Sp. Prerequisite: Consent of instructor. **Guttentag**

Extended reading and conferences.

206. Introduction to History of Health Sciences—Nursing. (2) § Sp. **Blanc**

For nursing instructors and graduate students. History of the health sciences upon which nursing practice is based. Methods and examples for teaching history in the clinical setting.

207. Introduction to the History and Bibliography of the Literature of the Health Sciences. (1-2) § F, Sp. **Zinn**

Historical survey of health sciences literature, illustrated by works from the special collections in the library. Includes an introduction to historical and modern reference works and bibliographic methods useful in research in the history of the health sciences.

209. Medicine in the Victorian Age. (2) § Sp. Prerequisite: Graduate standing. **Blanc**

The course investigates medical facilities in London in 1830-1870 along with modes of practice, social setting, and levels of scientific knowledge in the mid-19th century.

210. The History of Medical Education. (1-3) § W, Sp. Lecture 1-2 hours, plus paper or research for 3 units. **Brieger**

Lectures, discussions, and readings on the development of medical theory and practice as taught from ancient times to the present. Emphasis will be on American medical education in the nineteenth and twentieth centuries.

211. Theories of Human Nature. (3) § Sp. Prerequisite: Graduate standing. **Jonsen**

Course examines how several classical and modern authors in the Western philosophical tradition define human nature. Various basic theories and their implications for contemporary science and medicine are developed.

220. Seminar. (1-3) § F, W, Sp. **Staff**

Students, staff, or guest lecturers present selected topics concerned with current research.

250. Research. (1-8) § F, W, Sp. **Staff**

297. Special Study. (1-3) § F, W, Sp. **Staff**

Reading and conferences for qualified students under the direction of a member of the staff.

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of graduate adviser. **Staff**

For students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the dissertation for the Ph.D. degree.

Hospital Dentistry

170. Emergency Medical Care Seminar. (1) W. Seminar 2 hours. Prerequisite: Postdoctoral or fourth year standing. **Lim**

The course is designed to stimulate group discussion on the principles of emergency medical care. These include transportation, disaster planning, triage, cardiopulmonary resuscitation, management of shock, head and neck injuries, as well as special problems related to dentistry.

171. Physical Diagnosis. (2) Su. Prerequisite: Enrollment in a postgraduate specialty program or consent of instructor. **Klein**

Designed to prepare the oral surgeon to conduct a physical examination as a preliminary evaluation before performing oral surgical procedures. Techniques of examination are demonstrated and practiced in the classroom; examination of pathologic conditions conducted at bedside.

172. Oral Biology Conferences. (1) W. Prerequisite: Postdoctoral standing. **Silverman, Ware, and Staff**

Conferences include case presentations by interns and residents, and seminars covering selected subjects in oral biology relevant to clinical and preventive dentistry.

Human Biology

200A. Cell Biology. (3) § F. Prerequisite: Biochemistry 100A or equivalent, or consent of instructor. **Stoeckenius**

An introductory course in the structure, biochemistry, and function of the eukaryotic cell.

200B. Cell Biology. (3) § W. Prerequisite: Biochemistry 100A or equivalent, or consent of instructor. **Stoeckenius**

An introductory course in the structure, biochemistry, and function of the eukaryotic cell.

201. Seminar in Neurobiology. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Dennis**

Topic in neurobiology is selected such as development, anatomy and physiology of the visual system, biochemistry of membranes, and pertinent papers from the recent literature are read and discussed. Each student must participate regularly and present one seminar per quarter.

202A-C. Basic Concepts of Neurosciences. (6-6) § F, Sp. Prerequisite: Admission to Neuroscience program or consent of instructor. **Steinberg and Staff**

An in-depth interdisciplinary introduction to fundamental aspects of nervous system function: membrane structure, biophysics, ion transport mechanisms, cellular neuroanatomy, synaptic transmission, integration; and development of synaptic connections, invertebrate and vertebrate sensory and motor systems, autonomic and neuroendocrine regulatory mechanisms, higher functions.

Human Development

201A-B-C. Interdisciplinary Seminar in Human Development. (3-3-3) § F, W, Sp. Prerequisite: Consent of instructor.
Kiefer, Lowenthal, Rosow

Theory and research covering adolescence to old age from sociological, psychological, psychoanalytic, and anthropological perspectives. Topics include stress, personality and cognitive change, time perspective, values, socialization processes and adaptation. Reading and paper required. Students enroll for all three quarters.

202A-B-C. Seminar in Analytic Methods. (3-3-3) § F, W, Sp. Prerequisite: Consent of instructor.
Chiriboga, Pierce, Kiefer, Suzman

One quarter on quantitative methods, including longitudinal; one quarter on the quantitative and qualitative manipulation of open-ended data; and one quarter on methods of survey research. Student research materials will be used where appropriate.

203. Seminar in Problem Formulation and Research Design. (3) § F, W, Sp. Prerequisite: Consent of instructor. **Rosow**

Students work on their own research interests in terms of problem formulation, research design, and/or operationalization. Emphasis dependent upon individual student needs.

204. Scientific and Literary Approaches to Personal Development. (2) § Sp. Prerequisite: Consent of instructor. **Kiefer**

Representative works from behavioral science literature and world poetry and prose are brought together in the study of personality development in adult life. Compares insights from the two fields on how the developing person copes with social, historical, and psychological challenges.

205. Seminar on Data Analysis. (3) § F, W, Sp. Prerequisite: Consent of Instructor.
Rosow

Students either provide their own or use accessible data from ongoing research projects. Focus is on training in data organization, analysis, and research report writing.

206A-B-C. Advanced Seminar on Stress. (2-2-2) § F, W, Sp. Prerequisite: Consent of instructor.
Lowenthal, Horowitz, Chiriboga

This pro-research seminar, for advanced students with a strong background in the stress research literature, is devoted to elaboration of stress theory and concepts, and refinement of methodologies addressed to specific research projects.

207. Social Change and Implications for a Theory of Adult Socialization. (2-4) § F, W, Sp. Prerequisite: Consent of instructor.
Suzman

Review of approaches to studying social change at the social system level and consideration of the implications for individual socialization of changes which have occurred in the United States over the last few decades.

210. Socialization to Old Age. (3) § F, W, Sp. Prerequisite: Consent of instructor.
Rosow

A seminar on adult socialization theory, with prospective socialization to an aged role as a special concern. Major issues involve norms for older people, the structure of socialization situations, and the pressure of variables normally effecting socialization in earlier status transitions.

214. Developments in Social Science Philosophy. (2) § F. Prerequisite: Consent of instructor. **Kiefer**

Exploration of important new developments in the philosophy of social science; emphasis is on works of Jürgen Habermas and Anthony Wilden.

220. General Seminar. (1) § F, W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours given in alternate weeks. **Staff**

Students, staff, or guest lecturers present selected topics based on their current research.

221A-B-C. Life Stress and Adaptation. (3-3-3) § F, W, Sp. Prerequisite: Consent of instructor. **Chiriboga, Lowenthal**

Qualitative and quantitative analyses of life history protocols focusing on stress and perceptions of stress in relation to a variety of indicators of adaptation such as psychological, physical, social at various life stages from adolescence to old age.

225. Introduction to Computer Processing. (1 or 2) § W, Sp. Prerequisite: One course in statistics recommended. Consent of instructor. Lecture 1 hour, Lab 0-3 hours.
Pierce

Introduction to the use of the computer in the analysis of social science research data, with emphasis on facilities and programs available at the UCSF Information Systems and Computer Center.

227. Biological Aspects of Aging and Old Age. (2-3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Independent study 3-4 hours. **Ellman**

Physiological, biochemical, neurological, and anatomical changes occurring with aging are discussed. Important questions include the possible relationships to functional behavior of these changes in humans and the relevance of internal changes to psychological states.

232. Developmental Study of Kinship Structure. (3) § Sp. Prerequisite: Consent of instructor. **Thurnher**

Kinship structure in Western and non-Western societies with emphasis on the life cycle perspective of family roles and relations. Consideration is given to relevant empirical studies and case material.

233. Clinical Anthropology. (2) § Sp. Prerequisite: Consent of instructor.
Brodsky

Clinical data is available in several forms, and anthropological concepts are applied, focusing on adult life and medical interactions. Assigned readings and field study of a hospital unit or section are used to prepare written and oral reports.

234. Ego Development. (2-4) § W. Sp. Prerequisite: Consent of instructor. **White**

Ego development is often described as the master trait of adult development. An in-depth look at the theories in research in this area, such as that of Erikson and Loevinger.

235. Social Aspects of Death and Bereavement. (3) § Sp. Prerequisite: Consent of instructor. **Kalish**

An analysis of the social milieu in which dying and death occur, with implications for the dying person himself, his survivors, and those professionals who attend him.

236. Developmental Statistics. (3) § W. Prerequisite: Consent of instructor. **Pierce**

A statistics course structured to the needs of students of the Human Development Program. Special emphasis is given to methods appropriate to analysis of development and change, with more attention to the understanding of statistical ideas than to computation.

249. Special Studies. (2-8) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Students select special problems to investigate on an individual or collaborative basis. These studies may be conducted through readings, the collection and analysis of empirical data, or the development of conceptual analyses or methodologies.

250. Research. (1-8) § F, W, Sp. **Staff**

Human Sexuality

159. Human Sexuality. (2) Sp.
Day, Vandervoort

Social, behavioral, and clinical aspects of human sexuality are covered in a series of lectures and seminars. Lectures present didactic material and seminars focus on problems related to sex.

Interdepartmental Studies

135. Reproduction, Growth and Development. (Obstetrics-Gynecology and Pediatrics). (3-4) F. **Creasy, Heymann**

Course is designed to trace the biological mechanisms concerned with conception, development of the fertilized ovum through embryonic and fetal life, and postnatally to the mature individual.

International Health

100. Medical Parasitology. (2) W, Sp. Prerequisite: Microbiology 100 (without parasitology) or equivalent, or concurrent enrollment. **Heyneman**

An introduction to protozoa and helminths and human diseases they produce, with emphasis on host-parasite interactions. Parasite epidemiology and life cycles, clinical and diagnostic aspects are considered in lectures, films, and kodachrome showings. Laboratory demonstrations displayed throughout week.

140.01. Clinical Clerkships Abroad. (1½ per week) § Su, F, W, Sp. Prerequisite: Six months of clinical work. **R. Goldsmith**

Clinical clerkships in developing countries, generally in a hospital or rural health clinic, approved by the Dean and the chairman of the department.

140.02. Nutrition Clerkship. (1½ per week) Sp. **C. S. Wilson**

Four-week block elective with three-hour lecture-discussions on nutritional requirements and deficiencies; clinical experience in various Bay Area clinics. Emphasis on training to do useful work in dietary and clinical evaluation and treatment in absence of trained nutritionist.

140.03. Leprosy and Other Communicable Diseases. (1½ per week) § Su, F, W, Sp. Prerequisite: Medicine 110. **Gelber, Fasal**

As part of the consultative team, students work-up and follow communicable disease problems on the medical and surgical services. Participation on the inpatient and outpatient leprosy service and attendance regularly at *PHS* conferences.

150.01. Medicine in Developing Countries. (1½ per week) § Sp. Prerequisite: International Health 100 or consent of instructor. **R. Goldsmith**

Four-week block elective on the recognition and treatment of disease of tropical and developing countries. The course is designed to prepare students for clerkships abroad. Presentation format includes lectures, seminars, films, laboratory sessions, and supervised independent study.

150.02. Field and Laboratory Research in UC-ICMR Overseas Program. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Dunn and Staff**

Research under faculty supervision utilizing UC-ICMR facilities in Malaysia and occasionally elsewhere. Research may be in clinical fields as well as in basic medical sciences, preventive medicine, and public health. May immediately follow a student research fellowship abroad.

160.01. Tropical Medicine Staff Conferences. (1) F, W, Sp. **R. Goldsmith, Frierson**

Conferences include presentation of recent clinical cases of special interest, and discussions by staff members, consultants from other departments, or visiting experts, of new developments in tropical medicine.

170.04. Host-Parasite Interactions and Pathology. (1) W. Prerequisite: International Health 100 or equivalent. **Heyneman**

Lectures and discussions to review the patterns of host-parasite interactions involving protozoan and helminth infective agents of man. Topics selected will explore current views of immune and other types of response and their disorders that may result in human disease.

170.05. Introduction to International Health. (2-3) § W. Lecture 2 hours, plus 3 hours independent study for 3 units. **Dunn and Staff**

Lecture and discussions introducing the field of international health from an ecological and behavioral perspective. The course surveys world health and demographic problems, issues in the delivery of medical care and career opportunities in international health.

170.06. Geography of Human Health and Disease. (3) Sp. **R. Goldsmith and Staff**

Course covers principles of medical geography and landscape epidemiology including changing patterns of human health and disease in the context of physical, biotic, and sociocultural environments, and in relation to human settlements. Analysis of selected specific diseases of global importance.

170.07. Laboratory Project in Leprosy. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **Gelber**

A laboratory research problem on leprosy under the guidance of a member of the staff of the Leprosy Research Unit at *PHS*. The Unit's major research areas are the pharmacology, immunology, and chemotherapy of leprosy in animals and man.

180. World Population Pressures and Family Planning Perspectives. (1-2) § W. Lecture 1 hour, plus project for 2 units. **Ernster**

Implications of population growth and family planning programs in developing and industrialized countries. Contraceptive and abortion methods and their socio-cultural acceptability are emphasized as well as demographic methods, population research issues, and the role of health professionals in population control.

180.01. Tropical Medicine Clinic. (1-2) § Su, F, W, Sp. Prerequisite: International Health 100 and six months of clinical experience. Clinic 3-6 hours. **R. Goldsmith, Develing, Frierson**

Examination and treatment of patients in the Tropical Medicine Clinic under staff supervision. Students also assist with consultations on hospitalized patients. Most of the patients seen in this clinic have parasitic infections.

180.02 Pharmacology of Antiparasitic Drugs. (2) § W, Sp. Prerequisite: International Health 100 or equivalent. **R. Goldsmith**

Lecture is followed by seminar on pharmacology and use of antiparasitic drugs.

180.03. Introductory Statistical Treatment of Clinical and Laboratory Problems. (2-3) F. Lecture 2 hours, Lab optional 0-3 hours. **Zippin**

Basic concepts and techniques for the planning and analysis of clinical studies and scientific experiments. Introduction to statistical techniques to summarize qualitative and quantitative data and to draw inferences, taking into account the design and execution of the investigation.

182. Concepts in Human Nutrition. (2) Sp. **Anthony**

An introduction to the metabolic basis of nutritional requirements, dietary recommendations, evaluation of food intakes and dietary habits, and assessment of nutritional status. Emphasis on nutritional needs during pregnancy and lactation, growth and maturation, and disease, in both developing countries and the United States.

186. Tropical Medicine Lectures. (1) § Sp. **R. Goldsmith**

Presentation of case histories and films emphasizing diagnosis and treatment of tropical diseases including malaria, amebiasis, malnutrition, cholera, typhoid, schistosomiasis, and smallpox; opportunities for clinical clerkships abroad.

198. Supervised Study in International Health. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Petrakis, Dunn, Heyneman, R. Goldsmith**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in International Health. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Heyneman, R. Goldsmith, Petrakis, Schachter**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Laboratory Medicine

140.01. Diagnostic Use of Radioisotopes. (1½ per week) Su, F, W, Sp. Prerequisite: One year of medical school. **Pollycove**

Basic laboratory course in radioisotopes. Clinical participation in the diagnosis of patients receiving radioisotopes in the outpatient clinics and in the wards.

140.02. Hematology Clerkships. (1½ per week) Su, F, W, Sp. Prerequisite: Second year pathophysiology or equivalent; recommendation from one faculty member. **Shohet and Staff**

Clerkships primarily in clinical evaluation of hematologic patients. When interesting problems are found, time will be available for specific laboratory projects relevant to those problems. Clerks will act as primary consultants under close supervision of hematology residents and fellows.

140.03. Clinical Pathology. (1½ per week) Su, F, W, Sp. Prerequisite: One year of medical school and consent of instructor. *UC* **Brecher,** *SFGH* **Pollycove**

Laboratory sessions and seminars on aspects of clinical chemistry, hematology, microbiology, blood banking, and radioisotopes are held in the clinical laboratories at *UC* and *SFGH*.

150. Laboratory Medicine. (6) § Su, F, W, Sp. Prerequisite: Medicine 110. **Townsend**

An intensive four week seminar series, using patient data, designed to increase the student's ability to choose and interpret laboratory tests in a variety of clinical settings. The scope of tests discussed includes hematology, blood banking, clinical chemistry, and microbiology.

160.01. Diagnostic Use of Radioisotopes. (2) Su, F, W, Sp. Prerequisite: One year of medical school. Lecture 1 hour, Clinic 4 hours. **Pollycove**

Basic laboratory course in radioisotopes. Clinical participation in the diagnosis of patients receiving radioisotopes in the outpatient clinics and in the wards.

170.01. Clinical Pathology. (2) Su, F, W, Sp. *UC* **Brecher,** *SFGH* **Pollycove**

Laboratory sessions and seminars on aspects of clinical chemistry, hematology, microbiology, blood banking, and radioisotopes are held in the clinical laboratories at *UC* and *SFGH*.

170.02A-B. Immunohematology. (1-1) W, Sp. Prerequisite: Laboratory Medicine 170.02A is prerequisite to 170.02B. Two quarter course. **Vyas**

Blood banking and related topics of immunohematology will be covered by formal lectures, demonstrations, case discussions, and seminars on blood groups, compatibility test, tissue typing, hemolytic anemias, isoimmunization in pregnancy, blood component therapy, and transfusion reactions.

400. Clinical Pathology Staff Seminars. (2) Su, F, W, Sp. *SFGH* **Pollycove,** *UC* **Brecher,** *VA* **Parekh**

Residents prepare summaries of selected clinical cases which present problems in correlation of clinical and laboratory data. Residents and faculty discuss relevant literature with special reference to technical aspects of laboratory procedures and interpretation of results.

401. Special Clinical Pathology Seminar. (4) Su, F, W, Sp. *SFGH* **Pollycove,** *UC* **Brecher,** *VA* **Parekh**

Review of current laboratory procedures and problems in hematology, microbiology, immunology, blood banking, chemistry, and application of isotopes. Library research and occasional formal reports are required.

402. Research Problems in Clinical Pathology. (1-10) Su, F, W, Sp.
SFGH **Pollycove,** *UC* **Brecher,** *VA* **Parekh**

Research programs are arranged with appropriate faculty members on an individual basis.

403. Clinical Pathology Seminars. (1) Su, F, W, Sp. **Brecher**

Seminars in clinical pathology including clinical chemistry, hematology, immunohematology, microbiology, parasitology, and serology are conducted by faculty whose major interest is that under discussion. Residents do collateral reading for discussion of problems of interpretation, diagnosis, techniques, and research approaches.

450. Clinical Pathology. (10) Su, F, W, Sp.
SFGH **Pollycove,** *UC* **Brecher,** *VA* **Parekh**

Principles of laboratory tests in hematology, chemistry, microbiology, and blood banking as well as interpretation of results and correlation of clinical and laboratory data. Residents participate in performance of tests and certain administrative duties related to operation of clinical laboratories.

451. Clinical Pathology. (5-10) Su, F, W, Sp.
SFGH **Pollycove,** *UC* **Brecher,** *VA* **Parekh**

Theory and methodology of clinical chemistry, serology, blood banking, hematology, microbiology, parasitology, and clinical microscopy. Emphasis on interpretation and correlation of data and study of literature.

Medical Diagnosis

445. Medical Diagnosis (2) Su, F, W, Sp. Clinic 6 hours. **Crede and Staff**

The dental intern participates in medical history-taking, physical examinations, ordering laboratory tests, and developing differential diagnoses on medical clinic patients under the supervision of the medical staff. Comprehensive care of patients is emphasized.

Medical Illustration

201. Principles of Anatomic Illustration I. (4) § F. Prerequisite: Concurrent enrollment in Anatomy 100A. Lecture 1 hour, Lab 9 hours. **Stoelting, Wakerlin, Richardson**

Anatomic illustration; continuous tone techniques and photography from dissections; sketching and observation in laboratory; theory of information selection and simplification; perspective; color theory; representation of form and structure in living tissue; dental morphology and illustration.

202. Principles of Anatomic Illustration II. (4) § W. Prerequisite: Medical Illustration 201 and Anatomy 100A. Concurrent enrollment in Anatomy 100B. Lecture 1 hour, Lab 9 hours. **Stoelting, Wakerlin, Richardson**

Anatomic illustration; pen and ink and other line techniques; illustration and photography from cadaver dissections; theory and practice of photoengraving and printing for print media and textbook illustrations; dental illustration of morphology and occlusion.

203. Graphics for Print Media. (3) § Sp. Prerequisite: Medical Illustration 201 and 202. Lecture 1 hour, Lab 6 hours. **Stoelting, Merrill, Stull**

Principles underlying visual representation of statistical data; construction of charts, graphs, diagrams from research data; graphics for projection; lettering systems; special graphic techniques utilizing photographic, diazo, 3-M and other processes; air brush for scientific illustration.

204. Sketching and Illustration of Pathology and Animal Surgery. (3) § F. Prerequisite: Medical Illustration 201, 202, 203; Anatomy 100A, 100B, 115 and 119. Concurrent enrollment in Pathology 198. Lecture 1 hour, Lab 6 hours. **Wakerlin, Stoelting, Quan, Harwin, Wright, Feduska**

Sketching, illustration and photography of pathologic tissue; regular autopsy observation; observation, photography, sketching and illustration of procedures in animal surgery; study of normal colors and textures of tissue; illustration of instruments and their interaction with various tissues.

205. Introduction to Surgical Illustration. (5) § W. Prerequisite: Medical Illustration 201, 202, 203 and 204. Lecture 2 hours, Lab 9 hours. **Wakerlin, Stoelting, Schaubert, Johnston, deLorimier**

Organization in the operating room; procedures and roles; regular observation of surgical procedures. Emphasis upon developing skills of sketching from direct observation; photography; consultation with physicians; and planning and development of illustrations.

206. Advanced Surgical Illustration. (5) § Sp. Prerequisite: Medical Illustration 201, 202, 203, 204 and 205. Lecture 2 hours, Lab 9 hours. **Wakerlin, Stoelting, Schaubert, Johnston, deLorimier**

Study of advanced surgical illustration, continuing regular observation and sketching in the operating room and consultation with surgical staff. Procedures illustrated will be of increasing complexity and difficulty, including cardiovascular, neurologic, orthopaedic, urologic and gynecologic.

207. Specialty Surgical Illustration: Otolaryngolic and Ophthalmologic. (3) § F. Prerequisite: Medical Illustration 201, 202, 203, 204, 205 and 206. Lecture 1 hour, Lab 6 hours. **Wakerlin, Stoelting, Johnston, Koelling, Kimura**

Review of anatomy and observation of the ear and the eye through otoscope, ophthalmoscope and slit lamp.

220. Seminar in Instructional Design. (0) § F, W or Sp. Prerequisite: Medical Illustration 411 recommended. Lecture 2 hours. **Pascoe, Merrill, Wakerlin and Staff**

Readings and seminar in aspects of instructional design, including communication theory, psychology of learning, behavior modification, programmed instruction, systems design and methods for evaluation. Participation by guest lecturers.

411. Introduction to Instructional Design and Communications Theory. (1) F. **Wakerlin, Pascoe**

Overview of theory basic to the development of instructional media.

417. Introduction to Media. (2) F. Prerequisite: Concurrent enrollment in Medical Illustration 411. Lecture 1 hour, Lab 3 hours. **Beindorf, Banks, Wakerlin**

Theories of media: perception, light, composition, color, contrast, emphasis, impact; similarities and differences among media, including appropriateness for different tasks; study of examples; camera use and darkroom techniques in still photography laboratory; photography as illustration tool.

418. Media Design. (4) W. Prerequisite: Medical Illustration 411 and 417. Lecture 2 hours, Lab 6 hours. **Beindorf, Pascoe, Stoelting, Cole**

Script design and story-boarding for slide tapes. Bases for media selection in instructional design; sound recording; color photography on location and for copying artwork; graphic techniques for media: tilting, cel art, background, cut-outs and airbrush. Still photography lab work included.

419. Media — Slide-Tape Production. (5) Sp. Prerequisite: Medical Illustration 411, 417 and 418. Lecture 2 hours, Lab 9 hours. **Beindorf, Kaye, Stoelting, Cole**

Production of instructional slide-tape including script, story board, timing, graphics, photography, sound recording, assembly, interlock, completion on schedule. Students act as producers, learning first hand complexities of coordinating and producing media for instruction.

421. Introduction to Motion in Film and TV Design. (4) F. Prerequisite: Medical Illustration 411, 417, 418 and 419. Lecture 2 hours, Lab 6 hours. **Beindorf, Banks, Kaye, Wakerlin**

Theories of motion, dynamics of balance; subjective and camera motion; logistics; costs; sound; special effects; graphics. Production of fifteen minute video tape including film insert, and sharing of production roles.

423. Graphics for Print Media. (4) F. Prerequisite: Medical Illustration 203. Lecture 2 hours, Lab 6 hours. **Giovanniello, Wakerlin, Stoelting**

Calligraphy; brochure design; photography in graphic design; layout; copy fitting; camera-ready mechanicals; typography; printing; photoengraving; specifications for printing; paper stocks, inks, etc. Production of a brochure for use on campus.

425. Three Dimensional Illustration and Maxillofacial Prosthetic Reconstructions. (1-4) F, W or Sp. Prerequisite: Consent of instructor and approval of director. **Wakerlin, Koelling, Humelbaugh**

Basic three dimensional modeling, molding, and casting techniques. Preparation of cosmetic maxillofacial prosthetic reconstructions given major emphasis in course. Students assist in preparation of prostheses for clinic patients.

426. Introduction to Film Animation I. (5) W. Prerequisite: Medical Illustration 411, 417, 418, 419 and 421. Lecture 2 hours, Lab 9 hours. **Biendorf, Wakerlin, Stoelting, Humelbaugh**

Course introduces medical techniques of motion picture animation, illustration for animation in various techniques, and the mechanics of production. Students will develop experimental film loops, utilizing various techniques. Field trips and guest lectures will be arranged.

428. Display Design and Production. (1-4) F, W or Sp. Prerequisite: Consent of instructor and approval of director. **Wakerlin, Giovanniello, Gloege and Staff**

Analysis of advantages and disadvantages of displays as teaching instruments. Aspects of design and construction: planning, design, materials, scale models, construction, logistics, cost effectiveness and handling. Field trips to display companies. Production of a display for CORT client.

429. Film Animation II. (5) Sp. Prerequisite: Medical Illustration 426. Lecture 2 hours, Lab 9 hours.
Biendorf, Wakerlin, Stoelting, Kaye

Development and completion of a short animated art motion picture in color. Continuation of Medical Illustration 426. Project will involve production and modern animation techniques.

431. Educational Television Production. (3-9) Su, F, W, or Sp. Prerequisite: Medical Illustration 411, 417, 418, 419 and 421. Consent of instructor and approval of director. **Banks, Beindorf, Stoelting**

In-depth consideration of television production techniques. Especially appropriate for students electing a thesis project in which television is the medium of choice.

432. Advanced Graphics and Portfolio Development. (3) F. Prerequisite: All prior courses in curriculum sequence. Lecture 1 hour, Lab 6 hours. **Wakerlin and Staff**

Preparation of a portfolio representative of skills developed during curriculum.

433. Business and Administration Practices in Medical Illustration. (2) F, W or Sp. **Wakerlin and Staff**

Seminar. Reading and discussion of principles and practices for professional business management and departmental administration.

434. Educational Film Production. (3-9) Su, F, W, or Sp. Prerequisite: Medical Illustration 417, 418, 419, 421, 426 and 429. Consent of instructor and approval of director. Lecture 3 hours, Lab 15 hours.
Biendorf, Kaye, Stoelting and Staff

An in-depth consideration of production of instructional motion picture films. Aspects of production: planning, scripting, artwork, talent, properties, sets, recording, editing, interlocks, budgets, lab processing and distribution. Appropriate for students electing a thesis project involving production of a film.

435. Special Study in Medical Illustration. (3-4) F, W, or Sp. Prerequisite: Consent of instructor and approval of director.
Wakerlin and Staff

An elective for special study in area of choice.

436. Portfolio and Graduate Show. (1-3) F, W. Prerequisite: All prior courses in curriculum sequence. Lab 3-9 hours.
Wakerlin and Staff

Final presentation of work in curriculum and portfolio.

438. Biological Illustration. (2) F, W, or Sp. Prerequisite: Consent of instructor. Lab 6 hours. **Christman, Stoelting**

Taxonomic illustration of botanic, entomologic, parasitologic, microbiologic and other life science subjects for publication or projection. Various techniques are utilized, but mainly pen and ink.

439. Forensic Illustration. (1-3) F, W or Sp. Prerequisite: Consent of instructors and approval of director. **Wright, Wakerlin Stoelting, Biendorf**

Illustration and photography of various wounds to provide demonstrative materials for courtroom use. Considerations of adequacy and appropriateness of visual materials as evidence in criminal investigations. Guest lecturers and special presentations are included.

440. Museum Methods. (3) F, W or Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 6 hours. **Wright, Humelbaugh Stoelting, Wakerlin**

Techniques for preparation and presentation of scientific information such as specimens and models in museum settings. Course includes plastic embedment, mounting and preservation of specimens, labelling.

Medical Information Science

190. Programming Concepts and Information Structures. (4) § F. Prerequisite: Knowledge of one higher level programming language. Lecture 3 hours, Lab 3 hours.
Wasserman

Course involves program structures and programming style; information structures used for data representation; non-numeric handling techniques including list and string processing; techniques for data abstraction in existing programming languages and computer systems.

195. Clinical Laboratory Computer Science. (2) § W. Prerequisite: Bachelor's degree in physical or biological science. **Henley**

A review of the fundamentals of computer science as they relate to clinical laboratory information systems and a detailed examination of current clinical laboratory systems. Practical experience will be given programming sample clinical laboratory problems in high level languages.

199. Laboratory Project in Medical Information Science. (1-5) § F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

201. The Medical Environment. (2) § W. **Blois**

A survey of the professions, institutions, organizations and populations involved in the health care process. Included are the aims, expectations, and constraints involved in the medical environment. Course provides a background for students without previous medical health care systems experience in relationship to processes and functions.

202. Nature of Medical Information. (2) § F. Prerequisite: Medical Information Science 201 and consent of instructor. **Blois**

Medical information considered from a variety of viewpoints; general medical knowledge versus specific patient data, medical information expressible in numeric, graphic, or natural language means. Particular emphasis on distinguishing algorithmic from non-algorithmic processing of medical data, and the functions of the medical record.

205. Administration and Evaluation of Health Care Systems. (3) § Sp. Lecture 2 hours, Lab 3 hours. **Staff**

Introduction to the concepts, principles, definitions and processes of management and financial accounting with particular emphasis on hospitals and other health care systems.

210A. Computer Systems I. (4) § W. Prerequisite: Medical Information Science 190 or consent of instructor. Lecture 3 hours, Lab 3 hours. **Wasserman**

Introduction to computer system organization and architecture. Microprogramming. Interface between system components. Assemblers and loaders. Comparison of high level programming languages. Methods of translating programming languages.

210B. Computer Systems II. (4) § Sp. Prerequisite: Medical Information Science 210A or equivalent or consent of instructor. Lecture 3 hours, Lab 3 hours. **Wasserman**

Operating systems structure. Concurrent processes. Memory management. File system organization and structure. Protection and security. Concepts of networking and communication. Integration of hardware, software, and data. Data base structure . Emphasis on design on on-line systems.

211. Introduction to Operations Research. (3) § F. Prerequisite: Elementary statistics or probability, and one year of calculus. **Beal**

An introduction to mathematical programming, including linear programming, sensitivity analysis, and duality. Queueing processes and other selected topics such as computer simulation of operations research models is included.

220. Systems Analysis of Medical Care. (3) § F. **Stimson**

Introduction to use of operations research and systems analysis as aids to design, management or evaluation of medical care systems. Application of operations research techniques to hospitals and other health care facilities are studied within a systems framework.

225A. Design of Medical Information Systems. (2) § F. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 3 hours.
Henley

The design of previous medical information systems is examined. Successful components of the systems will be studied in depth, with respect to cost, performance, and acceptability. Field trips to existing systems will be made.

225B. Design of Medical Information Systems. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours.
Henley

The design of medical information systems is examined. The systems will be studied with respect to cost, performance and acceptability. Analysis and proposals for new systems will be done through laboratory sessions in medical settings.

225C. Design of Medical Information Systems. (4) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 6 hours.
Henley

The design of medical information systems is examined. The systems will be studied with respect to cost, performance and acceptability. Laboratory sessions involving analysis and interactive program implementation are a continuation of the studies in Medical Information Science 225B.

230A. Linear Models and Experimental Design. (4) § W. Prerequisite: Introductory statistics and one year of calculus. Lecture 3 hours, Lab 3 hours. **Heilbron**

Techniques for modelling, designing and analyzing data from experiments, clinical and observational studies using the methodology of regressions and the analysis of variance.

230B. Discrete Analysis and Statistical Classification. (2) § Sp. Prerequisite: Introductory statistics and one year of calculus.

Lecture 1½ hours, Lab 1½ hours. **Heilbron**

Introduction to modern methods for analysis of discrete data. Statistical classification and other quantitative methods relevant to computer assisted diagnosis and treatment planning.

240. Data Base Management. (3) § W. Prerequisite: Medical Information Science 230B or equivalent, or consent of instructor. **Wasserman**

Course covers techniques for logical and physical data base organization, data independence, models of data, approaches to large scale data base management, security and privacy, data description languages, and query languages.

250. Research in Medical Information Science. (1-8) § F, W, Sp. **Staff**

290. Seminar in Medical Information Science. (1-6) § F, W, Sp. Lecture 1 hour, Lab 0-15 hours. **Staff**

Selected topics in medical information science. Subjects chosen will range from special topics in information science to hardware, software, and systems studies.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For students engaged in writing the dissertation for the Ph.D. degree.

Medical Technology

100. Introductory Clinical Microbiology. (2) F. Lecture 1 hour, Lab 3 hours. **Hadley, S. N. Cohen, Senyk**

Brief survey of disciplines of clinical microbiology and serology. Introduction to literature of field. Fundamentals of statistics and evaluation of data as applied to microbiologic analysis and laboratory quality control.

101A-B-C. Clinical Bacteriology. (3-3-8) Su, F, W, Sp. Lecture A-B: 3 hours, Lab C: 24 hours. **Hadley, Seman, Senyk, S. N. Cohen**

Instruction and laboratory practice in the isolation and identification of bacteria from clinical specimens and the evaluation of pathogenic significance of bacteria.

102A-B. Environmental Microbiology and Epidemiology. (2-4) Su, F, W, Sp. Lecture A: 2 hours, Lab B: 12 hours. **Hadley, Seman, S. N. Cohen, Senyk**

Instruction and laboratory observation of the indigenous bacteria, fungi, and protozoa of the human. Microbiology of water, milk, food, and the hospital environment. Sterilization and disinfection. Epidemiology of hospital associated infections. Laboratory procedures useful in the investigation of an epidemic.

105A-B. Clinical Mycobacteriology. (2-4) Su, F, W, Sp. Lecture A: 2 hours, Lab B: 12 hours. **Hadley, Seman**

Instruction and laboratory practice in the isolation and identification of mycobacteria from clinical specimens; evaluation of pathogenic significance and of the antimicrobial susceptibility of mycobacteria.

112A-B. Clinical Parasitology. (2-4) Su, F, W, Sp. Lecture A: 2 hours, Lab B: 12 hours. **Heyneman, Horen**

Instruction and laboratory practice in the examination and study of clinical material for the detection and identification of animal parasites.

113A-B. Clinical Mycology. (2-4) F, W. Lecture A: 2 hours, Lab B: 12 hours. **Heyneman, Loudermilk**

Instruction and laboratory practice in the isolation and identification of fungi associated with the more important mycotic infections of man.

115. Clinical Virology. (3) Su, F, W, Sp. Lecture 2 hours, Lab 3 hours. **Drew, Hadley**

Instruction, demonstrations, and laboratory practice in viral isolation and identification procedures. The rapid detection of specific viral infection.

118. Introduction to Clinical Immunology. (2) F, W. **Senyk**

Introduction to the mechanism of immunity: cellular and humoral immunity, host-parasite relationship, structure of immunoglobulins, and antigen-antibody interactions.

120A-B. Clinical Serology. (2-4) Su, F, W, Sp. Lecture A: 2 hours, Lab B: 12 hours. **Senyk, Sugai**

Instruction and laboratory practice in serological methods used in diagnosis and the study of disease.

125A-B. Antimicrobial Agents. (2-4) Su, F, W, Sp. Lecture A: 2 hours, Lab B: 12 hours. **Hadley, S. N. Cohen**

The mode of action and assay of antimicrobial agents. Instruction and laboratory practice in testing microorganisms for susceptibility to antimicrobial agents.

135. Clinical Laboratory Instrumentation. (4) Su, F, W, Sp. Lecture 2 hours, Lab 6 hours. **Hadley, Senyk**

Instruction and practice in microscopy, including fluorescent and electron microscopy, spectrophotometry, Coulter counters, immune electrophoresis. Practical experience with data processing equipment and computers utilized in a clinical microbiology laboratory.

Medicine

110. Basic Clerkship in Medicine at *MZ* and *VA*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C and 132A-B-C. **L. H. Smith, Carbone, Sleisenger, H. Williams, Woeber**

Student is part of the ward team with intern, resident and faculty. Bedside instruction in history-taking, physical diagnosis, selected topics in general medicine with presentations and demonstrations of relevant cases.

130. Clinical Preceptorship for Freshmen. (1) Su, F. Lab 3 hours. **W. Gold, Fitzgerald**

Four freshman students meet weekly with a clinical preceptor to begin study of the clinical evaluation of the patient and the applications to clinical medicine of concepts learned concurrently in the basic sciences.

131A-B-C. Introduction to Clinical Medicine. (1-1-1) F, W, Sp. Prerequisite: First year standing or consent of instructor. **E. Brown**

The first phase of interdepartmental instruction on diagnostic skills. Students will learn basic techniques of physical examination and interpretation of common symptoms relating to the locomotor system, eye, ear, upper respiratory tract, and skin. Lectures, clinical demonstrations, conferences, supervised practice.

132A-B-C. Introduction to Clinical Medicine. (6-11-3) F, W, Sp. Prerequisite: Anatomy 100, 102, and 103; Biochemistry 100A-B; Medicine 130 and 131 A-B-C; Microbiology 100A-B (may be taken concurrently); Pathology 101 and 102 (may be taken concurrently); Physiology 100 and 101; and Psychiatry 130, or consent of instructor. **E. Brown**

Continuation of interdepartmental course on pathophysiological basis of symptoms, signs and techniques of collecting and assessing clinical data, including history taking, examination of the patient and use of laboratory tests. Lectures, demonstrations, bedside work, laboratories, conferences, and independent study.

140.01 Advanced Clinical Clerkship at *UC, MZ, VA* and *SFGH*. (1½ per week) Su, F, W, Sp. Prerequisite: All core clerkships (with the exception of Ambulatory & Community Medicine 110 and Anesthesia 110, or by special permission). **L. H. Smith, Sleisenger, H. Williams, Carbone, Woeber**

Students are assigned patients for study on the staff and private wards. They are supervised by attending and resident staff. They present patients on wards, assist with procedures, and attend specialty conferences where their patients are discussed.

140.02 Clinical Clerkship Off-Campus. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and approval of third and fourth year coordinator. **L. H. Smith, Carbone**

Clinical clerkships in off-campus hospitals approved by the department chairman, third and fourth year coordinator and the Dean.

140.03 Acting Intern in the Cancer Research Institute. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and 131A-B-C. **Friedman and Staff**

On Clinical Cancer Chemotherapy Service, students work up patients, present them to attending staff and at conferences, do daily procedures, and write orders under supervision.

140.04. Senior Internal Medicine Clinical Clerkship at *NRMC*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Karney**

Clinical clerkship at *NRMC*. Student functions as intern in ward medicine under supervision of residents and attending staff, or acts as consultant in selected subspecialty under supervision of board certified staff.

140.05. Cardiology at *PMC*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 or consent of instructor. **Selzer**

Students participate actively in rounds, conferences, and informal teaching sessions, with emphasis on reading electrocardiograms.

140.06 Cardiology at *UC*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Parmley**

Students work up cardiac patients in the clinic and on wards; they attend conferences and seminars; receive instruction in specialized studies and do assigned reading.

140.07 Clinical and Physiological Aspects of Pulmonary Disease at *SFGH*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Hopewell, J. Murray, Costello**

Students serve as acting interns in care of patients admitted to chest ward and respiratory care unit at *SFGH*. They participate fully in teaching activities of the service in-

cluding daily radiology conferences, teaching rounds, pulmonary function testing, and service conferences.

140.08. Gastroenterology at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Schmid**

Students become a part of the gastroenterology group and participate in all activities including work-up of patients in clinic and wards. They attend all conferences.

140.09 Cardiology Service at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Mailhot**

Students work up patients, follow through diagnostic program phonocardiograms, echocardiograms, stress electrocardiograms, cardiac catheterization, angiocardiographic studies. Instruction provided in cardiovascular diagnosis, physiology of heart disease, heart sounds. Attendance at conferences and seminars. Reading assigned.

140.11. Renal-Electrolyte Service at *PHS.* (1½ per week) F, W, Sp. Prerequisite: Medicine 110 and 131A-B-C. **Hulter**

Students work up and manage patients under supervision; participate in activities of the Dialysis Center including peritoneal and hemodialysis; attend Renal Clinic, presenting cases and daily rounds; attend seminars and conferences; and observe research activities of the unit.

140.13. Clinical Clerkship at *PHS.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and 131A-B-C. **Mason**

Students are assigned patients for work-up and management under supervision. They make daily rounds and present cases, attend seminars, Journal Club, CPC's, Death Conference, and Grand Rounds. Scope of responsibility is similar to that of interns.

140.14. Endocrine-Metabolic Medicine at *PHS.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 or consent of instructor. **Donaldson**

Students work up patients and participate in activities of the Metabolic Service under supervision; attend Metabolic Clinic; present patients there and on endocrine rounds; attend seminars and conferences. Program tailored for participation in research activities if student desires and qualifies.

140.15. Inpatient Medicine at *K.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. Limited to fourth year students. **Janin**

Students based at *K* serve as clinical clerks. They examine patients, participate in ward rounds and attend teaching seminars and conferences of the Department of Medicine.

140.16. Hematology at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **R. O. Wallerstein, Kan**

Students work up hematology patients; review pertinent clinical laboratory data of problems presented; attend slide rounds; help prepare material for sessions; attend hematology rounds.

140.17. Clinical Pharmacology at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110.
Morelli, Melmon, Bourne, Sheiner, Brater

Students evaluate patients regarding problems in drug choice, action of drugs, or drug efficacy. They present cases to a staff member for review, participate in daily rounds, conduct directed literature reviews, and are exposed to research efforts in the field.

140.18. Gastroenterology at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Brandborg**

Students are incorporated into the Gastroenterology Unit. They are assigned consultations, perform sigmoidoscopies under supervision, observe upper gastrointestinal endoscopy, and small bowel biopsy. They participate in all rounds and conferences.

140.19. Clinical Cardiology at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and consent of instructor. **Hollenberg**

Students share consultations and on-call with cardiology residents; work up patients on wards in CCU; attend open heart surgery once a week; assist at D.C. electrical reversion; interpret EKG's and vectorcardiograms; attend rounds and conferences.

140.20. Infectious Disease Clerkship at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Conte**

Students work up and present patients under the direct supervision of the infectious disease resident. Patients are presented at attending rounds and infectious disease conferences.

140.21. Private Practice. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **L. H. Smith, Carbone**

Working experience with an internist on the clinical faculty as he makes rounds in various private hospitals and at *UC,* sees patients in private office and on house calls, does follow-up studies, and reads electrocardiograms.

140.22. Pathophysiology of Disease. (1½ per week) F, Sp. Prerequisite: Medicine 110 or Pediatrics 110 or Surgery 110. **Siperstein**

A course designed to present major basic science concepts which govern the practice of medical subspecialties. Students devote four weeks to the study of a specialty area such as cardiovascular, hematology, renal, immunology-infectious disease, oncology, neurology, endocrine-metabolic, pulmonary, gastroenterology.

140.23. Endocrine-Metabolic Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Forsham**

Students based at Metabolic Research Unit and eleventh floor Moffitt Hospital act as assistants to interns and residents, and research fellows on the ward; attend endocrine and metabolic clinics, and seminars and teaching exercises of endocrinology and metabolism, including grand rounds in medicine.

140.24. Clinical Immunology-Rheumatic Diseases at *UC.* (1½ per week) F, W, Sp. Prerequisite: Medicine 110 and consent of instructor. **Engleman, W. V. Epstein**

Combination of outpatient clinics, inpatient responsibilities and laboratory experiences will be used to teach interpretation of clinical findings and laboratory observations in immunologically mediated rheumatic disorders. Practical experience together with selected readings will develop familiarity with this group of disorders.

140.25. Renal and Electrolyte Service at *SF.* (1½ per week) F, W, Sp. Prerequisite: Medicine 110. **Humphreys**

Students work up and follow renal and electrolyte patients seen in the service, participate actively in hemodialysis and peritoneal dialysis; they attend thrice-weekly ward rounds and biweekly seminars in renal and electrolyte diseases.

140.26. Cardiology Clerkship at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Uhley**

Primary emphasis is on the treatment of acutely ill patients in a coronary care unit. Includes teaching in the use of monitoring and related electronic equipment, cardioversion, and related aspects of electrocardiography.

140.27. Clinical Clerkship Stressing Cardiopulmonary Problems at C. (1½ per week) F, W, Sp. Prerequisite: Medicine 110. **Griffeath**

Students attend rounds in the Coronary Care Unit; receive instruction in cardiology, stressing electrocardiography; may work in the pulmonary function laboratory, and attend all regular teaching conferences and seminars.

140.28. Infectious Disease Clerkship at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Brewin**

Course includes active consultation service averaging three new consults per day; daily patient rounds; weekly TB rounds and pediatric rounds; introduction to clinical microbiology laboratory; two infectious disease clinics per week; and parasitology clinic. Reading and library research.

140.29. Hematology at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Shohet**

Students work up and present patients in the wards and outpatient clinics, participate in conferences and seminars, and learn the laboratory procedures pertinent to their patients.

140.30 Clerkship in Endocrinology-Metabolism at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110.
Biglieri, Schambelan, H. Williams

The Clinical Study Center (CSC) based Endocrine-Metabolic Service provides daily house staff and fellow supervised consultations. Weekly Endocrine Clinic, biweekly consultative rounds with senior staff, and conferences in the CSC on current clinical investigative studies are included.

140.31. Gastrointestinal Clinical Clerkship at *L.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Burdick**

Students function as clinical clerks, working up patients under supervision of interns and residents. They assist in such specialized procedures as sigmoidoscopies per oral endoscopies. They attend radiology and pathology conferences and seminars with visiting consultants.

140.32. Coronary Care Unit at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and four weeks clinical cardiology elective. **Scheinman, Peters**

Students work as interns in the Coronary Care Unit and attend all regular teaching conferences and seminars.

140.33. Infectious Diseases at *PMC.* (1½ per week) Su, Sp. Prerequisite: Medicine 110. **Valentine**

Students may elect clinical clerkship in infectious diseases. Activities include working up patients, relating laboratory data to

clinical situations, making ward rounds, and attending seminars.

140.34. Clerkship in Renal Disease. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Rector**

The student will join the renal team and participate under supervision in evaluation and treatment of patients with renal disease or disorders of fluid, acid-base, or electrolyte balance. Emphasis is placed on pathophysiology, history-taking, physical examination, and treatment.

140.35. Cardiology at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110.
J. Abbott, Cheitlin, Rapaport, Scheinman

Students see patients in consultation and wards and clinics, read electrocardiograms, review cases with cardiac consultant, and attend all seminars and conferences.

140.36. Emergency Service Clerkship at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. Limited to fourth year students. **Conte**

Student serves as an intern working with medical interns and residents and sharing similar responsibilities in Moffitt Emergency. Daily participation in attending rounds and biweekly meetings with faculty required.

140.37. Coronary Care Unit at *PMC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. Medicine 140.05 recommended. Limited to fourth year students. **Langston**

Student will work up, formulate treatment plans, and follow patients in the Coronary Care Unit. Daily rounds will be made with resident and attending staff. Opportunity to participate in other teaching rounds, conferences, and ECG reading as time permits.

140.38. Office Practice of Clinical Rheumatology at *K.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and consent of instructor. Medicine 140.30 recommended. **Fessel**

Primary office practice of clinical rheumatology dealing with all common rheumatological problems encountered in daily clinical practice. Opportunity to attend regular staff rounds and formal teaching rounds in rheumatology at *K*.

140.39. Clinical and Physiological Aspects of Pulmonary Disease at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **W. Gold**

Students examine patients in Chest Clinic, on the wards and in ICU and present them at ward rounds, pulmonary function and radiology conferences. They participate in pulmonary function testing and do assigned reading.

140.40 Clinical and Physiological Aspects of Pulmonary Diseases at *A.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Lifshay**

Students examine patients in the outpatient office, on wards, ICU, RCU and present them at rounds. Opportunity to participate in pulmonary function testing, and introduction to respiratory therapy and chest physical therapy techniques. Acute and chronic care will be emphasized.

140.41. Gastroenterology at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. Limited to fourth year students. **Admirand**

Students are responsible for evaluation of gastrointestinal patients on medical and surgical wards. Student work-ups are thoroughly discussed with gastroenterology staff. Students observe GI techniques including sigmoidoscopy, colonoscopy, endoscopy, liver biopsy. Daily clinical conferences are held at three affiliated hospitals.

140.42. Clinical Pharmacology at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Becker**

Students participate in daily pharmacology seminars reviewing basic pharmacology and therapeutic principles of commonly used drugs. Students evaluate patients regarding problems of drug choice and drug interaction. Emphasis is placed upon alcoholism, narcotic addiction, poisoning, shock and management of hypertension.

140.43. Basic Rheumatology and Immunology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and consent of instructor. **Talal**

This is a four to twelve week introduction to rheumatology and immunology, offering both clinical and laboratory experience. The student will participate in inpatient and outpatient care and take part in didactic and practical aspects of the research program.

140.44. Clinical and Physiological Aspects of Pulmonary Disease at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Kaltreider**

Students examine patients in the Chest Clinic, on the wards and in RCU and present them at ward rounds, pulmonary function and radiology conferences. They participate in pulmonary function testing and do assigned reading.

140.45. Endocrine Metabolism Clerkship at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Siperstein**

An introduction to the diagnosis and treatment of endocrine-metabolism diseases. Areas covered will be those endocrinopathies involving the major endocrine glands, as well as diabetes mellitus and hyperlipemias. Patients will be examined and treated in both the inpatient and outpatient services.

140.46. Chest, Thyroid, and Gastrointestinal Subspecialty Clinics at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **W. Gold, D. Watts, Greenspan**

Students follow outpatients in Chest, Thyroid and Gastrointestinal subspecialty clinics; may be responsible for new patient work ups. Clinic work will be combined with directed library reading.

140.47. Arthritis, Cardiology, Diabetes, Hematology, Metabolic, and Oncology Subspecialty Clinics at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Engleman, Gershengorn, Cane, Ries, M. Friedman**

Students follow outpatients in Arthritis, Cardiology, Diabetes, Hematology, Metabolic, and Oncology subspecialty clinics; may be responsible for new patient work ups. Clinic work will be combined with directed library reading.

140.48. Cardiology, Chest, Gastrointestinal, Renal, and Tropical Medicine Subspecialty Clinics at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110.
Gershengorn, W. Gold, D. Watts, Hopper

Students follow outpatients in Cardiology, Chest, Gastrointestinal, Renal, and Tropical Medicine subspecialty clinics; may be responsible for new patient work ups. Clinic work will be combined with directed library reading.

140.49. Acute Care Units at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Blumenthal**

Students participate in the management of acute problems; learn use of monitoring and related electronic equipment; and attend rounds, conferences and teaching sessions.

140.50. Hematology Oncology at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **R. Cohen**

An intensive clinical course with emphasis on the diagnostic evaluation and management of the patient with blood disease or cancer. The latest techniques in therapy are studied and stress is on blood morphology and laboratory test interpretation.

140.51. Gastroenterology at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. **Aron**

Clinical clerks participate in diagnosis and treatment of patients with gastrointestinal problems, biopsy and endoscopic procedures, and use of medical literature in clinical problem solving. Weekly seminars in pathophysiology, journal club, and tissue review supplement a full conference schedule.

140.52. Clinical Renal Elective at *VA.* (1½ per week) Su, F, W. Prerequisite: Medicine 110. **Arieff**

Clerkship in clinical nephrology. Lectures, rounds, conferences, renal biopsy review. Patients with acute and chronic renal disease, acute and chronic dialysis patients, patients with fluid and electrolyte problems. Renal grand rounds, journal club, nephrology research, and renal radiology conferences weekly.

140.53. Infectious Disease at *MZ.* (1½ per week) F, W, Sp. Prerequisite: Medicine 110. **Drew**

Clinical Infectious Disease Service and Clinical Microbiology Laboratory provide optimal integration of clinical and laboratory medicine. Emphasis on learning techniques of diagnostic microbiology such as bacteriology, virology, parasitology, mycology, and diagnosis management of patients with infections; research in either area.

140.54. Nephrology at *A.* (1½ per week) F, W, Sp. Prerequisite: Medicine 110. **Gise, L. Gold**

Rounds with directors of Renal Service on inpatients with a variety of renal diseases, fluid, electrolyte, acid and base disorders; outpatients on chronic hemodialysis and exposure to acute hemodialysis, and related problems. Didactic sessions in clinical renal physiology.

140.55. Acting Internship at C. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110. Limited to fourth year students. **Griffeath**

Students, teamed with a resident, will evaluate and share in the care of patients admitted to an acute care hospital. Experience includes history taking, physical examination, therapeutic plan, and progress notes. Attendance at daily teaching rounds and conferences.

150.01. Research in Cardiovascular Physiology at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Physiology 100 and 101, Biochemistry 100A-B and consent of instructor. **Hollenberg**

The elective is designed to provide ex-

perience with routine physiological measurements, the handling and monitoring of radioisotopes, techniques of tissue culture and various biochemical techniques. Presently, the laboratory is engaged in problems of myocardial hypertrophy, cell growth, and protein synthesis.

150.02. Research in Medicine. (1½ per week) Su, F, W, Sp. **L. H. Smith, Carbone**

Students continue previously initiated research projects under the guidance of faculty members. Programs must be approved by the instructors in charge and the third and fourth year cordinator.

150.03. Cancer Viruses. (1½ per week) Su, F, W, Sp. Prerequisite: Basic course in microbiology. **Levy**

Tissue culture techniques and animal experimentation will be used to demonstrate the role of viruses in animal malignancies and autoimmune disease. Research serves as a model system for studying similar disorders in man.

160.01. Clinical Correlation Seminar. (1) Su, F, W, Sp. **Fitzgerald**

A seminar directed toward a holistic view of a patient's problem involving students, basic scientists and clinicians. Students select from multiple small groups and will see the interplay between basic scientists and clinicians and the immediate pertinence of theoretical science.

160.02. Clinical Allergy. (1) W, Sp. Prerequisite: Microbiology 100A-B and Pharmacology 100A-B. **Mustacchi**

Seminar course on basic aspects of allergy supplemented by discussion of assigned clinical material and demonstration of selected diagnostic and therapeutic procedures.

170.04. Fundamentals of Electrocardiography at *VA*. (1) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Goldman**

Instruction in basic electrophysiologic principles and interpretation of electrocardiograms.

170.05. Fundamentals of Electrocardiography Interpretation at *SFGH*. (1) W, Sp. Prerequisite: Medicine 131A-B-C. **Rapaport**

Review of physical principles of electrocardiography and clinical application of electrocardiographic interpretation.

170.07. Non-Invasive Laboratory Cardiology. (1) Sp. Prerequisite: Medicine 131A-B-C. **Rapaport**

Fundamentals of non-invasive laboratory cardiologic procedures will be discussed. Techniques and role of echocardiography, stress electrocardiography, Holter monitoring, phonocardiography, systolic time intervals, vectorcardiography, apexcardiography and other areas will be covered.

170.08. Introduction to Cancer Medicine. (2) F. **L. White**

Course provides a humanistic orientation to cancer that will form a framework for better understanding and integration of the information on cancer presented in other health science courses. Biomedical, clinical, and psychosocial aspects will be explored.

197. Research in Medicine. (1½ per week) Su, F, W, Sp. **L. H. Smith**

A one-year research project approved by the Dean and the chairman of the department.

198. Supervised Study in Medicine. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor preceptor and approval of third and fourth year coordinator. **L. H. Smith, Carbone**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Medicine. (1-5) Su, F, W Sp. Prerequisite: Consent of instructor preceptor and approval of third and fourth year coordinator. **L. H. Smith, Carbone**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Medical Staff Conference. (2) F, W, Sp. *UC* **L. H. Smith,** *SF* **Rapaport,** *VA* **Sleisenger**

Interns and residents prepare and present case histories of patients at medical staff conferences including references to the literature, laboratory work, and special studies. Faculty members and visiting professors discuss the cases and present new developments in their respective fields.

401. Interdepartmental Clinical Correlation Course. (4) F, W, Sp. *UC,* **L. H. Smith**

A series of discussions are conducted in the various subspecialties of internal medicine. Students take an active part in the presentation and discussion of the problems involved, including reference to the literature, clinical demonstrations, and directed student participation.

402. Seminars in Medical Literature. (1½) F, W, Sp. *VA* **Sleisenger**

Seminars on recent literature in internal medicine, with assigned reading, required reports, and evaluation of presented material by interns, residents, and faculty.

403. Specialty Seminars. (2) F, W, Sp. *UC* **L. H. Smith**

Seminars are conducted in the fields of gastroenterology, hematology, cardiology, electrocardiology, endocrinology, chest diseases and pulmonary physiology, thyroid diseases, psychosomatic medicine, arthritis and rheumatic diseases, infectious diseases, and radiology. Library research, occasional formal reports and patient presentations are required.

404. Specialty Seminars. (4) F, W, Sp. *SFGH* **H. Williams and Staff**

Seminars are conducted in cardiology, hematology, gastroenterology, infectious diseases, metabolic diseases, and pathology involving discussions, required reading, and reports.

405. Specialty Seminars. (4) F, W, Sp. *VA* **Sleisenger**

Seminars are conducted in cardiology, electrocardiography, hematology, gastroenterology, radiology, fluid and electrolyte balance, endocrinology and pathology, involving discussions, required reading, and reports. Elective seminars include a chest disease conference, joint medical and surgical conference, tumor board, dermatology conference, and neuropsychiatry conference.

406. Research Problems in Fundamental Aspects of Disease. (1-10) Su, F, W, Sp. *UC* **L. H. Smith,** *SFGH* **H. Williams,** *VA* **Sleisenger**

Research programs are arranged with appropriate faculty members on an individual basis.

407. Clincopathological Conferences. (1) F, W, Sp. *SFGH* **H. Williams,** *VA* **Sleisenger**

Residents take an active part in the presentation and discussion of problems connected with the correlation of clinical manifestations of disease with postmortem studies. Conferences include reference to the literature, clinical demonstrations, and laboratory work.

408. Electrocardiographic Interpretation. (2) Su, F. W. Sp. **Sokolow**

Seminars (individual instruction) for residents in medicine and trainees in cardiology by cardiac consultants in the interpretation of all electrocardiograms and phonocardiograms take at *UC*.

450. Clinical Medicine. (10) Su, F, W, Sp. *SFGH* **H. Williams,** *UC* **L. H. Smith**

Residents are responsible for the care of patients, under the direction of the attending staff, and participate in student teaching. Third year, senior, and chief residents provide teaching and consultation service in the hospitals and outpatient clinics.

452. Clinical Medicine. (1½ per week) Su, F, W, Sp. *VAF* **Rosenstiel**

Residents are responsible for patient care, under the direction of the attending staff, including history-taking, physical examinations, laboratory tests, and consultations. The chief resident, in addition, has certain responsibilities involving the residents, and consults for all other hospital services.

460. Clinical Primary Care. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Ambulatory and Community Medicine 460. **Crede and Staff**

Interns in the Primary Care Track of Internal Medicine are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Medicine Internship Program as well as related clinical services such as Dermatology, Neurology.

461. Clinical Primary Care. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Ambulatory and Community Medicine 461. **Crede and Staff**

Residents in the Primary Care Track of Internal Medicine are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Medicine Residency Program as well as related clinical services such as Dermatology, Neurology.

490. Clinical Medicine. (1½ per week) Su, F, W, Sp. *SFGH* **H. Williams**

Interns rotate through medical wards and emergency hospital. Under the supervision of the attending staff, they are responsible for the care of patients, history-taking, medical work-ups, laboratory tests, and consultation.

491. Clinical Medicine. (1½ per week) Su, F, W, Sp. *SFGH* **H. Williams**

A modified "straight" medical internship consisting of eight to nine months service in general medicine, chest, and the emergency rooms, with three to four months spent in other hospital services.

495. Clinical Medicine. (1½ per week) Su, F, W, Sp. *UC* **L. H. Smith**

Interns are responsible for the care of

patients, under the direction of the attending staff, and participate in student teaching.

Microbiology

100A-B. Biologic Agents of Disease. (3-5) § Sp, F. Prerequisite: Biochemistry 100A-B. Lecture 3 hours Sp; 4 hours F. Lab 3 hours F. **Levinson**

Pathogenesis of infection and resistance to microorganisms, particularly bacteria and fungi. Natural history, essentials of diagnosis, treatment and epidemiology of infectious diseases. Laboratory demonstrations and exercises of essential medical skills.

125. Microbiology. (6) § Sp. Lecture 4 hours, Lab and Conference 6 hours. **Halde and Staff**

Morphology and physiology of microorganisms including bacteria, molds, yeasts, and viruses and techniques to study them. Fundamentals of infection and resistance, immunology, microbial genetics, disinfection, chemotherapy, biologic products, and epidemiology. Problems in laboratory diagnosis, treatment and prevention of infectious diseases.

126. Microbiology. (6) W. Lecture, 4 hours, Lab and Conference 6 hours. **Jawetz, Speck**

A comprehensive presentation of microorganisms including bacteria, fungi, and viruses; fundamentals of infection and resistance, immunology, disinfection and sterilization and antimicrobial agents. Laboratory studies on indigenous oral flora, and applications of microbiology in dentistry.

150.01. Research in Microbiology. (1½) Su, F, W, Sp. Prerequisite: Microbiology 100A-B and consent of instructor. **Staff**

Research in microbiology; block elective for fourth year students.

190A. Medical Microbiology for Graduate Students. (3) § Sp. Prerequisite: Biochemistry 100A-B or equivalent. **Jawetz and Staff**

Same as Microbiology 100A. Lecture and conferences in the fundamentals of immunology and virology. Small group seminars on patient-related problems in these fields.

190B. Medical Microbiology for Graduate Students. (4-5) § F. Prerequisite: Biochemistry 100A-B or equivalent. Lecture and Conference 4 hours. Lab 3 hours (may be omitted with consent of instructor). **Jawetz and Staff**

Processes of infection and resistance. Microbial and fungal infections, epidemiology, treatment and control with emphasis on human disease.

198. Supervised Study in Microbiology. (1-5) § Su, F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Research Project in Microbiology. (1-5) § F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

203. Molecular and Cellular Immunology. (3) § F. Prerequisite: Biochemistry 100A-B and Microbiology 100A-B or equivalents. Offered in alternate years. Not offered 1976-1977. **Goodman**

Structural and functional aspects of antigens and antibodies, including chemical and genetic basis of immunogenicity, structure and biosynthesis of immunoglobulins, antigen-antibody interactions, immunogenetics, properties of immunocompetent cells, cell cooperation, lymphocyte receptors for antigens.

204. Immunobiology. (3) § W. Prerequisite: Microbiology 100A-B or equivalent instruction in basic immunology. Offered in alternate years. Not offered 1976-1977. **Linscott**

An advanced course covering antigen-antibody interactions, with special emphasis on their biological importance; experimental hypersensitivity, transplantation immunology, immunological unresponsiveness, cytotoxic reactions, and the role of the complement system.

206. Pathogenic Fungi. (2) § F. Prerequisite: Microbiology 100A-B. **Halde**

A systematic review of the fungi responsible for human disease, emphasizing pathogenesis, epidemiology, and diagnostic laboratory procedures.

208. Molecular Biology of Animal Viruses. (3) § W. Prerequisite: General knowledge of nucleic acid structure and chemistry and multiplication of viruses. Offered in alternate years. Offered 1976-77. **Bishop, Levinson, Levintow, Varmus**

The nature of viruses: dynamics of virus-cell interaction with emphasis on animal virus systems, control of expression of virus-specific information in lytic and temperate infection, and role of viruses in malignant transformation of cells.

209. Research Problems in Immunochemistry. (1-7) § F, W, Sp. Prerequisite: Microbiology 203 or equivalent and consent of instructor. Offered in alternate years. Offered 1976-1977. **Goodman**

Training in the use and application of immunochemical methods to research problems. Methods include quantitative precipitin and hapten inhibition techniques, gel-diffusion and immunoelectrophoresis, paper and column chromatography, zone electrophoresis, isotope labeling and radioautography of proteins, and density gradients and analytical ultracentrifugation.

210. Cell Biology. (2) § F. Prerequisite: College biology and consent of instructor. Offered in alternate years. Not offered 1976-1977. **Levinson**

A discussion of recent research on the DNA, RNA, proteins, membranes, and control of avian and mammalian cells. In addition, differentiation, contact behavior, communication, virus infection and carcinogenesis in these cells will be covered.

220. Seminar (0) § F, W, Sp. Lecture 1 hour. **Staff**

General microbiology: individual research of advanced graduate students, invited speakers and staff members. Reviews of special topics and journal articles by advanced students.

221. Oral Microbiology. (1) § F. Prerequisite: Consent of instructor. **Hurst**

A seminar course concerned with the role of microorganisms in oral health and disease, with emphasis on the ecology of the oral flora.

250. Research (1-8) § F, W, Sp. **Staff**

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

Morphology

110A. Morphology of Human Dentition. (1) F. Prerequisite: Concurrent enrollment in Morphology 115A. **Tueller**

Course introduces the student to tooth morphology and includes discussion of the development and form of the primary and permanent dentition.

110B. Applied Morphology. (1) W. Prerequisite: Morphology 110A and 115A; concurrent enrollment in Morphology 115B. **Meli**

The application of individual tooth and arch form to interarch relationships.

115A-B. Morphology of Human Dentition. (0-4, 0-4) F, W. Prerequisite: Concurrent enrollment in Morphology 110A and 110B. Lab 6 hours. **Hamaguchi**

Study of individual tooth form and relationship to adjacent and opposing anatomical structures.

Neurological Surgery

Core Clerkship—Neurology 110. Students serve as clinical clerks in the inpatient and outpatient clinics.

140.01. Clinical Neurological Surgery Clerkship at *UC*. (1½ per week) Su, F, W, Sp. Prerequisite: Neurology 110 and consent of instructor. **C. B. Wilson**

The student will become a member of the house staff, attending ward rounds, working up patients, assisting at operations, and taking night call on rotation with a resident.

140.02. Clinical Neurological Surgery Clerkship at *SFGH* or *VA*. (1½ per week) Su, F, W, Sp. Prerequisite: Neurology 110. **Hoff, Weinstein**

Student becomes a member of the house staff, attending ward rounds, working up patients, assisting at operations, and taking night call on rotation with a resident. One student per hospital.

140.03. Clinical Neurological Surgery Clerkship at *Reno*. (1½ per week) W. Prerequisite: Neurology 110. Fourth year standing. **Olson**

Clinical program in neurology and neurosurgery designed to provide clinical background, care of patients, and basic science (neuroscience) associations. Research involvement and teaching responsibility available.

198. Supervised Study in Neurosurgery. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Neurosurgery. (1-5) F, W, Sp. Prerequisite: Consent of Instructor. **Staff**

A laboratory research project under di-

rection of a member of the faculty with the approval of the chairman of the department.

400. Neurological Surgery Staff Conference at *UC*. (2) Su, F, W, Sp. *UC* **C. B. Wilson**

Residents, under supervision, prepare and present case histories of ward patients including laboratory work, X ray studies, special investigation and reference to the literature. Discussion is led by the faculty with participation by visitors.

401. Combined Staff Conference, Neurology and Neurological Surgery. (1) F, W, Sp. *UC* **C. B. Wilson**

Conference includes the discussion of special problems and topics in neurology and neurological surgery relating to case presentations. Members of the house staff and graduate students participate.

402. Clinicopathological Conferences at *UC*. (2) Su, F, W, Sp. *UC* **Boldrey, C.B. Wilson**

Residents discuss clinicopathological aspects of cases, and their correlation with the literature and special studies. Faculty and visitors discuss developments in related fields. Second year residents organize conferences and participate in gross autopsies on patients from the Neurological Surgery Service.

403. Seminar in Literature of Neurology and Neurological Surgery at *UC*. (1) Su, F, W, Sp. **G. Clark**

Recent literature in neurology and neurological surgery is presented. Discussion by members of the faculty in attendance and by visitors from other schools interested in this and related fields.

450. Clinical Neurological Surgery at *UC*. (10) Su, F, W, Sp. *UC* **C. B. Wilson**

Residents, under supervision, are responsible for patient care in the wards and outpatient clinics including history-taking, physical examinations, laboratory tests, and consultations. In addition, the senior resident has certain administrative, teaching, and clinical responsibilities.

451. Clinical Neurological Surgery at *SFGH*. (10) Su, F, W, Sp. *SFGH* **Hoff**

Residents are responsible for the care of patients, under the direction of the attending staff, including history-taking, physical examinations, laboratory tests, and consultations. In addition, the senior resident has certain teaching and administrative responsibilities required by the attending staff.

453. Clinical Neurological Surgery at *VA*. (10) Su, F, W, Sp. *VA* **Weinstein**

Residents are responsible for diagnosis and care of patients in wards and clinics and performance of studies and selected neurosurgical procedures under supervision of the attending staff. They also present patients at conferences and attend seminars and rounds at *UC*.

490. Clinical Neurological Surgery at *SFGH* and *VA*. (1½ per week) Su, F, W, Sp. **Hoff, Weinstein**

Interns rotate through neurological surgery wards. Under the supervision of the attending staff, they are responsible for the care of patients, including history-taking, neurologic examinations, laboratory tests, diagnostic procedures, and consultation.

Neurology

Second-Year Coordinated Instruction—Medicine 132A-B-C. Lecture-demonstrations and section work devoted to the supervised examination of patients.

110. Clinical Clerkship in Neurology and Neurosurgery. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131 A-B-C. **Fishman, C. B. Wilson**

Students are assigned patients for study under supervision of attending and resident staffs at *UC*, *SFGH* and *VA* hospitals. They attend work rounds, attending rounds, grand rounds, conferences and lecture-seminars, emphasizing diagnosis and management of common clinical problems.

140.01 Advanced Clinical Neurology at *UC, SFGH, VA*. (1½ per week) Su, F, W, Sp. Prerequisite: Neurology 110. **Fishman**

Students serve as clinical clerks in the inpatient services and outpatient clinics. Attendance at departmental clinical rounds, seminars, and conferences is required. Approval of the chairman of the department also is required.

140.02. Extramural Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Neurology 110. **Fishman**

Clinical clerkship in approved hospitals by special arrangement and approval of the Dean and the chairman of the department.

140.04. Child Neurology. (1½ per week) Su, F, W, Sp. Prerequisite: Pediatrics 110, Medicine 110, and Neurology 110. **Berg**

Participation in childhood neurology studies being carried out in the department including work in Convulsive, Neurology, Cerebral Palsy, and Developmental Clinics, and visits to special programs for children with neurological handicaps.

150.01. Research in Neurology. (1½ per week) Su, F, W, Sp. Prerequisite: Anatomy 103. **Fishman**

Opportunities for research in one of the departmental laboratories by arrangement with the chairman of the department.

150.02. Neuropathology. (1½ per week) F, W, Sp. Prerequisite: Anatomy 103 and Pathology 102. **Baringer**

Tissue pathology of diseases of the nervous system will be explored in greater depth in the postmortem room and by gross and microscopic techniques.

198. Supervised Study in Neurology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **Fishman and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Neurology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **Fishman and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Neuroscience Seminars. (1½ per week) Su, F, W, Sp. *UC* **Fishman**

Seminars covering selected subjects in the basic sciences relevant to neurology including neuroanatomy, neurochemistry, neurophysiology, and neuropathology.

401. Grand Rounds. (1) Su, F, W, Sp. *UC* **Fishman**

Conference includes resident preparation and presentation of patient case histories including reference to the literature, laboratory work, and special studies. Faculty members and visiting professors from other universities discuss new developments in their respective fields.

402. Neurological and Neurosurgical Pathology. (1) Su, F, W, Sp. *UC* **Malamud**

Course involves the presentation and discussion of clinical histories and pathologic findings in selected cases of neurologic interest and histopathologic study, and discussion of surgical and postmortem specimens from neurological and neurosurgical patients.

403. Research in Neuropathology. (1-10) Su, F, W, Sp. Second and third year residents. *UC* **Malamud**

Course involves pathologic and clinicopathologic research into various aspects of neuropathology. Specific subjects of research are chosen in conjunction with members of the staff.

404. Research in Electroencephalography. (1-10) Su, F, W, Sp. *UC* **Fishman**

Clinical or basic research in various aspects of electroencephalography may be undertaken under supervision. Specific subjects of research are chosen in conjunction with members of the staff.

407. Neuroradiology. (1) F, W, Sp. **Newton, Norman, Winestock, Mani**

Neuroradiologic techniques and interpretations are reviewed in detail with particular emphasis on X rays of the skull and spine, pneumoencephalography, myography, and arteriography.

411. Research in Neurochemistry. (5-13) Su, F, W, Sp. *UC* **Fishman**

Clinical and basic research in biochemical and metabolic aspects of neurological disorders. After consultation, assignments to one of the several departmental laboratories will be possible.

412. Research in Neuropathology. (10) Su, F, W, Sp. *VA* **Baringer**

Specific projects in experimental pathology of the nervous system may be undertaken by direct arrangement. Techniques include neurohistology, histologic autoradiography, and electron microscopy.

453. Instruction in Clinical Electroencephalography. (1½ per week) Su, F, W, Sp. **Spire**

Residents learn interpretation of electroencephalograms under the supervision of experienced electroencephalographers. They interpret electroencephalograms on patients they have seen clinically and individual instruction is available as required. Instruction is accredited by the Board of Qualification of the American Electroencephalographic Society.

454. Clinical Training in Electromyography. (1½ per week) Su, F, W, Sp. **Fishman**

Students learn the application of electromyography in the diagnosis of patients seen in the wards and in the outpatient clinic with individual instruction as required.

456. Clinical Neuropathology. (1½ per week) Su, F, W, Sp. *LPNI* **Malamud**

Residents spend three months or more in the Neuropathology Laboratory at *LPNI* performing supervised autopsies and pathologic studies of brains from neurological, neurosurgical, and psychiatric patients.

457. Clinical Neurological Surgery. (1½ per week) Su, F, W, Sp. *UC* **C. B. Wilson**

Residents are responsible for the care of patients in the wards and outpatient clinic, under the direction of the attending staff, including history-taking, neurologic examinations, laboratory tests, special diagnostic and therapeutic procedures, and consultations.

458. Clinical Pediatric Neurology. (1½ per week) Su, F, W, Sp. *UC* **Berg, Diamond**

Course offers experience in the diagnosis and management of children with acute and chronic neurologic disorders. Outpatient clinics are held weekly for pediatric convulsive disorders and behavioral and learning problems of the school child.

460. Clinical Neuro-ophthalmology. (4½) Su, F, W, Sp. *UC* **Hoyt**

Residents participate in clinical evaluation of patients in preparation for rounds. Clinical teaching in neuro-ophthalmology.

Nursing

101A. Introduction to Nursing. (2) SS. Prerequisite: Admission to School of Nursing. **E. James**

Course introduces nursing students to the role of their profession in today's society and provides an orientation to a specific system of teaching and learning.

101B. Introduction to Nursing. (1) F. **Ahumada**

Course introduces nursing students to the role of their profession in today's society and provides an orientation to a specific system of teaching and learning.

102. Analysis and Presentation of Clinical Data. (2) W. Prerequisite: Nursing 101A and/or 101B, or consent of instructor. **Ahumada**

Development of a systematic approach to the analysis and presentation of clinical data. Course emphasizes current nursing and medical knowledge, concepts and terminology, while utilizing material from parallel courses.

110. Physiological Basis of Nursing Assessment. (3) F. Prerequisite: Consent of instructor. **Markewitz**

Alterations of normal structure and function in selected major organ systems that occur in common illnesses are examined. Emphasis is placed on physiological concepts and facts that facilitate nursing observations and assessment.

111A. Health Assessment in Nursing. (7) F, W, Sp. Prerequisite: Nursing 110 or concurrent enrollment. Lecture 2 hours, Lab 15 hours. **Staff**

Explores the components of health, theoretical basis of health assessment, and identification of patient problems. Introduces the role of the nurse as a health assessor in inpatient and outpatient settings, on an aged continuum from infancy to senescence.

111B. Health Assessment in Nursing. (7) F, W, Sp. Prerequisite: Nursing 110 and 111A. Lecture 2 hours, Lab 15 hours. **Staff**

Explores the components of health, theoretical basis of health assessment, and identification of patient problems. Introduces the role of the nurse as a health assessor in inpatient and outpatient settings, on an aged continuum from infancy to senescence.

112. Small Groups: Theories and Issues. (3) § F, W, Sp. Prerequisite: Concurrent enrollment or prerequisite to Nursing 117. Lecture 2 hours, Lab 3 hours. **Dye**

The course is designed to provide a sound theoretical basis in the principles and issues involved in the study, establishment, and functioning of small groups. Focus is on application of theory to relevant nursing experiences.

113A. Communication: Theory and Practice in Nursing. (2) F, W, Sp. Prerequisite: Concurrent enrollment in Nursing 111A or consent of instructor. Lecture 1 hour, Lab 3 hours. **J. Nielsen**

Communication theory and principles in laboratory and clinical settings. Development and utilization of communication skills in nursing practice. Application of these skills with clients in the delivery of health care.

113B. Communication: Theory and Practice in Nursing. (2) F, W, Sp. Prerequisite: Concurrent enrollment in Nursing 111B. Lecture 1 hour, Lab 3 hours. **G. Adams**

Communications theory and principles in laboratory and clinical settings. Development and utilization of communication skills in nursing practice. Application of these skills with clients in the delivery of health care.

114A. Introduction to Family Health Care Nursing. (2) F, W, Sp. Prerequisite: Psychology 113A. Concurrent enrollment in Nursing 111B. Lecture 1 hour, Seminar 1 Hour. **Staff**

Introduction to the nursing process through an in-depth involvement with a family unit in a primary health care setting. Theories, concepts, and issues related to family development from conception to death will be explored.

114B. Introduction to Family Health Care Nursing. (2) W, Sp. Prerequisite: Nursing 114A. Lecture 1 hour, Seminar 1 hour. **Staff**

Introduction to the nursing process through an in-depth involvement with a family unit in a primary health care setting. Theories, concepts, and issues related to family development from conception to death will be explored.

116. The Communication Process. (3) F. **A. Davis**

A lecture-discussion course exploring language as a symbolic system and as an instrument in describing emotional experiences. Along with general theoretical consideration of language, emphasis is placed on disturbed communication as depicted in schizophrenic behavior.

117. Psychological Adaptations in Health and Illness. (5) F, W, Sp. Prerequisite: Nursing 110, 111A and 111B, 113A and 113B, 114A and Psychology 113A-B. Lecture 2 hours, Lab 9 hours. **G. Adams**

Course deals with theory and practice essential to identifying, understanding, and intervening in forms of adaptive behavior in a variety of settings. In laboratory, focus is on working with psychiatric patients, using the nurse-patient relationship as a therapeutic tool.

118. Family and Community Patterns in Nursing 110, 111A and 111B, 113A and 113B, and 114A. Lecture 2 hours, Lab 12 hours. **Bello**

Theory and practice essential to the assessment of family and community patterns in health and illness, and for planning, implementing, and evaluating nursing care measures related to families, groups, and communities.

119. Pathophysiological Adaptation. (8) F, W, Sp. Prerequisite: Nursing 110, 111A and 111B, 113A and 113B, and 114A. Lecture 2 hours, Lab 18 hours. **Veatch**

Selected pathophysiological interruptions and adaptations in children and adults. Emphasis on promotion of optimal physiological function through assessing levels of function, evaluating adaptive mechanisms, and investigating nursing interventions. Laboratory to implement nursing process utilizing course content framework.

121. Physiological Basis of Nursing Practice. (3) F, W, Sp. Prerequisite: Nursing 110, 111A and 111B. **Markewitz**

Course examines structural and functional alterations and related adaptive mechanisms in disease of selected major organ systems, and discusses manifestations, diagnostic tools, and therapies of disease processes in relation to nursing assessment and action.

123A. Social Systems Theory and Application to Nursing Practice. (2) F, W, Sp. Prerequisite: Concurrent enrollment in Nursing 130A. **Staff**

Course presents a theoretical framework from which patient care and health delivery systems can be analyzed, approached, and influenced by the professional nurse.

123B. Seminar in Advanced Social Systems Theory and Application to Nursing Practice. (2) F, W, Sp. Prerequisite: Nursing 123A and 130A. Concurrent enrollment in Nursing 130B. **Staff**

In-depth exploration and application of social systems and change theories to clinical experience. Identification of factors which affect the delivery of nursing care and the quality of health services.

125. Issues in Nursing and Health Care. (3) W. Prerequisite: Second year standing. **A. Davis**

Consideration of advances in nursing and other disciplines. Examination of the health care system and the relationship of nursing to it.

130A. Nursing in Selected Areas of Clinical Practice. (8) F, W, Sp. Prerequisite: Nursing 110, 111A and 111B, 113A and 113B, 114A-B, 112, 117, 118, 119 and 121. Lecture 2 hours, Lab 18 hours. **Staff**

Course provides theory and clinical experience in a selected area of nursing practice over two quarters. The emphasis is on clinical skills and competency, utilization of a systematic method of inquiry, and development of the leadership role.

130B. Nursing in Selected Areas of Clinical Practice. (8) F, W, Sp. Prerequisite: Nursing 123A and 130A. Lecture 2 hours, Lab 18 hours. **Staff**

Course provides theory and clinical experience in a selected area of nursing practice over two quarters. The emphasis is on clinical skills and competency, utilization of a systematic method of inquiry, and development of the leadership role.

154A. Nursing in School Health Programs. (4) F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 6 hours. **Staff**

Concepts essential for understanding objectives, organization, administration, and legal aspects of school health programs and

the role of the nurse therein. Correlated experience under supervision in public schools.

154B. Nursing in School Health Programs. (5) W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 9 hours. **Staff**

Concepts essential for understanding objectives, organization, administration, and legal aspects of school health programs and the role of the nurse therein. Correlated experience under supervision in public schools.

155. Clinical Uses of Drugs. (3) F, W, Sp. **Okamoto**

Course deals with commonly used drugs, with emphasis on classification, use, rationale for choice, mode of action, and significant side effects.

156. Creative Uses of Play with Young Children. (3) W, Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 6 hours. **Hardgrove**

Course is a practical introduction to play designed to increase nursing skills in promoting growth, communication, and mental health in young children, using experiences and demonstrations with play materials and techniques.

157. Management of Common Childhood Illness. (4) § F, Sp. Prerequisite: Consent of instructor. **Dunbar and Staff**

Course presents theory related to essential content areas and specific knowledge necessary for professional nurses beginning to function as pediatric nurse practitioners. Emphasis is on most common illnesses of infancy and childhood.

158. Health Issues in Population Stabilization. (3) § W. Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **F. Abbott**

Theory and research relevant to social, ecological, and moral issues posed by scientific advances in contraception, sterilization, and abortion. Participant observation in various service settings exploring current and future nursing roles, and investigating provider and recipient attitudes and practices.

159. Health Supervision of Women During the Reproductive Years. (4) § F, Sp. Prerequisite: Consent of instructor. **Neeson**

Theories and concepts of applied obstetric and gynecologic science for maternity nurse associates. Areas include maternal-fetal-placental unit, common gynecologic problems, hormonal and mechanical contraceptives, sexual functioning, and the health needs of women from adolescence to menopause.

161. Health Maintenance in Infancy and Childhood. (4) § W. Prerequisite: Consent of instructor. **Dunbar and Staff**

Emphasis is on broad issues of child health supervision and the pediatric nurse practitioner's primary care role in management, with parents, of common developmental stresses in the child-rearing years.

162. Special Problems of the Reproductive Period. (4) § W, Sp. Prerequisite: Nursing 159 and consent of instructor. **Neeson**

Content includes theory and concepts of biopsychosocial problems and complications during the reproductive period. Metabolic, infectious, traumatic, and functional disorders are included.

171. Physiological Concepts in Health. (3) W. Prerequisite: Nursing 170. Lecture 2 hours, Lab 3 hours. **Carrieri**

Current physiological concepts are presented and implemented by the RN student within the problem-solving process. The course is designed to allow the RN student to apply knowledge of theory and conceptual frameworks in clinical practice.

172. Physiological Concepts in Illness. (4) Sp. Prerequisite: Nursing 170 and 171. Lecture 3 hours, Lab 3 hours. **Carrieri**

Current physiological concepts in illness are discussed and related to verbal and written case studies presented by the RN student. Within the problem-solving process these concepts are tested and applied in the RN's clinical work situation.

176. Health Assessment of the Adult. (4) § W. Prerequisite: Consent of instructor. **Thurston**

Course presents the essential elements of the health history and physical examination of the adult; introduces a systematic approach for use in problem identification. Laboratory for demonstration and practice of skills.

177. Theory and Process of Human Interaction. (3) W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Rosenaur and Staff**

Relevant principles of psychiatric theory, including communication and interpersonal, are related to interactional patterns of adult health nurse practitioners as they relate to individuals in their health maintenance role. Problems in interactional process are explored. Laboratory required.

178. Clinical Management in Primary Care. (5) § Sp. Prerequisite: Nursing 176. **Rosenaur**

Introduces basic concepts and general approaches in clinical management of health conditions commonly encountered in primary care of adults. Interdependent responsibilities of nurses and physicians are examined.

181. Law and the Practice of Nursing. (2) § W. **Tennenhouse, Takano**

Survey of fundamental and critical current issues in law with respect to the theory and practice of nursing. Emphasis on legal contingencies encountered in the everyday practice of nursing in both hospital and community settings.

182A-B. Health Education in Practice. (3-3) § W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Terry**

Processes and means of incorporating health education into professional practice: identification of audience, delineation of specific pertinent health concern, and exploration of modes of transmitting health information. Evaluation methods are explored.

184A. Contemporary Issues and Trends in Health Care Services. (2) § W. Prerequisite: Consent of instructor. **Resnik**

For nurses in primary care training. Examines dominant issues, controversies, trends in health care. Included are organization, financing, and significant legislative trends as they relate to emerging patterns in primary care delivery.

184B. Contemporary Issues and Trends in Health Care Services. (2) § F, Sp. Prerequisite: Nursing 184A. **Resnik**

For nurses in adult primary care training. Examines those issues and trends which have direct implications for nurse practitioners. Included are questions of legislation, legal concerns, organized nursing and medicine positions, certification, and planning change in health institutions.

188. Literature and Science: Self, Word and the World. (2) Sp. **E. Clarke, Fixel**

An interdisciplinary seminar focused on the relationship between literature and science and the ways in which modern science has modified and added to the traditional raw materials of literature.

197. Group Independent Study. (1-5) F, W, Sp. **Staff**

Groups of two or more collaborate in clinical investigation and studies of special problems related to nursing and health sciences, under the direction of faculty. Students may select study topics related to their area of interest.

198. Supervised Study in Nursing. (1-5) § F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Nursing. (1-5) § F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

200. Problems of Administration in Nursing. (2) § F. Prerequisite: Consent of instructor. **Archer**

Theories of administration applied to the administration of nursing services or schools of nursing.

201. Curriculum Development in Nursing. (4) § W, Sp. **Dunlap**

Principles of curriculum development. Utilization of these principles as a frame of reference for planning educational programs in schools of nursing and nursing services.

202. Conceptual Models in Nursing. (2-4) § F, W. Sp. **Dunlap, Meleis**

Comparative study and critical analysis of major conceptual models in nursing. Emphasis is placed on models that are prototypes for the following theoretical frameworks: systems, symbolic interactionist, developmental, and adaptation theories. Course may be repeated for credit.

204A-B-C. Comparative Nursing Administration. (2-3, 2-3, 2-3) § F, W, Sp. Prerequisite: Consent of instructor. **Archer, Schatzman, Hill**

Comparative analysis of nursing with emphasis on nursing administration in the United States and other selected countries, using perspectives from anthropological, educational, historical, organizational, philosophical, and sociological contexts applicable to each country. Particularly recommended for international students.

205. Processes of Supervision. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Archer**

A study of the supervisory process, the role of the supervisor, the development of staff, and the principles and practice of supervision in nursing. Observation and laboratory experience in supervision arranged for and guided by the faculty.

206. Microteaching. (4) § F, W, Sp. **G. Davis**

Analysis of the selected

ponents of reinforcement, stimulus variation, questioning, set induction, and closure utilized in individual and group instruction with application and practice in a microteaching laboratory setting.

207. Research in Teaching. (2-4) § F, W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 0-6 hours. **M. Kramer**

Critical inspection and analysis of research in student, patient, and staff teaching. Opportunity provided to incorporate the findings of research in supervised practice teaching sessions.

208. Emerging Roles in Professional Nursing. (3) § Sp. Lecture 2 hours, Lab 3 hours. **Staff**

Examines from historical, sociological, economic, and nursing perspectives, the phenomena surrounding emerging professional nurse roles. Selected examples from student contact with people practicing in emerging roles and published descriptions provide bases for exploration.

210A. Family Dynamics, Concepts and Assessment. (3) § F, W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **J. Moore**

Lecture/seminar that examines family dynamics and major concepts useful in assessment of families. The family as a system wherein roles, cultural values, and interpersonal communication is emphasized is considered. Selected research included.

210B. Family Dynamics, Pathology and Therapy. (3) § Sp. Prerequisite: Nursing 210A or equivalent and consent of instructor. Lecture 2 hours, Lab 3 hours. **J. Moore**

Seminar emphasizing family concepts which aid in the understanding of dysfunctional families. Marriage and family therapy as treatment modalities are studied. Simulation laboratory experiences are used to test theory. Concurrent enrollment in Nursing 405 with consent of instructor.

211A. Introduction to Research: Perspectives and Styles of Research and Researchers. (3) § F, Sp. Prerequisite: Elementary statistics or equivalent. Lecture 2 hours, Lab 3 hours. **M. Kramer**

Lectures and small group sections present an overview of the research process including the styles of researchers, the research attitude, logic, ethics, philosophy, and tools of science.

211B. The Research Critique. (3) § W, Sp. **Staff**

Sections with different substantive foci are devoted to the development of the individual nurse as a consumer of research endeavors emphasizing attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211C. Research Techniques: Data Analysis. (3-4) § Sp. Prerequisite: Nursing 211A and 211B. **Staff**

Data collection, analysis and presentation of a research project in nursing.

211D. Experimental Research Design. (3) § Sp. Prerequisite: Nursing 211A or consent of instructor. **Hornof**

Intensive study and critique of experimental and quasi-experimental research designs.

211.01B. Critique of Studies in Patient-Family Teaching. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Hallburg**

Critique of studies in patient-family teaching with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.02B. Critique of Studies in Maternal-Child Nursing. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Highley, Savedra**

Critique of studies in maternal-child nursing with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.03B. Critique of Research in Loss and Grief. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Mercer**

Critique of studies in loss and grief with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.04B. Critique of Research in Death in Childhood. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Waechter**

Critique of studies in death in childhood with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.05B. Critique of Studies in the Field of Aging. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **E. Nichols, L. Reynolds**

Critique of studies in the field of aging with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.11B. Critical Analysis of Clinical Interventions with Young Retarded Children. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Pothier**

Critical analysis of clinical interventions with young retarded children with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.12B. Critique of Research Studies in Nonverbal Behavior. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **J. Gorman**

Critique of studies in nonverbal behavior with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

211.21B. Critique of Cardiopulmonary Research. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Barstow**

Critique of cardiopulmonary research with the intent to develop research consumerism. Emphasis on attitudes, insights, and abilities crucial to the appreciation, appraisal, and utilization of research in the health sciences.

212A. Physiological Concepts in Nursing. (2-4) § F. Prerequisite: Consent of instructor. **Halliburton**

Promotion of the understanding and application of physiological principles to cross-clinical nursing. Emphasis is on basic science considerations, integrative aspects, and selected functional modifications.

212B. Physiological Concepts in Nursing. (2-4) § W. Prerequisite: Consent of instructor. **Abbey**

Promotion of the understanding and application of physiological principles to cross-clinical nursing. Emphasis is on basic science considerations, integrative aspects, and selected functional modifications.

212C. Physiological Concepts in Nursing. (2-4) § Sp. Prerequisite: Consent of instructor. **Abbey**

Promotion of the understanding and application of physiological principles to cross-clinical nursing. Emphasis is on basic science considerations, integrative aspects, and selected functional modifications.

213A. Nursing Measurements and Patient Monitoring. (2-3) § W. Prerequisite: Nursing 212A and consent of instructor. Lecture 2 hours, Lab 0-3 hours. **Goldstein**

Fundamentals of electronics, transducers, and instrumentation directly applicable to the modes of obtaining physiological data from patients.

213B. Nursing Measurements and Patient Monitoring. (2-4) § Sp. Prerequisite: Nursing 212A and consent of instructor. Lecture 2 hours, Lab 0-6 hours. **Goldstein**

Fundamentals of electronics, transducers, and instrumentation directly applicable to the modes of obtaining physiological data from patients.

214. Early Postpartum: High Risk Parenting. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Mercer**

Course focuses on the puerperium, early maternal/paternal newborn relationships and the nurse's role in facilitating mother-infant acquaintances and attachment. Exploration of impact of premature infant or infant with defects on parenting process. Practicum available through Nursing 407.

215A. Health in the Community. (3) § F, W. Prerequisite: Consent of instructor. Seminar 2 hours, Lab 3 hours. **Bello**

Exploration of theories, concepts, and principles pertaining to the practice of community health nursing with focus on positive health factors and interaction within families, groups and communities.

215B. Health Care Planning in Communities. (3) § F, W. Prerequisite: Consent of instructor. Seminar 2 hours, Lab 3 hours. **Archer**

Exploration of analytic planning models applicable to community health services. Utilization of the community as a basis for planning and delivery of health care. Emphasis is on the role of the community health nurse in health planning.

215C. Community Health Issues. (3) § Sp. Prerequisite: Nursing 215A or 215B and consent of instructor. Seminar 2 hours, Lab 3 hours. **Archer**

Exploration of community health issues previously identified in community health nursing. Opportunity to explore theori

test their applicability to community and family health.

215D. Strategies of Community Organization. (3) § W, Sp. Prerequisite: Consent of instructor. **Bello**

Exploration of strategies of institutional analysis, community assessment, and methods of community organization and development, which enable nurses to facilitate others' capacities to define, plan for, and meet their own physical, social, and mental health priorities.

215E. Research Methods in Community Health Nursing. (3) § W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Archer**

Emphasizes survey and evaluative research methods including data identification, collection, analysis, interpretation, and reporting. Stresses these functions as essential for planning and evaluating community health programs.

216. Maternal Child Nursing. (3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Zalar, Savedra**

Survey of major phenomena utilizing concepts, theories, and laboratory experiences within child-bearing and child-rearing: pregnant couple, enlarging family, mother-child couple, progressing to evolving multiplicity of total family interactions, and life experiences in health and illness.

217. Psychosocial Care of Hospitalized Children and Their Families. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Tesler**

Exploration of the theory related to the psychosocial experiences of illness and hospitalization for the child and his family. Focus is directed to minimizing trauma and promoting growth. Concurrent practicum recommended.

218. Maternal Identity: Role Transition. (2-3) § Sp. Lecture 2 hours, Lab 0-3 hours. **Highley**

Role change, as dramatized by maternal role identity is used to examine transition as a lifelong developmental construct. Patient data is utilized to examine theoretical concepts and generate new theory.

219A. Nursing Care of the Acutely Ill Child. (2) § F. Prerequisite: Consent of instructor. **Ward**

Focus is on exploration of immature physiological and pathophysiological processes and their implications for planning nursing management of the acutely ill child. Students employ the problem-oriented framework to assess and manage theoretical patient problems. Practicum optional.

219B. Nursing Care of the Acutely Ill Child. (2) § Sp. Prerequisite: consent of instructor. **Ward**

Focus is on exploration of immature physiological and pathophysiological processes and their implications for planning nursing management of the acutely ill child. Students employ the problem-oriented framework to assess and manage theoretical patient problems. Practicum optional.

220. Advanced Seminar in Nursing Research. (3) § F, W, Sp. Prerequisite: Nursing 211A and 211B or equivalent and consent of instructor. **Chater**

A seminar intended for doctoral students to discuss methods and problems in current nursing research. Course may be repeated for credit.

221A. Role Development: Specialized Nursing Roles. (2-3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 0-3 hours. **Oda**

Lecture/seminar focusing on the critical analysis of specialized nursing role developments. Role research emphasized. Includes traditional, existing, expanded, and emerging roles relating to specialization. Optional laboratory for theory testing and systematic observations.

221B. Role Development: Specialized Nursing Roles. (2-3) § W. Prerequisite: Nursing 211A or equivalent and consent of instructor. Lecture 2 hours, Lab 0-3 hours. **Oda**

Lecture/seminar focusing on the critical analysis of specialized nursing role developments. Role research approach and methodology are emphasized. Includes traditional, existing, expanded, and emerging roles relating to specialization. Optional laboratory for theory testing and systematic observation is required for research credit.

221C. Role Development: Specialized Nursing Roles. (2-3) § Sp. Prerequisite: Nursing 211A or equivalent and consent of instructor. Lecture 2 hours, Lab 0-3 hours. **Oda.**

Lecture/seminar focusing on critical analysis of specialized nursing role developments. Role research approach and methodology are emphasized. Includes traditional, existing, expanded, and emerging roles relating to specialization. Optional laboratory for theory testing and systematic observation is required for research credit.

222A. A Survey of Modern Psychiatric Thought. (3) § F, W. Prerequisite: Consent of instructor. **Underwood**

Theoretical models from selected schools of psychiatric thought are presented and applied to clinical material. Intrapsychic, interpersonal, and social frameworks are reviewed. Research related to selected theoretical models is explored.

222B. A Survey of Modern Psychiatric Thought. (3) § W, Sp. Prerequisite: Consent of instructor. **Underwood**

Theoretical models from selected schools of psychiatric thought are presented and applied to clinical material. Intrapsychic, interpersonal, and social frameworks are reviewed. Research related to selected theoretical models is explored.

224. Current Trends in Group Psychotherapy. (3) § F. Prerequisite: Nursing 244 or consent of instructor. **Dye**

Seminar focusing in depth on the theoretical bases and implementation of role playing, psychodrama, and gestalt psychotherapy in the group setting by the psychiatric nurse. Designed for nurses desiring advanced preparation in group psychotherapy.

225. Psychotherapeutic Process in Nursing. (3) § F, W. Prerequisite: Consent of instructor. **J. Moore**

Lecture/seminar on the psychotherapeutic process in nursing. Material drawn from recent research in social science, psychiatry, and psychiatric nursing.

226. Nursing in Long-Term Illness. (3) § F, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Hallburg**

Intensive study of problems related to long-term illness. Explorations of the interrelationship of various cultural, psychosocial, and pathophysiological factors involved in continuing health problems. Field experience included.

228. Communications — Theoretical and Philosophical. (2-4) § F, W, Sp. Prerequisite: Consent of instructor. **A. Davis**

The concept of communication has become one of the overlapping areas in a number of disciplines. This course examines research studies, polemic essays, and philosophical writings which have made the concepts and problems of human communication central to their investigation.

229. Crisis Intervention. (2-4) § F, Sp. Seminar 2 hours, Lab 0-6 hours. **Mitchell**

A seminar to discuss innovative uses of crisis intervention in selected nursing areas. Focus is on underlying theory drawn from Lindeman, Erickson, Harris, Lazarus, and Caplan. Special emphasis is on application in the community.

231A. Nursing Administration. (4) § W. Prerequisite: Consent of instructor. **Bailey**

An advanced course designed to apply major concepts in organizational theory and management to nursing administrative practice. Emphasis on systems approach and relevant analytical techniques that will enable students to conceptualize and analyze problems in health care settings.

231B. Nursing Administration. (4) § Sp. Prerequisite: Nursing 231A and consent of instructor. **Bailey**

An advanced course designed to apply major concepts in organizational theory and management to nursing administration practice. Emphasis on systems approach and relevant analytical techniques that will enable students to conceptualize and analyze problems in health care settings.

232A. Dimensions of Leadership. (2-4) § F. Consent of instructor. Lecture 2 hours, Lab 0-6 hours. **Bailey**

Overview of concepts, theories, principles, and research studies relative to leadership and adjunct processes such as group dynamics and structure. Focuses on systematic analysis of decision processes related to planned change in health care services. Laboratory includes computer simulation.

232B. Dynamics of Leadership. (2-4) § W. Prerequisite: Nursing 232A or consent of instructor. Lecture 2 hours, Lab 0-6 hours. **Bailey**

Analysis of interactive variables and functional relationships of leadership: characteristics of the leader, follower, and health-care environmental situations. Focuses on ideas, theories, and research relative to leadership behaviors, styles, and strategies. Laboratory includes computer simulated problems.

232C. Problems in Leadership. (2-4) § Sp. Prerequisite: Nursing 232A and 232B or consent of instructor. Lecture 2 hours, Lab 0-6 hours. **Bailey**

Seminar focuses on the analysis of selected problems and case studies and on creative management of human resources in health services. Application and testing of ideas, principles, models, and theories related to leadership roles, decision making, and planned change.

233. Coping Styles of Children. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Dunbar**

Examination and assessment of individual coping styles in young children. Theoretical framework based upon Murphy, Lazarus, Menninger, and others. Laboratory data is used to explore nursing interventions relating to stress periods and coping patterns in children.

234. The Threat of Death in Clinical Practice. (3) § F, Sp. **Staff**

Seminar providing opportunity for discussion about multiple issues which come into play when adult patients face death. Discussion focuses on meaning of dying from perspective of persons undergoing the experience and/or problems of health professionals when patients are dying.

235. Process of Aging: Implications for Nursing Care. (2-4) § F, W. Lecture 2 hours, Lab 0-6 hours. **Takano**

Study of the physiological, psychological, and sociological aspects of aging. Focus is on selected theories and research relevant to nursing care of the aged. Laboratory utilizes a variety of settings serving the aged.

236. Expectant Parent Group Education. (2) § F, W, Sp. Prerequisite: Consent of instructor. **F. Abbott**

Theoretical sessions related to methodology and techniques of conducting expectant parent discussion groups. Exploration of content relevant to concerns of expectant parents, encompassing childbearing and early child-rearing experiences. Concurrent practicum required.

238A. Development of the Infant and Preschool Child. (3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab to be arranged. Enrollment limited. **Waechter**

Exploration of the major theories and research findings dealing with the physical, intellectual, and emotional development of the child from birth to school age.

238B. Development in Middle Childhood. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. Enrollment limited. **Waechter**

Exploration of the relevant theories, literature, and research findings dealing with normal cognitive, emotional, and social development during the elementary school years.

238C. Adolescent Development. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. Enrollment limited. **Waechter**

Exploration of relevant theory, literature and research findings dealing with normal development during the adolescent period.

239A. Care of Patients with Pulmonary Problems. (3) § F. Prerequisite: Consent of instructor. **E. Clarke, Flood**

A comprehensive study of the nursing care of patients with pulmonary problems. Examination of the physiological concepts necessary to understanding the patient and nursing problems. Exploration of the theoretical bases for nursing decisions and nursing action.

239B. Care of Patients with Pulmonary Problems. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **E. Clarke, Flood**

A comprehensive study of the nursing care of patients with pulmonary problems. Examination of selected theories and research from the behavioral sciences relevant to the care of these patients. Identification of legislative, ecological, and socioeconomic issues influencing health care delivery.

239C. Care of Patients with Pulmonary Problems. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **E. Clarke, Flood**

Investigation of nontherapeutic, unintended physiologic effects of selected common nursing interventions with patients with cardiopulmonary dysfunctions. Clinical laboratory included.

239D. Clinical Decision Making. (3) § F, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Barstow**

The theoretical basis for decision making in the management and teaching of adults, with emphasis on obstructive lung disease in acute and chronic settings. Examination of coping mechanisms, teaching-learning theories, and related research as applied to individual life styles.

241. Cardiovascular Nursing: A Theoretical Basis. (3) § W. Prerequisite: Consent of instructor. **C. A. Pike, Hutchings**

A study of cardiovascular theories applicable to nursing practice. Focus will be on selected pathophysiology and interventions. Optional practicum available through Nursing 407 for 2 units.

241.02. Renal Nursing: A Physiological Basis. (2) § Sp. **Markewitz, E. Clarke**

Exploration of physiological concepts and principles pertinent to selected renal pathology. Application of these principles to nursing assessment and the care of patients with renal problems.

241.03. Pharmacology for the Cardiopulmonary Patient. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **E. Clarke**

Study of cardiopulmonary nursing problems and their amelioration by drugs affecting the autonomic nervous system and cardio-respiratory-renal core systems. Review of relevant anatomy, physiology and drug action included.

242. Psychophysiological Concepts in Action. (3) § F, W, Sp. Prerequisite: Consent of instructor. **Lagerquist**

In-depth psychophysiological exploration of concepts of anxiety, stress, body image, and adaptation as they relate to and influence nursing practice.

244. Theories of Group Psychotherapy. (2) § W, Sp. Prerequisite: Nursing 112 or consent of instructor. Lecture 1½ hours, Lab 1½ hours. **Dye**

Theories of group psychotherapy based on psychoanalytic, interpersonal, and communication theories pertinent to practice of group psychotherapy by nurses. Exploration of differing models of therapy, basic principles and techniques of group therapy, and role of psychiatric nurse as leader.

246. Deterrents to Parenting. (3) § F, Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Tesler**

Exploration of evolving mother-child relationships, adaptive tasks, and environmental and interpersonal situations interrupting healthy development of mothering. Implications for nurturing and nursing roles.

247. Legislative Issues and Political Aspects of Aging in Long Term Health Care. (3) § W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Francis**

Investigation of legislative and political issues of long term health care and the implications for nursing practice.

248. Group Independent Study. (1-6) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Groups of two or more collaborate in clinical investigations and other studies of special problems in nursing and health sciences under the direction of faculty. Students may select areas related to their long-term interests and future research or clinical program.

249. Independent Study. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Individual study with emphasis on special problems in nursing. Students may select areas for study which are related to their area of interest or future goals.

250. Research. (1-8) § F, W, Sp. Prerequisite: Admission to doctoral study and consent of instructor. **Staff**

251. Professional Nurses in Bureaucracies. (3-4) § W. Prerequisite: Three months work experience as RN or consent of instructor. Lecture 3 hours, Lab 0-3 hours. **M. Kramer**

Exploration and analysis of research and issues of professionalism and bureaucracy: evolution, process and relationship to goal achievement. Course focuses on problems and conflicts encountered by professional nurses in bureaucracies and research related to identification and amelioration of these conflicts.

252. Reality Shock in Nurses. (3-4) § Sp. Prerequisite: Three months experience as RN or consent of instructor. Lecture 3 hours, Lab 0-3 hours. **M. Kramer**

Discussion and research into the postgraduate socialization process of nurses. Phases of reality shock and constructive conflict resolution are explored. Focus is on personal development of biculturalism and making reality shock work for the nurse.

253. Research in Small Group Behavior. (3) § Sp. Prerequisite: Nursing 211A and consent of instructor. **Dye**

A comprehensive analysis of research design, theory, concepts, and methodology applied to the group process. Variables such as group interaction, performance characteristics, and group structure will be examined with particular emphasis on mensuration and experimental design.

254.01. Maternal Physiology and Clinical Assessment. (2-4) § W. Prerequisite: Consent of instructor. Lecture 2-3 hours, Lab 0-3 hours. **Ree**

Exploration of normal physiological changes occurring during pregnancy and childbearing. Emphasis will be on reproductive systems, endocrine and neuroendocrine systems, and cardiopulmonary systems. Clinical experience to relate physiologic theory with clinical observation.

254.02. Fetal-Newborn Development. (2-4) § Sp. Prerequisite: Consent of instructor. Lecture 2-3 hours, Lab 0-3 hours. **Dulock, Ree**

Exploration of the critical phases and processes of fetal growth, development and function as a basis for understanding the

genesis of congenital anomalies, pathophysiological problems in the newborn and the nursing implications.

254.03. Nursing Care of High Risk Pregnancy. (2-4) § F. Prerequisite: Consent of instructor. Lecture 2-3 hours, Lab 0-3 hours. **Ree**

Exploration of pathophysiological events affecting the maternal-fetal unit in high risk pregnancies. Clinical experience will be provided for integration of theory.

254.04. Nursing Care of High Risk Newborn. (2-4) § F. Prerequisite: Consent of instructor. Lecture 2-3 hours, Lab 0-3 hours. **Dulock**

In-depth theory exploration of the physiological and pathophysiological events affecting the normal and high risk newborn. Current medical and nursing research findings will be incorporated.

254.05. Developmental Pharmacology. (2) § F. Prerequisite: Consent of instructor. **Dulock, Ree, Burkhalter**

Course provides theoretical concepts of the inter-relationships of drugs, and their pharmacokinetic effect on the maternal-placental-fetal unit and on the developing newborn. Specific drugs, their clinical considerations, and the nurse's role in drug therapy will be incorporated.

255.01. Child Health Assessment. (3) § F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **M. Chow**

Presentation of theoretical principles of child health assessment. Areas to be covered include exploration of methodologies of data-gathering and data-analysis essential to comprehensive health assessment of infants and children. Laboratory for testing and integration of theory.

255.02. Child Health Maintenance. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Durand**

Course provides exploration of theories, concepts and knowledge for comprehensive child health maintenance, encompassing prevention and promotion. Emphasis on parents as participants in assessment, decision-making and management of common health problems and normal developmental stresses in infancy and childhood.

256. Therapeutic Use of Play. (2) § W, Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 3 hours. **Hardgrove**

Practical experience using play materials, techniques, and methods, in relating to young children to increase the graduate nursing student's observational skills and afford opportunities to test and develop theories of child development. Practicum optional.

257A. Children at Risk. (3) § W. Prerequisite: Nursing 238A, 238B or 238C or Psychology 220 or equivalent and/or consent of instructor. Lecture 2 hours, Lab 3 hours. **Millor**

Introduction to assessment of temperament and constitutional factors in child development and early recognition of vulnerability for developmental deviations; assessment of child rearing styles and environmental impact on quality of life. Emphasis on designing a conceptual framework for individual assessments.

257B. Children at Risk. (3) § Sp. Prerequisite: Nursing 257A. Lecture 2 hours, Lab 3 hours. **Millor**

Exploration of health problems related to children at risk: developmental deviations, handicapping conditions, potential parenting problems, child abuse, environmental and cultural influences upon children. Emphasis placed upon developing a conceptual framework for working with children in variety of settings.

258. Intrapartal Nursing. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Mercer**

Exploration of theories of pain perception and clinical course of normal labor and delivery. Social, cultural and psychological factors influencing the family's approach to childbirth are studied concurrently with clinical data. Practicum available through Nursing 407.

259. Sex Education and Counseling (3) § Sp. Prerequisite: Nursing 230 or Psychiatry 180 or equivalent. Consent of instructor. Lecture 2 hours, Lab 3 hours. **G. Adams**

Theories and principles of sex counseling and intervention for common problems are analyzed to facilitate health professionals' work with individuals and families relative to human sexuality. Relevant personal and societal attitudes and values are explored. Nursing 406 required practicum.

260. Research in Human Communication. (3) § W, Sp. Prerequisite: Nursing 211A or equivalent **A. Davis**

Seminar examines selected research focusing on human communication. Research topics such as interaction, social context, and language are explored to understand problems encountered in human communication research.

261. Introduction to Computer Instruction. (2) § Sp. Lecture 1 hour, Lab 3 hours. **J. Nielsen, Bailey, Kamp**

Concepts, principles, and methods of computerized instruction. Laboratory experiences provide opportunity to design and write interactive teaching programs.

263A. Nursing Evaluation of the Aged Hospitalized Client. (2) § F. Prerequisite: Consent of instructor. **Davidow**

Selected frameworks for assessment, analysis of data, and presentation of diagnoses are explored as they relate to the aged hospitalized client. Data bases and methodology for collecting client information are studied. Concurrent practicum required.

263B. Restorative Nursing with Aged Hospital Clients. (2) § W. Prerequisite: Consent of instructor. **Davidow**

Examination of restorative nursing strategies appropriate to major nursing diagnoses seen in care of aged hospitalized clients. Exploration of methods of implementation of prescribed nursing care and evaluation of outcomes of applied strategies toward clients' goal achievement. Concurrent practicum required.

263C. Quality Assurance in Health Care. (3) § Sp. Lecture 2 hours, Lab 3 hours. **Davidow**

Focuses upon dimensions of quality assurance—professional and community. Impact of value judgments and components of quality assurance such as peer and utilization review, professional standards, consumer and institutional control, and vested interests, examined on basis of outcomes in long-term care.

264A. Social Context of Nursing Practice. (3) § F, W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **E. Nichols**

Focus is on the exploration of social processes and how they impinge on nursing practice. Interventions based on empirical data are considered. Emphasis is on patient career and socialization.

264B. Social Context of Nursing Practice. (3) § F, W. Prerequisite: Nursing 264A. Consent of instructor. Lecture 2 hours, Lab 3 hours. **M. Z. Davis**

Focus is on the exploration of social processes and how they impinge on nursing practice. Interventions based on empirical data are considered. Particular emphasis is on the work setting.

266A. Research Conceptualization. (3-5) § W. Prerequisite: Nursing 211A or consent of instructor. Lecture 2 hours. Lab 3-9 hours. **M. Kramer**

Discussion and practice in research problem formulation and design selection for producers of research. Core classes and small group sessions are organized around students' interests.

266B. Research Implementation. (3-5) § Sp. Prerequisite: Nursing 266A or consent of instructor. Lecture 2 hours, Lab 3-9 hours. **M. Kramer**

Data collection, analysis, and reporting of a research project, or of some aspect of a research project, such as tool construction, validity, or reliability studies.

298. Thesis or Comprehensive Examination. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree or taking a comprehensive examination required for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Doctor of Nursing Science (DNS) degree.

401. Teaching Residency. (4-12) F, W, Sp. Prerequisite: Consent of instructor. Lab 12-36 hours. **Staff**

Opportunity to apply and evaluate theories, concepts, and skills in the work setting under the supervision of a preceptor.

402. Administration Residency. (4-12) F, W, Sp. Prerequisite: Consent of instructor. Lab 12-36 hours. **Staff**

Opportunity to apply and evaluate theories, concepts, and skills in the work setting under the supervision of a preceptor.

403. Consultation Residency. (4-12) F, W, Sp. Prerequisite: Consent of instructor. Lab 12-36 hours. **Staff**

Opportunity to apply and evaluate theories, concepts, and skills in the work setting under the supervision of a preceptor.

404. Clinical Residency. (4-12) F, W, Sp. Prerequisite: Consent of instructor. Lab 12-36 hours. **Staff**

Opportunity to apply and evaluate theories, concepts, and skills in the work setting under the supervision of a preceptor.

404.06A. Clinical Residency-Pediatric Nurse Associate. (4) W. Prerequisite: Consent of instructor. Lab 12 hours. **Durand**

Course offers opportunity to apply and evaluate theories, concepts, and skills in the work setting under supervision of a preceptor. Focus is on development of the pediatric clinical specialist role in ambulatory health care.

404.06B. Clinical Residency-Pediatric Nurse Associate. (4) Sp. Prerequisite: Nursing 404.06A and consent of instructor. Lab 12 hours. **Durand**

Course offers opportunity to apply and evaluate theories, concepts, and skills in the work setting under supervision of a preceptor. Focus is on development of the pediatric clinical specialist role in ambulatory health care.

405. Practicum in Mental Health and Community Nursing. (1-8) F, W, Sp. Prerequisite: Consent of instructor. Lab 3-24 hours. **Staff**

Opportunity to apply theory in clinical practice to further develop skills and to extend clinical expertise in selected aspects of mental health and community nursing. Guided clinical laboratory experience is designed to develop mastery of advanced skills.

406. Practicum in Family Health Care Nursing. (1-8) F, W, Sp. Prerequisite: Consent of instructor. Lab 3-24 hours. **Staff**

Opportunity to apply theory in clinical practice to further develop skills and to extend clinical expertise in selected aspects of family health care nursing. Guided clinical laboratory experience is designed to develop mastery of advanced skills.

407. Practicum in Physiological Nursing. (1-8) F, W, Sp. Prerequisite: Consent of instructor. Lab 3-24 hours. **Staff**

Opportunity to apply theory in clinical practice to further develop skills and to extend clinical expertise in selected aspects of physiological nursing. Guided clinical laboratory experience is designed to develop mastery of advanced skills.

408A. Nursing Internship Seminar. (2) § Su. Prerequisite: Admission to Biodysfunction Veterans Administration Internship Program. **Friesen**

Seminar designed to develop ability of participant to use sociopsychological theory in dealing with the setting of the *UC-VA* internship. To be taken concurrently with internship which includes individual and small group instruction in clinical management skills.

408B. Nursing Internship Seminar. (2) § F. Prerequisite: Admission to Biodysfunction Veterans Administration Internship Program. **Conahan**

Seminar designed to develop ability of participant to use sociopsychological theory in dealing with the setting of the *UC-VA* internship. To be taken concurrently with internship which includes individual and small group instruction in clinical management skills.

410. Teaching Practicum. (1-8) F, W, Sp. Prerequisite: Consent of instructor. Lab 3-24 hours. **Staff**

Supervised practice in selected components of the teaching role in nursing.

Nutrition[12]

132. Principles of Diet as Therapy in Nursing Interventions. (2) W, Sp. Prerequisite: Nursing 110 or consent of instructor. **Gutierrez**

Concepts of dietary modification as required in the prevention and treatment of major disease entities. Emphasis is on clinical approaches useful in nursing practice.

160. Foods and Nutrition. (2) F. Lecture 1 hour, Lab 3 hours. **Vinson**

Emphasis on practical aspects of nutrition including diet evaluation, obtaining diet histories, and nutrition education. Panel discussions of pertinent topics in nutrition are included.

181. Nutrition Counseling for Families. (2) § F. Prerequisite: Consent of instructor. **Gutierrez, Hoare**

Course provides theory and practice in the interpretation of current concepts and principles of nutrition for family counseling with an emphasis on cultural dietary patterns.

Obstetrics & Gynecology

110. Core Clerkship in Obstetrics, Gynecology, and Neonatology. (1½ per week) Su, F, W, Sp. **Jaffe and Staff**

Basic principles and fundamental techniques in obstetrics and gynecology are discussed in a series of seminars, case discussions, and teaching clinics. Students gain practical experience in clinics, wards, delivery room, and operating room under direct supervision.

140.02. Advanced Clinical Clerkships. (1½ per week) Su, F, W, Sp. Prerequisite: Obstetrics and Gynecology 110. **Braga, R. Glass**

Advanced clinical clerkships. Senior clerkships are available at various hospitals by arrangement: *MZ, L, KP* and others in the United States or abroad.

140.04. Ambulatory Obstetrics and Gynecology. (1½ per week) Su, F, W, Sp. Prerequisite: Obstetrics and Gynecology 110. **Margolis**

Daily participation in the general and sub-specialty clinics of obstetrics and gynecology.

140.07. Gynecologic Clerkship at *UC*. (1½ per week) Su, F, W, Sp. Prerequisite: Obstetrics and Gynecology 110. **Braga, R. Glass**

The clerk functions in the role of an acting intern on the gynecology service. Responsibilities are predominantly in the inpatient service and will include both surgical and non-surgical aspects of gynecologic oncology, endocrinology, infertility, and general gynecology.

150.01. Research in Obstetrics and Gynecology. (1½ per week) Su, F, W, Sp. Consent of instructor and chairman of the department. **Jaffe**

A research project under the direction of a member of the faculty.

198. Supervised Study in Obstetrics and Gynecology. (1-5) Su, F, W, Sp. Prerequisite: Obstetrics and Gynecology 110. **Jaffe and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Obstetrics and Gynecology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor. **Jaffe and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Staff Conferences. (1) Su, F, W, Sp. **Jaffe**

Conferences comprised of formal discussions by staff, faculty, and visiting lecturers

401. Surgical Pathology Seminar. (1) Su, F, W, Sp. *UC* **McKay, Hill**

Seminar includes the presentation of pathologic material from the obstetric and gynecologic services with formal instruction and discussions.

402. House Staff Seminars. (1) Su, F, W, Sp. **Laros**

Seminars include presentations of special topics, literature reviews, and discussions. Discussion of resident staff functions also are held.

450. Clinical Obstetrics and Gynecology. (10) Su, F, W, Sp. *UC* **Laros,** *SFGH* **Jaffe,** *C* **Webb**

Residents are responsible for the care of patients in the hospital and outpatient clinic. Formal and individual instruction is conducted.

490. Clinical Gynecology. (1½ per week) Su, F, W, Sp. **Jaffe**

Interns rotate through gynecology wards and clinics. They are responsible for the care of patients under the direction of the attending staff, including history-taking, physical examination, laboratory tests, and consultation.

Occlusion

120. Applied Dental Morphology and Physiology of Occlusion. (1) Sp. Prerequisite: Concurrent enrollment in Oral Diagnosis 129. **Tueller and Staff**

A conjoint lecture and discussion series on the relationship of occlusion to the clinical phases of dentistry.

180. Principles of Occlusion. (1) F. Enrollment limited. **Pavone**

The etiology of functional disturbances, analysis of occlusal relationships of the opposing arches, and a rationale of therapy are presented. The principles of occlusion as they apply primarily to adult clinical dentistry are also discussed.

Operative Dentistry

109. Clinical Operative Dentistry. (0-11) F, W, Sp. Prerequisite: Third year standing in operative dentistry. **Schuchard and Staff**

Clinical instruction.

115A-B-C. Operative Techniques. (0-2, 0-2, 1½) F, W, Sp. Lecture 1 hour for 5 weeks Sp. Lab 3 hours F, W, Sp. **Watkins**

Beginning techniques in operative dentistry. Five hours of lecture on the theory and principles of cavity design and preparation are included in the spring quarter.

125A-B-C. Operative Techniques. (0-7½, 0-7½, 0-7½) F, W, Sp. Prerequisite: Operative Dentistry 115A-B-C. Lecture 1 hour F, W; 1 hour for 5 weeks Sp. Lab 6 hours F, W; 3 hours Sp. **Watkins**

Continuing techniques in operative den-

tistry. One hour of lecture each week accompanies the laboratory work. The lecture reinforces principles taught in the laboratory. Clinic rotation is included.

130A-B-C. Operative Theory. (3-1-1) F, W, Sp. Prerequisite: Operative Dentistry 115A-B-C and 125A-B-C. **Schuchard and Staff**

This course must be taken concurrently with Operative Dentistry 109.

180. Advanced Operative Dentistry Theory. (1) F. Prerequisite: Operative Dentistry 130A-B-C. **Schuchard and Staff**

Lectures and televised demonstrations covering quadrant dentistry, washed field technics, complex restorations, analysis of related research, and clinical applications of the various restorative procedures.

180.01. Advanced Operative Dentistry Theory. (1) W. Prerequisite: Operative Dentistry 180. **Schuchard and Staff**

Continuation of Operative Dentistry 180.

180.02. Advanced Operative Dentistry Theory. (1) Sp. Prerequisite: Operative Dentistry 180.01. **Schuchard and Staff**

Continuation of Operative Dentistry 180.01. Organization of the material is planned in relation to progress of students enrolling in the 180 series.

189. Direct Gold Restorative Procedures. (1) F, W, Sp. Prerequisite: Open to fourth year students with approval of the chairman of the division. Clinic 3-6 hours. Enrollment limited. **Schuchard**

Techniques and procedures for Class III restorations using the conservative approach, as well as wedge and matrix. Work also will be done on Class V direct gold restorations. Students learn to use various materials including fibrous gold, goldent, and electroloy.

189.01. Advanced Clinical Operative Dentistry. (0-25) F, W, Sp. Prerequisite: All previous courses in operative dentistry curriculum sequence. Clinic: Variable. **Schuchard and Staff**

Continuation of clinical experience at level of Operative Dentistry 109.

189.02. Advanced Clinical Operative Dentistry. (0-4) Sp. Prerequisite: Approval of the chairman of the division. Clinic 0-12 hours. **Schuchard and Staff**

Advanced instruction in the field of clinical operative dentistry, utilizing procedures different from those presented at the level of Operative Dentistry 109 such as quadrants and plastics.

199. Laboratory Project in Operative Dentistry. (1-5) F, W, Sp. Prerequisite: Approval of the Dean. **Schuchard and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Ophthalmology

First-Year Coordinated Instruction— Medicine 131A-B-C. Lecture-demonstrations and section work devoted to the supervised examination of patients.

Core Clerkship—Surgery 110 and 111 includes lectures and clinical experience in the diagnosis and care of eye diseases.

140.01. General Clinical Ophthalmology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Kimura**

Clinical observations of patients in clinic, wards, and surgery. Seminars on ophthalmic pathology, microbiology, and optics.

140.02. General Clinical Ophthalmology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **S. Kramer and Staff**

Clinical clerkship in approved hospitals by special arrangement and approval by the Dean and the chairman of the department. In San Francisco, electives offered at *SFGH* and *L*.

150.01. Ophthalmic Pathology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Crawford**

Seminars include gross and microscope ophthalmic pathology with clinical correlation by work in Eye Clinic and the wards.

150.02. Research in Ophthalmology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor and chairman of the department. **S. Kramer**

A research project under the direction of a member of the faculty carried out in the Department of Ophthalmology.

198. Supervised Study in Ophthalmology. (1-5) F, W, Sp. **S. Kramer**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Ophthalmology. (1-5) F, W, Sp. **S. Kramer**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Ophthalmology Staff Conference. (1) F, W, Sp **Hogan**

Residents prepare and present diagnostic and therapeutic problem cases. Discussion by faculty and visitors follows. Residents also present papers on various aspects of medicine and ophthalmology which are discussed by faculty members.

401. Conferences at *SFGH* and *VA*. (1) F, W, Sp. Prerequisite: First and third year residents. **Hogan**

Conferences include grand rounds and case presentations of hospital patients, review of recent literature in ophthalmology, and assigned reading with required reports.

402. Specialty Seminars at *SFGH* and *VA*. (6) F, W, Sp. **Hogan**

Seminars include didactic lectures in practical work covering pathology, neuro-ophthalmology, uveitis, physiological optics, refraction, ocular motility, glaucoma, and microbiology.

403. Basic Ophthalmologic Science Course. (6) Su. Required for first year residents. *UC* **Hogan**

Didactic lectures and demonstrations cover the basic sciences as applied to ophthalmology. These include anatomy, histology, biochemistry, physiology, and pharmacology.

450. Clinical Ophthalmology at *UC*. (1½ per week) Su, F, W, Sp. *UC* **Kimura**

Residents, under supervision, are responsible for patients in the Eye Clinic. First year residents assist in eye surgery and the Eye Bank program. Specialty clinics include external diseases, extraocular muscles, medical ophthalmology, ophthalmoscopy, refraction, cataract, glaucoma, neuro-ophthalmology, plastic surgery, and tumor.

451. Clinical Ophthalmology. (1½ per week) Su, F, W, Sp. **Minas**

Residents, under supervision, are responsible for patient care including diagnostic studies and treatment of medical eye care, diagnosis, surgery, and follow-up treatment of surgical eye cases.

454. Clinical Ophthalmology. (1½ per week) Su, F, W, Sp. *OC* **Beard,** *CHMC* **Stern**

Residents, under supervision, are responsible for patient care including diagnostic studies and treatment of medical eye care, diagnosis, surgery, and follow-up treatment of surgical eye cases. Residents consult for other hospital services.

455. Fourth Year Residency. (1½ per week) Su, F, W, Sp. *UC* **Hogan**

Fourth year residency taken at *UC* or at any approved institution subject to the approval of the chairman of the department and the Dean.

457. Clinical Ophthalmology. (1½ per week) Su, F, W, Sp.
PH **A. Schwartz,** *P* **Hilton,** *STM* **Shaffer,** *CHS, SRM* **Rathbun**

Residents or fellows, under supervision, are responsible for patient care, including diagnostic studies and treatment of medical-eye care, diagnosis, and surgery-eye care. Residents and fellows consult for other hospital services.

490. Clinical Ophthalmology at *SFGH*. (1½ per week) Su, F, W, Sp. *SF* **Goodner**

Interns, under supervision of the attending staff, are responsible for patient care on wards and in the follow-up clinic, including diagnostic studies and consultation. This rotation is combined with patient-care assignments in the Otolaryngology Service.

Oral Biology

120. Oral Medicine. (3) Sp. Prerequisite: Oral Biology 126 and 127. **T. E. Daniels**

Handling of patients is introduced by emphasizing history-taking, differential diagnosis, medical implications, clinical pathology laboratory in dental practice, and fundamentals of treatment. Classification, etiology, pathogenesis, diagnosis, and treatment of some benign lesions occurring in the oral cavity are covered.

126. Oral Biology. (5) F. Prerequisite: Anatomy 118. Lecture 4 hours, Lab 4 hours. **Christie and Staff**

Introduction to oral biology correlating morphology, chemistry, function of dental and paradental tissues. Topics include head and neck embryology, enamel, dentin, cementum, pulp and pulpal disease, dental caries, dental anomalies, tooth eruption, periodontium and periodontal disease, and oral mucous membrances.

127. Introduction to Oral Pathology. (3) Prerequisite: Oral Biology 126. W. Lecture 2 hours, Lab 3 hours. **Greenspan, T. E. Daniels, Merrell**

Course correlates clinical oral pathology with histologic changes. Emphasis is placed on the microscopic and laboratory interpretation of cellular, tissue, and chemical alterations.

128. Dental Caries, Plaque and Fluorides. (3) Sp. Prerequisite: Biochemistry 110A-B, Oral Biology 126, Microbiology 126 and Pharmacology 126B-C. Lecture 2 hours, Rotating seminar 8 hours. **Newbrun**

Caries process and prevention to be applied to clinical practice. Concepts of caries: diet, sugar substitutes, microflora, plaque formation, structure, composition and prevention. Dentifrices. Saliva and tooth structure. Fluorides and caries: systemic, topical, sociological factors, metabolism, mechanism of action. Occlusal sealants.

136A-B-C. Oral Biology. (0-2, 0-2, 0-2) F, W, Sp. Prerequisite: Oral Biology 120, 126, and 127. Lecture and Clinic 2 hours.
Chinn, Caswell and Staff

Group rotation through two five-week sections: clinical diagnosis—patient presentation entailing history-taking, examination, diagnosis, treatment, and follow-up; and medicine—introduction to internal medicine and physical diagnosis.

160. Oral Medicine. (1) Sp. Prerequisite: Oral Biology 126 and 127. **Chinn**

Clinical oral pathology for the dental hygienist. Diagnosis and management of some common oral lesions are covered. Use of diagnostic aids and methods of treatment are emphasized.

170. Temporomandibular Joint Seminar. (1) F, W, Sp. Prerequisite: D.D.S. degree. With consent of instructor, fourth year students may take this course as an elective.
R. Taylor

Seminar series covering differential diagnostic techniques and treatment approach to temporomandibular joint disease.

171. Oral Biology. (2) F, W, Sp., Prerequisite: Oral Biology 126 and consent of instructor. **Savostin-Asling**

Advanced study of the oral tissues, with emphasis on their histophysiological aspects.

172. Current Oral Pathology. (2) Sp.
Hansen and Staff

A seminar designed to acquaint postdoctoral dental students with current advances, techniques, trends, and developments in the field of oral pathology.

174. Dental Therapeutics. (2) W. Seminar: 2 hours. Prerequisite: Pharmacology 126B-C or equivalent. Fourth year students may take this course as an elective.
Goodson

Course covers current aspects of pre- and post-operative dental medication, anesthesia, antibiotic and steroid therapy; also, the handling of adverse drug reactions and medical emergencies is considered.

176A-B-C. Oral Pathology Seminar. (2-2-2) F, W, Sp. Lecture and Seminar 3 hours.
Hansen

Lectures and seminars on diseases of the oral regions. Disease entities are studied from a clinical and histomorphological standpoint with emphasis on etiology and pathogenesis.

179. Oral Medicine. (2) F, W, Sp. Prerequisite: D.D.S. degree. With consent of instructor, fourth year students may take this course as an elective. Because of patient commitments in the clinic, once selected, students may not withdraw. Clinic 20 weeks.
R. Taylor

Participation in the Temporomandibular Joint Clinic applying knowledge of history-taking and differential diagnosis and utilizing such diagnostic techniques.

180A-B-C. Clinical Pathology Conference. (1½-1½-1½) F, W, Sp. Prerequisite: Fourth year standing.
S. Silverman and Staff

Clinical pathology conference; biology, diagnosis, and treatment of various oral lesions and associated patient problems. Some oral conditions are critically reevaluated in the light of current research advances. Specific medical knowledge is related to patient care.

181. Forensic Odontology. (1) W. Prerequisite: Fourth year standing and consent of instructor. **Hansen and Staff**

Identification by means of dental evidence, known as forensic odontology. Course includes discussions of identification procedures in single and multiple deaths, including homicides and mass disasters, forensic dental radiology, bite injury and bite marks, the medico-legal autopsy, fire research, and forensic anthropology.

185. Diagnostic Oral Pathology. (1) F, W, Sp. Prerequisite: Fourth year standing and consent of instructor. **Merrell**

The advanced dental student participates in lecture-seminars, in which emphasis is placed on the diagnosis of oral disease correlating the history, clinical, operative, radiographic, laboratory, and histopathological findings.

186. Introduction to the Biological Sciences. (1) SS. Lecture, Laboratory, Demonstration 9 hours for 3 weeks. **Christie**

Introduction to the biological sciences taught in the first year of dentistry: anatomy, biochemistry, and physiology. Course includes one-half day per week orientation to the campus community.

189.01. Oral Medicine. (1) F, W, Sp. Prerequisite: Oral Biology 136A-B-C and consent of instructor. Clinic 3 hours.
Ware, S. Silverman and Staff

Participation in the Oral Medicine Clinic: apply knowledge of history-taking and differential diagnosis; utilize various diagnostic techniques such as biopsy, cytology, and certain clinical pathology laboratory tests; interpret results, prescribe treatment and follow-up; hospital rounds, and weekly seminar.

189.03. Advanced Clinical Clerkship in General Dentistry at *UC*. (1½ per week) F, W, Sp. Prerequisite: Fourth year standing and approval of Clinic Review Committee.
S. Silverman, Ware

Students provide comprehensive dental care to patients assigned to them under supervision of staff in the medical and hospital environment. Students attend seminars and conferences.

190. Oral Medicine. (1½) W.
S. Silverman, T. E. Daniels, J. Olson

Review of oral diseases most relevant to physicians. Etiology, diagnosis, management and prevention are covered. Subjects include introduction to dentistry, caries, fluoride, periodontal disease, precancerous lesions, oral cancer, saliva, salivary gland disease, oral aphthae, herpes, smoking, diseases of the tongue.

199. Laboratory Project in Oral Biology. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

202. Experimental Techniques in Oral Biology. (3) § W, Sp. Prerequisite: Oral Biology 126 and 204 or equivalents. Lecture 1 hour, Lab 5 hours. **Staff**

Principles and methods employed in studying oral tissues such as histochemistry, autoradiography, decalcification procedures, cryostat sectioning, and enzyme histochemistry will be presented.

206. Seminar. (1-4) § F, W, Sp. Seminar 1-4 hours. **S. Silverman and Staff**

A wide spectrum of selected topics related to oral biology are presented with emphasis on basic and applied research methodology, pertinence of problems, significance of findings, and critical evaluation of data.

207. Oral Biology. (1-4) § F, W, Sp.
S. Silverman

Advanced considerations in the field of histopathology. Applications of newer techniques and concepts are presented to increase understanding of the oral cavity in health and disease. Etiology, diagnosis, and therapeutics are discussed.

209. Biology of Connective Tissue. (2) § Sp. Prerequisite: Biochemistry 207 or consent of instructor. **Bhatnagar**

A seminar course in connective tissue biology, concerned mainly with the development, differentiation, and pathology of connective tissues; includes such topics as regulatory controls of connective tissue macromolecules, fibrosis, wound healing, inflammation, tissue destruction, and selected genetic disorders.

220. Current Topics in Research in Oral Biology. (1½) § F, W, Sp. **Staff**

A seminar series covering current advances in research in oral biology in a systematic manner. Current literature is critically reviewed by students under faculty supervision, or by faculty or guest lecturers.

250. Research. (1-8) § F, W, Sp. **Staff**

297. Special Study. (1-3) § F, W, Sp.
Staff

Reading and conferences under the direction of a member of the staff.

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree.

300. Practicum in Teaching. (1-4) § F, W, Sp. Prerequisite: Consent of instructor.
Staff

Practice in teaching a course in oral biology under the supervision of the instructor in charge.

406. Seminar in Oral Biology. (1) F, W, Sp. Seminar 1 hour.
S. Silverman and Staff

A wide spectrum of selected topics related to oral biology are presented with emphasis on basic and applied research methodology, pertinence of problems, significance of findings, and critical evaluation of data.

408A-B-C. Oral Pathology. (2-2-2) F, W, Sp. Lecture and Seminar 2 hours.
Hansen

Lectures and seminar on diseases of the oral regions. Disease entities are studied from a clinical and histomorphological standpoint with emphasis on etiology and pathogenesis.

489.01. Oral Medicine. (1) F, W, Sp. Clinic 3 hours. **S. Silverman**

Participation in the Oral Medicine Clinic:

apply knowledge of history-taking and differential diagnosis; utilize various diagnostic techniques such a biopsy, cytology, and certain clinical pathology laboratory tests; interpret results, prescribe treatment and followup; hospital rounds; and weekly seminars.

489.02. Oral Medicine. (1) F, W, Sp. Prerequisite: D.D.S. degree and consent of instructor. Clinic 3 hours.
Ware, R. Taylor and Staff

Participation in the Temporomandibular Joint Clinic applying knowledge of history-taking and differential diagnosis; utilizes such diagnostic technics as laminagraphic X rays, occlusal analysis, and other specific joint tests; interprets results; prescribes treatment; and follows-up with patient reviews.

Oral Diagnosis

109. Clinical Oral Diagnosis. (0-1½) F, W, Sp. Prerequisite: Third year standing. Clinic Variable. **Braly and Staff**

Credit is assigned on a point basis for independent case work-ups and case presentations.

109.01. Oral Diagnosis and Roentgenology Rotation. (2) F, W, Sp. Prerequisite: Third year standing. Clinic and Seminar Block rotation 60 hours. **Braly and Staff**

Clinical experience and small group instruction is provided in diagnosis and treatment planning, emergency dental care, clinical photography, and roentgenology.

109.02. Dental Emergency Clinic. (0-1½) F, W, Sp. Prerequisite: Oral Diagnosis 109.01. Clinic 6 hours. **G. Hall**

The provision of dental emergency care in the UC clinics by students in their fourth year. Instruction will be provided on a one to one basis and credit assigned according to hours spent.

116A-B-C. Clinical Dentistry (0-4, 0-4, 1½) F, W, Sp. Lecture 1 hour F, W. Clinic 3 hours F, W; 4 hours Sp. **Braly**

An introduction to concepts of dental health and disease, and a recognition of these through a multidisciplinary clinical orientation program.

129. Diagnosis and Treatment Planning. (2) Sp. Prerequisite: Oral Diagnosis 116A-B-C. Clinic and Seminar 6 hours.
Maxwell

Small group instruction is provided in comprehensive case work-up of dental patients. Student completes a case history, clinical examination, studies cast analysis, and diagnosis and treatment plan, meeting the patient's total dental needs.

189. Oral Diagnosis and Treatment Planning. (1) F, W. Prerequisite: Oral Diagnosis 129 and fourth year standing. Clinic-Seminar 3 hours. **J. Schmidt**

Students receive experience in advanced treatment planning of a multidisciplinary nature, through examination, case work-up, and treatment planning of patients presenting complex oral problems. Students work with the oral diagnosis staff and the faculty consultative panel.

Oral Radiology

121. Radiographic Interpretation. (1) Sp. **Parks**

An introduction to the fundamentals of radiographic interpretation, some of the basic physics of X ray generation, and radiation biology.

131. Oral Radiology. (1) Sp. Prerequisite: Oral Radiology 121. **Parks**

Course is a continuation of Oral Radiology 121 and is intended to broaden the scope of radiographic interpretation. Additional aspects concerning radiation biology are also included.

135. Oral Radiology. (0-1) SS, F. Prerequisite: Oral Radiology 121. Lab rotation 24 hours. **Parks**

A course in intraoral X ray technique including instruction in the long cone paralleling method, and practice on skulls and mannequins. Objective is to prepare the student for clinical experience during the oral diagnosis course rotation.

160B-C. Oral Radiology for Dental Hygiene. (1-1) W, Sp. **Parks**

Course covers essentially the same material as Oral Radiology 121, but is modified to meet the special needs of the dental hygienist.

169B-C. Oral Radiology. (1-1) W, Sp. Lab and Clinic 3 hours. **Parks**

A course in intraoral X ray technique including instruction in the long cone paralleling method and practice on skulls and mannequins. After basic instruction, clinical experience is gained.

186.01. Advanced Oral Radiology. (0-3) F, W, Sp. Prerequisite: Oral Radiology 121 and 135. Approval of Clinic Review Committee. Seminar 1-2 hours, Clinic 0-6 hours.
Parks

Continuation of Oral Radiology 121 and 131 in a seminar teaching format.

199. Laboratory Project in Oral Radiology. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Oral Surgery

109. Clinical Oral Surgery. (0-3) F, W, Sp. Prerequisite: Third year standing. Clinic Variable. **Huebsch**

Clinic.

120. Local Anesthesia. (½) Sp.
Khosla

Course covers local anesthesia technique as it pertains to the dentition and oral cavity.

130A-B-C. Oral Surgery. (1-1-1) SS, F, W. Prerequisite: Anatomy 117A-B and Microbiology 126. Lecture 1 hour F, W; 2 hours SS.
Gordon, R. A. Smith

131. Oral Surgery. (1) Sp. Prerequisite: Oral Surgery 130A-B-C. **R. A. Smith**

Procedural skills and academic knowledge the general dentist should be familiar with: includes the treatment of cysts, infection, developmental deformities of the jaws and salivary glands, duct diseases, and procedures.

132. Medical Evaluation, Medical Emergencies, and Parenteral Administration of Drugs. (½) W. **R. A. Smith**

Medical evaluation of dental patients and in-depth evaluation and treatment of patients with medical problems. Evaluation and treatment of cardiac arrest. Discussion of emergency drugs and development of an office emergency kit. Demonstrations of parenteral administration of drugs.

170. Surgical Orthodontics. (2) W. Prerequisite: Enrollment in postdoctoral specialty program in orthodontics or oral surgery. Seminar 2 hours. **Ware**

The course explores the various facial and occlusal deformities that justify a combition of surgical and orthodontic treatment. The student is assigned a topic, does the necessary library review, and presents a seminar under direction of the instructor.

171. Applied Surgical Anatomy. (1) F, W. Sp. Prerequisite: Limited to interns and residents. Lab 3 hours. **Courage**

Relationships of gross anatomical structures of the head and neck are studied during laboratory dissection. Emphasis is placed on the correlation of cadaver dissection findings to diagnosis and operating room surgery.

175. Oral Surgery. (13) Su. Prerequisite: Limited to oral surgery interns. Hospital and Clinic 40 hours. **Huebsch and Staff**

Principles of surgery and local anesthesia as related to the mouth and clinical operations on patients.

175.01A-B. Oral Surgery. (2-7, 2-7) F, W. Prerequisite: Limited to interns and residents. Lecture-seminar 2 hours, Clinic 15 hours. **Huebsch and Staff**

Continuation of Oral Surgery 175.

175.02. Oral Surgery. (15) Su. Prerequisite: Limited to oral surgery residents. Seminar 2 hours, Hospital and Clinic 40 hours.
Huebsch and Staff

Continuation of Oral Surgery 175.01A-B.

175.03. Oral Surgery. (13) F. Prerequisite: Limited to oral surgery residents. Hospital and Clinic 40 hours. **Huebsch and Staff**

Hospital procedures, ward rounds, and clinical practice in several hospitals; treatment of jaw fractures, osteomyelitis, cellulitis, and other complicated conditions. Attendance is required at the tumor clinic and in the experimental surgery training program.

175.04B-C. Oral Surgery. (10-10) W, Sp. Prerequisite: Limited to oral surgery residents. Lecture 2 hours, Hospital and Clinic 24 hours. **Huebsch and Staff**

Continuation of Oral Surgery 175.03 with the addition of surgery of the jaws for correction of such facial deformities as prognathism, apertognathia, and retrognathia. Temporomandibular joint surgery is taught.

175.05. Oral Surgery. (13) Su. Prerequisite: Oral Surgery 175.04B-C. Limited to oral surgery residents. Hospital and Clinic 40 hours. **Huebsch and Staff**

Continuation of clinical oral surgery. Certain periods each week devoted to supervised instruction of undergraduate students.

175.06A-B-C. Oral Surgery. (13-13-13) F, W, Sp. Prerequisite: Oral Surgery 175.05. Limited to oral surgery residents. Hospital and Clinic 40 hours. **Huebsch and Staff**

Continuation of Oral Surgery 175.05.

175.07. Office Anesthesia for the Ambulatory Oral Surgery Patient. (2) F, W, Sp. Prerequisite: Limited to second and third year oral surgery residents. Lecture 1 hour, Clinic 30 hours. **Courage**

Under oral surgery office conditions, and under immediate supervision of the staff,

residents will be responsible for care and management of the ambulatory patient who is to undergo an oral surgery procedure under ambulatory anesthesia.

181. Cardiopulmonary Resuscitation. (½) Sp. **R. A. Smith**

An elective didactic and demonstration course with practice sessions to insure the student's knowledge and capability of managing the psychomotor skills of cardiopulmonary resuscitation.

189.01. Advanced Oral Surgery Clinic. (0-9) Su. Prerequisite: Fourth year standing and consent of instructor. Clinic Variable. **Huebsch and Staff**

Additional clinical experience in oral surgery.

189.03. Hospital Oral Surgery. (0-3) F, W, Sp. Prerequisite: Oral Surgery 109 and consent of instructor and Clinic Review Committee. Clinic and Seminar at *SFGH*. **Huebsch and Staff**

Limited experience in hospital oral surgery to include assisting and performing oral surgery procedures. Aspects of premedication as related to the ambulatory patient. Orientation in hospital decorum and operating room procedures.

189.04. Advanced Clinical Clerkship in Oral Surgery at *UC* and *SFGH*. (1½ per week) F, W, Sp. Prerequisite: Fourth year standing and approval of Clinic Review Committee. **Huebsch, Courage, Khosla**

Students participate in oral surgery care of hospital inpatients and outpatients. They also attend seminars and lectures.

199. Laboratory Project in Oral Biology. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

489.01. Clinical Oral Surgery. (1) F, W, Sp. Prerequisite: Enrollment in dental internship program. Clinic ½ day. **Courage**

This course is designed to teach the dental intern exodontia procedures under close supervision in the oral surgery clinic. The trainee takes responsibility for care of the oral surgery patient including preoperative evaluation, surgery planning, and postoperative care.

Orofacial Anomalies

170. Orofacial Anomalies. (2) F. **Lawson**

Normal development of speech, consideration of speech patterns, habits, and defects as related to dental and orofacial problems.

171. Diagnosis and Treatment of Orofacial Anomalies. (2) F, W, Sp. Lecture 1 hour, Seminar and Clinic 3 hours. **Harvold, Chierici**

Diagnostic, preventive, and corrective methods relative to patients with congenital malformations of the orofacial region are discussed.

178B-C. Abnormal Facial Growth. (2-2) W, Sp. Seminar 2 hours. **Harvold**

Diagnosis of orofacial malformations. Emphasis on interrelationship of morphology and physiology.

180.01. Speech Habilitation. (1) W. Seminar 1 hour. **Lawson**

Normal development of speech. Introduction to the acoustic and linguistic elements. Consideration of the speech patterns, habits, and defects related to dental and orofacial problems.

186.01. Habilitation of Abnormal Orofacial Development. (1) F, W, Sp. Prerequisite: Fourth year standing or consent of instructor. Seminar and Clinic 3 hours. **Chierici, Harvold**

The pathogenesis of jaw deformities, dental malocclusions, and speech disorders associated with congenital malformation are discussed. Instruction in diagnosis and preventive and corrective treatment methods is given in the clinic.

187.01. Special Study for Advanced Undergraduates. (1) F, W, Sp. Prerequisite: Fourth year standing and consent of instructor and Clinic Review Committee. Seminar and Clinic 3 hours. **Harvold**

Instruction in biometric technique and methodology is given in connection with a selected research project.

187.02. Diagnosis and Treatment Planning in Orofacial Malformations. (1) W, Sp. Prerequisite: Orofacial Anomalies 187.01. Seminar and Clinic 3 hours. **Harvold**

A clinical survey, a clinical experiment, or an animal experiment is designed and analyzed.

401. Orofacial Prosthetics. (1-3) F. Prerequisite: D.D.S. degree or equivalent. Seminar and Lab 3-9 hours. **Chierici and Staff**

Prosthetic habilitation of the patient with orofacial malformations. Discussions include principles and techniques of construction of obturators, speech appliances, and retention bridges.

406A-B-C. Orofacial Orthopaedics. (1-3, 1-3, 1-3) F, W, Sp. Prerequisite: D.D.S. degree or equivalent. Seminar, Lab, and Clinic 3-9 hours. **Harvold and Staff**

Diagnosis of orofacial malformations and current preventive and corrective measures. Emphasis is placed on the interrelationship of morphology and physiology and the coordination of treatment by the various disciplines involved.

407. Orofacial Prosthetics. (1-3) W. Prerequisite: D.D.S. degree or equivalent. Seminar, Lab, and Clinic 3-9 hours. **Chierici and Staff**

A course designed to acquaint the student with the many facets of prosthetic management of acquired oral defects. Relationship of prosthetics to speech, mastication, deglutition, oral biology, and surgery are discussed. The interdisciplinary management of these problems is stressed.

408A-B-C. Speech Habilitation. (1-3, 1-3, 1-3) F, W, Sp. Prerequisite: D.D.S. degree or consent of instructor. Seminar, Lab, and Clinic 3-9 hours. **Lawson and Staff**

Normal development of speech, etiology, and diagnosis of speech defects; principles and methods of remedial procedures, with special emphasis on patients with orofacial malformations or defects.

Orthodontics

121. Introduction to Growth and Development. (1) Sp. **R. Meyers**

Course describes the mode of growth of the craniofacial complex. General aspects of growth with clinical implications for the growing child are discussed, including the eruption of teeth and their correlation with facial growth.

131A-B. Orthodontics in General Practice. (0-2, 0-2) F, W. Prerequisite: Orthodontics 121. **Scholz**

Recognition and treatment of the problems most commonly seen by the general practitioner.

132. Principles of Orthodontic Treatment. (1) Sp. Prerequisite: Orthodontics 121 and 131A-B. **Scholz**

Discussion of diagnostic technics used in orthodontics, limitations of orthodontic treatment, and principles of treatment with edgewise appliance.

160. Principles of Orthodontics. (1) Sp. **West and Staff**

This is a discussion of recognition, etiology, and principles of orthodontics for the dental hygienist.

170A-B. Fundamentals of Orthodontics. (4-2) F, W, Seminar 4 hours F; 2 hours W. **West**

Classification, etiology, and diagnosis of malocclusion. Study of the dentition and the relationships of dental and cranial structures.

170C. Fundamentals of Orthodontics. (2) Sp. Prerequisite: Orthodontics 170A-B. **West**

Continuation of Orthodontics 170A-B.

171B-C. Orthodontics in Periodontic Practice. (1-1) W, Sp. Prerequisite: Consent of instructor and enrollment in a postdoctoral specialty program. **Staff**

This course includes orthodontic principles and technics that are applicable in a periodontic practice.

171.01A-B-C. Craniofacial Growth. (2-2-2) F, W, Sp. **Mathews**

Research methods in the study of growth with findings relative to sites of growth, serial development of pattern, and factors influencing facial growth.

171.02. Biology of Dentofacial Development. (2) Sp. Prerequisite: Orthodontics 171.01 A-B-C. **Mathews**

Embryology of the face and palate, biology of cartilage and bone as applied to dentofacial development of newborn babies, and physiology of tooth movement.

171.03A-B-C. Orthodontics in Pedodontic Practice. (1-1-1) F, W, Sp. Prerequisite: Consent of instructor and enrollment in a postdoctoral specialty program. **West**

This course includes orthodontic principles and technics that are applicable in a pedodontics practice.

171.04A-B-C. Orthodontics in Pedodontic Practice. (1-1-1) F, W, Sp. Prerequisite: Orthodontics 173.03A-B-C. **West and Staff**

Continuation of Orthodontics 171.03A-B-C.

172A. Cephalometrics. (2) F. Seminar 2 hours. **Poulton**

Use of lateral headfilms; realiability of landmarks, applications in dentistry. Technics of tracing, evaluation of relationships, and technics of superpositioning are discussed and illustrated.

172B. Cephalometrics. (2) W. **Poulton**

Evaluation of various analyses used in orthodontic diagnosis including growth changes in serial studies.

172C. Concepts in Prediction of Facial Growth. (1) Sp. **W. Watson**

This course describes growth concepts in the prediction of facial growth as it applies to orthodontic treatment.

172.01B-C. Introduction to Orthodontic Research. (2-1) W, Sp. Lecture 2 hours W, 1 hour Sp. **Baumrind**

Introduction to design and analysis of clinical investigations. Special emphasis placed on critical reviews of selected scientific literature in terms of appropriate design, hypothesis testing, and generalization.

172.02A-B-C. Supervised Orthodontic Research. (1-1-1) F, W, Sp. Prerequisite: 172.01B-C. **Baumrind**

Participation in group and individual clinical investigation including experience in hypothesis generation, sampling, measurement, data acquisition, and data analysis.

173.01A-B-C. Orthodontic Diagnosis. (3-3-3) F, W, Sp. Seminar 3 hours. **West and Staff**

Evaluation and treatment planning of various types of malocclusion.

173.02. Special Study. (1) F, W, Sp. Research 3 hours. **Baumrind**

Research project and preparation of thesis.

173.03A-B-C. Treatment Planning. (3-3-3) F, W, Sp. Seminar 3 hours. **West**

Staff Seminar.

173.04. Treatment Planning. (3) SS. **West**

Staff Seminar.

173.05. Special Study. (1) SS. Research 3 hours. **Baumrind**

Research project and preparation of thesis.

173.06. Treatment Evaluation. (3) SS. Seminar 5 hours. **West**

An evaluation of orthodontic treatment and prognosis for stability of results of treatment.

174A-B. Biomechanics. (2-1) F, W. Seminar 2 hours, F; 1 hour, W. **Righellis**

Development of force systems and advanced orthodontic technics.

175. Cleft Palate Orthodontics. (2) F. Seminar 2 hours. **Poulton**

Principles of treatment.

176B-C. Comparative Orthodontic Concepts. (2-2) W, Sp. Seminar 2 hours. **Poulton**

Critical evaluation of orthodontic treatment procedures to provide orthodontic students with a knowledge of technics differing from those taught in clinical courses.

177. Practice Management. (1) F. Seminar 1 hour. **Scholz**

Practice management and office administration.

178. Functional Occlusion. (1) F. **R. Roth**

Discussion of occlusion from the viewpoint of the orthodontist and periodontist and from the viewpoint of oral rehabilitation.

179.01A-B-C. Clinical Orthodontics. (5-5-5) F, W, Sp. Lab and Clinic 15 hours. **West and Staff**

Laboratory instruction precedes clinical experience. A minimum of 1,080 hours are included in the series of Orthodontics 179.01A-B-C, 179.02, 179.03A-B-C, and 179.04.

179.02. Clinical Orthodontics. (5) SS. Clinic 15 hours. **West and Staff**

Continuation of Orthodontics 179.01 A-B-C.

179.03A-B-C. Clinical Orthodontics. (5-5-5) F, W, Sp. Clinic 15 hours. **West and Staff**

Continuation of Orthodontics 179.02

179.04. Clinical Orthodontics. (5) SS. Clinic 15 hours. **West and Staff**

Continuation of Orthodontics 179.03A-B-C.

180. Evaluation of Malocclusions. (1) W. Prerequisite: Orthodontics 121, 131A-B, and 132. Seminar 1 hour. **Scholz**

Discussion of diagnosis, prognosis, and approach to treatment of malocclusions. Includes treatment timing, limitations, and interdisciplinary problems.

181. Occlusion. (1) Sp. Prerequisite: Orthodontics 121, 131A-B, and 132. Seminar 1 hour. **Scholz**

Various concepts of occlusion will be evaluated as they affect habilitation problems and functional problems of the temporomandibular joint.

182. Applied Growth and Development. (1) F. Prerequisite: Orthodontics 121, 131A-B, and 132. **Mathews**

Application of general principles of growth and development to specific malocclusions and facial anomalies.

189. Clinical Orthodontics. (0-9) F, W, Sp. Prerequisite: Orthodontics 121 and 131A-B. Fourth year standing and approval of Clinic Review Committee. Clinic Variable. **R. Meyers.**

Treatment of orthodontic problems related to general dental practice.

199. Laboratory Project in Orthodontics. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Orthopaedic Surgery

First-Year Coordinated Instruction—Medicine 131A-B-C. Lecture-demonstrations and section work devoted to the supervised examination of patients.

Core Clerkship—Surgery 110 and 111 includes seven to eight orthopaedic lectures, case presentations, and outpatient clinic assignments. Students are given instruction in methods of examination of patients with musculoskeletal disorders with emphasis on diagnosis and principles of treatment.

140.01. Orthopaedic Surgery Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110 and 111. *UC* **W. Murray**

Students, assigned to inpatient and outpatient services, receive instruction and experience in examination and treatment of patients. Assistance in surgery and in use of treatment modalities is required. Clinical demonstrations, seminars, and conferences form the basis for didactic instruction.

140.02. Orthopaedic Surgery Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110 and 111. **W. Murray**

Orthopaedic surgery clinical clerkships are offered in off-campus hospitals approved by the chairman of the department and the Dean.

140.03. Orthopaedic Surgery Clinical Clerkship at *PMC*. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110 and 111. **Branick**

Course involves case demonstrations, consideration of fracture and diagnosis problems, and problems in reconstruction of the extremities. Patients are examined and their X rays reviewed.

401. Lectures in Orthopaedic Pathology. (1) F, W, Sp. Third and fourth year residents. *UC* **J. Johnson**

A lecture series covering tumors and infections of the musculoskeletal system, illustrated by microscopic slides and photographs of gross specimens.

402. Seminars in Physiology of Musculoskeletal System. (1) F, W, Sp. *UC* **Chapman**

Seminars cover connective tissue metabolism; muscle, bone, and joint physiology; preoperative and postoperative management of patients; wound infections; microbiology; and surgical principles.

403. Demonstrations in Gross and Functional Anatomy. (1) F, W, Sp. *UC* **Chapman**

Course includes lectures by students and faculty on gross and functional anatomy, laboratory dissections of cadaver material, and demonstrations of surgical approaches.

404. Seminar in Orthopaedic Literature. (1) F, W, Sp. Residents at *C, RDMC, SFGH, SSF, UC,* and *VA.* *UC* **Chapman**

Seminars are student presentations of selected orthopaedic surgery subjects featuring historical review complete with bibliography. They are moderated by an assigned faculty member.

406. Conference in Rheumatoid Arthritis. (1) Su, F, W, Sp. *UC* **W. Murray**

Clinical instruction in the care and management of orthopaedic problems in rheumatoid arthritis and allied diseases. Cases are presented by residents to attending staff and rheumatology consultants.

407. Orthopaedic Surgical Conference. (1) Su, F, W, Sp. *H* **T. Smith**

Seminars include presentation of problem cases by residents for consideration of diagnosis, treatment and discussion by the attending staff.

408. Orthopaedic Surgical Conference. (1) Su, F, W, Sp. *SFGH* **Bovill**

Selected problems are illustrated by cases treated or under treatment. Cases are presented by the resident staff and discussed by members of the attending staff.

409. Orthopaedic Surgical Conference. (1) Su, F, W, Sp. *SSF* **Larsen**

Conference with emphasis on children's problems in which residents make case presentation of inpatients for review and of new patients for consideration of diagnosis and therapeutic plan.

411. Orthopaedic Surgical Conference. (1) Su, F, W, Sp. *VA* **Maurer**

Conference includes review of admissions and discharges of hospitalized patients by the attending and consultant staffs. Cases are presented by the residents.

412. Orthopaedic Clinical Seminars. (1) Su, F, W, Sp.
CHMC **Barer,** *H* **T. Smith,** *SM* **W. Jackson**

Seminars are held in rotation at each of these hospitals with residents from all three hospitals attending. They include literature review and demonstrations related to surgical approaches, anatomical dissections, diagnosis and treatment.

413. Medical Staff Conference. (1) Su, F, W, Sp. *UC* **W. Murray**

Residents prepare and present case histories of inpatients and selected outpatients. Course includes discussions on diagnostic procedures, indications for surgery, immediate postoperative follow-up, and problem cases (consultations).

450. Clinical Adult Orthopaedics. (1½ per week) Su, F, W, Sp.
RDMC **Maeck,** *PMC* **Niebauer,**
KP **J. Johnston,** *MZ* **R. Gordon,**
Q **I. Larsen,** *RLA* **J. Perry,**
FR **Hartwig,** *UC* **W. Murray**

Residents are responsible for patient care in the wards and outpatient clinics including history-taking, physical examinations, laboratory tests, elective surgery, fracture treatment, plaster techniques, and consultations.

451. Clinical Pediatric Orthopaedics, (1½ per week) Su, F, W, Sp.
C **L. Larsen,** *CHMC* **Barer,**
SSF **L. Larsen,** *SH* **I. Larsen**

Residents are responsible for patient care in the wards and outpatient clinic including history-taking, physical examinations, laboratory tests, elective surgery, fracture treatment, plaster techniques, and consultations.

452. Clinical Traumatic and Adult Orthopaedics. (1½ per week) Su, F, W, Sp.
SFGH **Bovill,** *SM* **W. Jackson,**
VA **Maurer,** *H* **T. Smith**

Residents are responsible for patient care in the wards and outpatient clinic including history-taking, physical examinations, laboratory tests, elective surgery, fracture treatment, plaster techniques, and consultations.

453. Clinical Orthopaedics. (1½ per week) Su, F, W, Sp. Chief resident.
UC **W. Murray**

Under faculty supervision, the chief resident organizes care and referral of staff patients; supervises a weekly follow-up clinic; administers the teaching-bed fund; independently performs operative procedures in selected cases; advises interns, residents, and fourth year medical students; participates in paramedical teaching.

455. Clinical Orthopaedics: Sports Medicine at *MZ*. (1) Su, F, W, Sp.
Glick and Staff

Clinical instruction in the care and management of orthopaedic problems in athletic injuries. Course consists of clinical practice under supervision as well as didactic lectures every third week.

490. Clinical Orthopaedics. (1½ per week) Su, F, W, Sp. *SFGH* **Bovill**

Interns rotate through orthopaedic wards and follow-up clinics. They are responsible for patient care under the direction of the attending staff, including history-taking, physical examinations, Xray conferences, and consultation.

Otolaryngology

First-Year Coordinated Instruction—Medicine 131 A-B-C. Lecture-demonstrations and section work devoted to the supervised examination of patients.

Core Clerkship—Surgery 110 and 111 includes lectures and case demonstrations on the examination and diagnosis of otolaryngological diseases, particularly those related to trauma and infection. Instruction is given in the examination and diagnosis of ward and clinic patients with otolaryngological surgical diseases.

140.01. Clinical Otolaryngology Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C and Surgery 110. **Boles**

A practical course in general otolaryngology, including diagnosis and treatment of common ear, nose and throat problems. Both inpatient and outpatient experiences will be offered at the following hospitals: *UC, SFGH, VA* and *USN.*

140.02. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C and Surgery 110. **Boles**

Clinical clerkships in off-campus hospitals approved by the chairman of the department and the Dean.

198. Supervised Study in Otolaryngology. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Boles**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Otolaryngology. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **R. Schindler**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Didactic Lectures. (2) F, W, Sp. **Crumley**

Lectures cover the anatomical, physiological, and clinical aspects of otolaryngology.

401. Gross Anatomy of the Head and Neck. (1) W. **Crumley**

A formal course in the anatomy of the head and neck.

402. Gross Anatomy of the Head and Neck. (1½) F, W, Sp. *VA* **J. Ross**

Cadaver dissection and demonstrations given by members of the staff.

403. Ear, Nose, and Throat Histology and Pathology. (½) F, W. **Dekelboum**

A review of ear, nose, and throat pathology from currently available gross and microscopic surgical pathological material from the operating rooms and pathology laboratories.

404. Staff Rounds. (2) F, W, Sp. **Boles**

Weekly seminars are held with discussion of current problems concerning diagnosis and management of patients with references to current literature, modern theory, and controversial aspects.

405. Seminar in Audiology and Speech Pathology. (1) F, W, Sp. *UC* **Owens**

Seminar includes psychophysical backgrounds in audiology, basic and advanced tests of hearing, functional hearing loss, hearing aids, testing of children, aural rehabilitation, and speech and hearing problems of children and adults.

406. Tumor Conference in Otolaryngology. (1) Su, F, W, Sp. *UC* **Dedo**

Conference includes presentation of patients, study of histories, and discussion of the treatment of the patient in light of modern progress in the field.

409. Surgical Pathology. (1) Su, F, W, Sp. *VA* **J. Ross**

A review of all gross and microscopic pathology conducted by staff members in conjunction with the Department of Pathology.

410. Temporal Bone Anatomy and Pathology. (½) F, W. **Schindler**

A laboratory course conducted in the ear, nose, and throat pathology laboratory. All resident staff members are required to familiarize themselves thoroughly with the microscopic anatomy of the temporal bone under formal staff instruction.

411. Temporal Bone Anatomy and Pathology. (½) F, W, Sp. *VA* **J. Ross**

A review of surgical anatomy and dissection of fresh temporal bones conducted by members of the staff.

412. Tumor Board. (1) Su, F, W, Sp. *VA* **J. Ross**

Tumor cases are presented for diagnosis and recommendations for treatment.

413. Audiology Conference. (1) Su, F, W, Sp. *VA* **J. Ross**

Combined Audiology and Otolaryngology Staff Conference where all patients evaluated for hearing problems are presented, and diagnosis and treatment recommendations are made.

414. Journal Club. (¼) F, W, Sp. *VA* **J. Ross**

A review of all current ear, nose, and throat literature.

450. Clinical Otolaryngology. (10) Su, F, W, Sp.
C **McCoy,** *SFGH* **Crumley,**
UC **Boles,** *VAF* **Beil,** *VMC* **Beil**

Residents, under supervision, are responsible for patient care in the wards and outpatient clinics including history-taking, physical examination, laboratory tests, preoperative and postoperative care, minor surgery, audiometry, vestibular testing, and consultations. Senior resident has certain administrative, teaching, and clinical responsibilities.

451. Clinical Otolaryngology. (10) Su, F, W, Sp. *VA* **J. Ross**

Residents, under supervision, undertake patient care in wards and outpatient clinics including history-taking, physical examination, laboratory tests, preoperative and postoperative care, minor surgery, audiometry, vestibular testing, consultations, and Officer-of-the-Day duties. Senior resident has certain administrative, teaching, and clinical responsibilities.

452. Technique of Endoscopy. (1) F, W, Sp. All residents except at *VA.* **Crumley**

A study of the techniques of endoscopy and some practical laboratory study including cadaver work.

453. Surgical Otolaryngology. (1½ per week) Su, F, W, Sp. **Crumley**

Resident, in off-campus hospital for surgical training to satisfy Board requirements, is responsible, under supervision, for patient care in wards and clinic and assistance at

operations. Diagnosis and treatment of surgical conditions in the head and neck area are stressed.

490. Clinical Otolaryngology at *SFGH.* (1½ per week) Su, F, W, Sp. **Crumley**

Interns, under supervision of the attending staff, are responsible for patient care on wards and in the follow-up clinic, including history-taking, examination, and consultation. This rotation is combined with patient-care assignments in the Ophthalmology Service.

Parasitology

135. Medical Parasitology. (3) W. Lecture 2 hours, Lab demonstration 2 hours. **Heyneman and Staff**

An introduction to the protozoa, helminths, and anthropods that parasitize man. Parasite ecology and disease epidemiology, clinical and diagnostic aspects of parasitic diseases and their treatment are considered in lecture and laboratory. Emphasis in the laboratory is on demonstration.

Pathology

101. General Pathology. (4) § Sp. Prerequisite: Substantive courses in biochemistry, physiology, histology, microbiology (first quarter, concurrent) or an introduction to immunology. If in doubt as to adequacy of preparation, see the instructor. Lecture 2 hours, Lab/Seminar 4 hours. **Friend and Staff**

Mechanisms and language of disease are discussed, with emphasis on the dynamic nature of fundamental disease processes; cell injury, immunopathology, inflammation, responses to infectious agents, repair, regeneration, hemodynamic derangements, genetic disorders, disturbances of cell growth, and neoplasia.

102. Systemic Pathology. (6) § F. Prerequisite: Anatomy 103, Medicine 132A, Microbiology 100A-B, Pathology 101 and Physiology 101 or concurrent enrollment. Lecture 3 hours, Lab/Seminar 6 hours. **Margaretten and Staff**

Recent advances and classical concepts of diseases as they affect each of the organ systems are presented. Emphasis on correlation of functional and morphologic characteristics of diseases of organ systems.

126. General Pathology. (5) § F. Prerequisite: Substantive courses in biochemistry, physiology, histology, microbiology (first quarter, concurrent) or an introduction to immunology. If in doubt as to adequacy of preparation, see instructor. Lecture 3 hours, Lab 6 hours. **M. L. Goldberg and Staff**

Mechanisms and language of disease are discussed, with emphasis on the dynamic nature of fundamental disease processes: cell injury, immunopathology, inflammation, responses to infectious agents, repair, regeneration, hemodynamic derangements, genetic disorders, disturbances of cell growth, and neoplasia.

135. General Pathology. (4) § F. Prerequisite: Substantive courses in biochemistry, physiology, histology, microbiology (first quarter, concurrent) or an introduction to immunology. If in doubt as to adequacy of preparation, see instructors. **M. L. Goldberg and Staff**

This course is identical to the lecture portion of Pathology 126.

150.01. Surgical Pathology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Surgery 110. **Staff**

In the laboratory and seminars, students observe and participate in the study and diagnosis of surgical specimens, learn the technique of frozen sections, and assist in preparation of surgical pathology conferences.

150.02. Surgical Pathology and Postmortem Examination at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Pathology 102. **Staff**

Students prepare surgical specimens and perform autopsies under supervision and participate in teaching conferences.

150.03. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Pathology 101 and 102. **Rambo**

Clinical clerkships in off-campus hospitals approved by the chairman of the department and the Dean.

150.04 Clinical Clerkship in Pathology at *UC, SFGH* and *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Surgery 110. Consent of instructor. **Staff**

Students participate in the workup of autopsies and surgical specimens. They are actively involved, given responsibility, and work closely with the faculty and house staff.

150.05. Research in Pathology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor and chairman of the department. **Staff**

A research project under the direction of a member of the faculty.

170.01. Clinical Cytology. (3) Sp. Prerequisite: Anatomy 102, Pathology 101 and 102. **E. King, Hill**

Lectures on basic funamentals of cytology, normal cells, malignant cells, abnormal nonmalignant cells, collection and preparation methods. Microscopic examination of specimen and correlation of cellular and tissue pathology with colposcopic and clinical findings on examination of the patient.

170.02. Renal Biopsy Conference. (½) F, W, Sp. Prerequisite: Pathology 101. **Biava**

Study of clinical and pathological aspects of current cases of renal disease. New material is presented each quarter during an academic year, therefore course may be repeated for credit.

170.04. Pathologic Clinical Correlation. (1) F, W, Sp. **Rosenau**

Presentation of selected current cases seen in the hospital pathology laboratory. Discussion of pathological findings and correlation with history, physical findings, radiologic findings, and treatment.

170.05. Neuropathology. (2) W. Prerequisite: Pathology 102. Third or fourth year standing. Lecture and Seminar 2 hours. **Townsend**

Emphasis is placed on clinicopathological correlation of neurological diseases by means of study of gross and microscopic material and participation in conferences.

170.06. Clinicopathological Conference at *SFGH.* (1½) Su, F, W. Prerequisite: Third or fourth year standing. *SFGH* **McKay, Margaretten, Howes**

A correlative review of clinical pathological materials with the Department of Medicine.

170.08. Studies in Pathology. (1-5) Su, F, W, Sp. Prerequisite: Consent of instructor and chairman of the department. **Staff**

Studies in pathology at other institutions with the approval of the chairman of the department.

180.01. Pathology. (3) F. Prerequisite: Anatomy 118. **M. L. Goldberg and Staff**

This course is identical to the lecture portion of Pathology 126. Elective in the dental hygiene curriculum.

198. Supervised Study in Pathology. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pathology. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

A laboratory research project under direction of a member of the faculty with approval of the chairman of the department.

209. Pathology. (3) § F. Prerequisite: Microbiology 126 and Pathology 126 or equivalents. **Nelms**

Weekly seminars designed to provide students with an understanding of the basic principles of pathology. Emphasis is placed on research; students will critically review current literature in the field, under faculty supervision.

220. Seminar. (1) § F, W, Sp. Prerequisite: Permission of the chairman of the department. **Rambo**

Faculty members and visiting professors discuss recent developments in diagnosis and research in pathology.

250. Research. (1-8) § F, W, Sp. **Staff**

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate advisor. **Staff**

For graduate students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

400. Pathology Staff Seminars. (1) F, W, Sp. Interns and residents. **Rambo**

Faculty members and visiting professors discuss recent developments in diagnosis and research in pathology.

401. Special Pathology Seminars. (Units to be arranged) Su, F, W, Sp. Interns and residents. *UC* **Rambo**

Seminars focusing upon the pathology of special areas of the body are conducted by specialists in the area under discussion. Course emphasizes correlation between the clinical manifestations of the disease and the gross and microscopic findings.

402. Pathology Research. (1-8) Su, F, W, Sp. Interns and residents. *UC* **Rambo,** *SFGH* **McKay, Margaretten**

Students, under supervision, pursue original investigation in pathology and allied subjects. Investigators review the literature, make observations, and collect data correlating physiological with pathological concepts. They are encouraged to make original contributions.

404. Clinicopathological Conference. (1) F, W, Sp. Residents.
SFGH **McKay, Margaretten**

Conference includes the collection of data and materials, summary of histories, and citation of pertinent literature by faculty. Residents participate in clinicopathological conferences where emphasis is placed on correlation of clinical manifestations of disease with clinical laboratory and autopsy findings.

450. Pathologic Anatomy. (5-10) Su, F, W, Sp. Required for interns; elective for residents. *SFGH, UC, VA* **Rambo**

Theory and methodology of pathologic anatomy, interpretation and correlation of data, and study of literature.

495. Pathologic Anatomy. (1½ per week) Su, F, W, Sp. Required for interns.
SFGH, UC, VA **Rambo**

Theory and methodology of pathologic anatomy, interpretation and correlation of data, and study of literature.

Pediatrics

100. Medical Genetics. (2) W.
C. Epstein

Basic aspects of human genetics are presented in a context relevant to the diagnosis, treatment, and counseling of genetic disorders and congenital malformations. Emphasis is placed on the application of genetic knowlege to actual counseling problems.

110. Required Clerkship in Pediatrics. (1½ per week) F, W, Sp. Prerequisite: Medicine 131 A-B-C.
Grumbach, M. Grossman

Practical work including teaching in the ward, newborn nursery, and outpatient clinics with emphasis on case assignments. Seminar covering major aspects of pediatrics and infectious diseases and procedure demonstrations at *UC* and *SFGH*.

140.01. Advanced Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Grumbach**

Students are assigned patients under supervision of attending and resident staff. Students present patients on wards, assist with procedures, and attend specialty conferences for discussion of patients. Advanced clinical clerkships are offered at various hospitals.

140.02. Off-Campus Clinical Clerkships. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Grumbach

Clinical clerkship in off-campus hospital approved by the chairman of the department and the Dean.

140.03. Ambulatory Pediatrics at *VMC*. (6) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Nilson**

Working with a pediatric house staff and pediatric nurse practitioner team and under the supervision of the staff pediatrician, the clerk will have direct primary care and health supervision responsibilities for selected well and acutely ill children in a clinic setting.

140.04. Pediatric Cardiology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Rudolph**

Experience in cardiac evaluation and treatment including clinical work-up in the ward and clinic, cardiac catheterization, angiography, children's electrocardiographs, surgical management, and postoperative care.

140.04A. Cardiology Private Practice. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
S. Robinson

Experience in clinical evaluation of children with cardiac abnormalities in a private office. Setting includes history, physical examination, Xray, electrocardiogram and any other procedures necessary for diagnosis.

140.05. Pediatric Private Practice. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **L. P. Smith**

Working experience with a pediatrician on the clincial faculty as he sees patients in his office and in the hospital. Student may select time in small group, large group or sub-specialty practice, or a combination of these.

140.06. Adolescent Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Gareis**

Clinical clerkship in adolescent medicine with emphasis on outpatient clinical experience in a wide range of health problems of the adolescent.

140.07. Infectious Disease at *VMC*. (6) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Granoff**

Combined experience in pediatrics and internal medicine with exposure to management of usual and unusual infections occurring in a high-risk rural population. Daily conferences and rounds are held with hospital-based infectious disease consultants. Work in the clinical microbiology laboratory may also be arranged.

140.08. Ambulatory Pediatric Clerkship at *MZ*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
R. Ballard

Experience in ambulatory pediatrics in pediatric outpatient department where multidisciplinary Comprehensive Care Program for children and youth is based. Student works with a team of physicians and follows patients admitted to the inpatient service.

140.09. Child Neurology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Berg**

Supervised participation in clinical activities, both inpatient and outpatient, and all regularly scheduled conferences of the Child Neurology Division. Study of the developing nervous system and diseases of the nervous system affecting infants, children, and adolescents.

140.11. Pediatric Cardiology at *CHMC*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Higashino

Students participate in clinical experience including outpatient evaluation, instruction in the noninvasive methods of diagnosis, care of ward medical and surgical cardiac patients, cardiopulmonary laboratory, and cardiovascular conferences. Emphasis is on the physiological principles of diagnosis and management.

140.14. Management of Juvenile Diabetes at Diabetic Camp. (1½ per week) Su. Prerequisite: Medicine 110 and Pediatrics 110.
Olney

Work under the direction of the instructor in Diabetic Camp, clinical and management aspects of diabetes. Students have an opportunity to participate in the operation of the camp program and treatment of many aspects of diabetes in children, adolescents, and young adults.

140.15. Pediatric Hematology and Oncology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Dallman, Mentzer, Ablin

Experience in patient care in the clinic and on the ward. Morphologic study of blood cells and participation in hematology and oncology conferences. Selected cases are studied and discussed in depth.

140.16. Pediatric Nephrology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Holliday, Piel, Potter

Introduction to general nephrology, Clinical experience in pediatric nephrology with children having nutritional problems, ESRD and chronic renal failure. Post-transplant and dialysis consultations, new cases from the nursery, and cases requiring TPN. Research projects may be arranged with instructors.

140.17. Clinical Genetics. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **C. Epstein, B. Hall**

Evaluation and management of children and adults with hereditary (including cytogenetic) diseases, with particular emphasis on genetic counseling, patterns of human malformation, and the biochemical and genetic mechanisms involved in the pathogenesis and transmission of these conditions.

140.19. Externship in Inpatient Pediatrics at *C*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Giammona

Students participate in patient care in close association with the house staff and clinical fellows both in wards caring for sick children and in Newborn Intensive Care Unit, and in rounds and conferences conducted by senior staff.

140.20. Externship in Anbulatory Pediatrics at *C*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Giammona

Students participate in the comprehensive care of children. Experience with various illnesses is provided in appropriate specialty clinics. A wide variety of child care problems is seen during visits to offices of senior pediatricians participating in the program.

140.21. Pediatric Allergy. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Deamer**

Diagnosis and treatment of asthma, allergic rhinitis, and hay fever. Attendance at Pediatric Allergy Clinic daily. Participation in activities of allergy trainees.

140.23. Neonatal Pediatrics at *C*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **Brady**

Students participate in the care of infants in the intensive care nursery in close association with the house staff, fellows, and senior staff and in conferences conducted by senior staff.

140.24. Neonatology at *MZ*. (1½) F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110. **R. Ballard**

Experience in normal newborn and intensive care nurseries, according to student's interest and skills. Student participates in care of transport infants, assisting attending physician.

150.01. Pediatric Endocrinology and Metabolism. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Grumbach, Kaplan, F. Conte

Participation in the clinical and investigative aspects of endocrine and metabolic problems in children. Students spend time in the laboratory, wards, and clinics.

150.02. Human Cytogenetics. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Grumbach, F. Conte

Participation in human cytogenetic studies in children. Emphasis is on laboratory work with exposure to clinical problems and patients.

150.04. Research in Pediatrics. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Pediatrics 110.
Grumbach and Staff

Student research projects under guidance of faculty members. Programs must be approved by instructors. Students may initiate or continue research programs under supervision of faculty members.

160.01. Clinical Correlation in Pediatrics. (2) Su, F, W, Sp. **Grumbach**

Students prepare case presentations weekly from patients on the pediatrics wards. Course correlates patients' problems with work in the required curriculum. Experience on the ward in the clinical setting.

198. Supervised Study in Pediatrics. (1-5) F, W. Sp. Prerequisite: Consent of instructor. **Grumbach and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pediatrics. (1-5) F, W. Sp. Prerequisite: Consent of instructor. **Grumbach and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Pediatric Staff Conference. (1½) Su, F, W, Sp. Interns and residents.
UC **Grumbach**

Conferences include house staff preparation and presentation of patient case histories with reference to the literature, laboratory work, and special studies. Faculty members and consultants from other departments as well as other universities discuss recent developments in their respective fields.

401. Pediatric-Roentgenology Conferences. (1½) Su, F, W, Sp. Interns and residents. *UC* **Gooding**

Conferences include review and discussion of recent X ray studies of pediatric cases in the wards and outpatient service.

402. Pediatric Clinical Seminar. (1½) Su, F, W, Sp. *UC* **Grumbach**

Seminar includes review and discussion of selected cases of unusual interest, reports on special topics with review of recent literature, and clinicopathological conferences on pediatric cases.

450. Clinical Pediatrics. (1½ per week) Su, F, W, Sp. Interns and residents.
UC **Grumbach**

Residents, under supervision, are responsible for patient care in the wards and outpatient clinic including history-taking, physical examination, laboratory tests, diagnosis, and treatment. In addition, the chief resident has certain administrative, teaching and clinical responsibilities.

451. Clinical Pediatrics. (1½ per week) Su, F, W, Sp. Residents.
SFGH **M. Grossman**

Residents, under supervision, are responsible for patient care in the wards, communicable disease section, and outpatient clinic including history-taking, physical examination, laboratory tests, diagnosis, and treatment. Emphasis is on diagnosis and management of infection, trauma, and pediatric emergencies.

462. Clinical Primary Care. (1½ per week) Su, F, W, Sp.. Prerequisite: Refer to Ambulatory and Community Medicine 462.
Grumbach, Dower

Interns in the Primary Care Track of Pediatrics are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Pediatrics Internship Program as well as related clinical services such as Dermatology, Otolaryngology.

463. Clinical Primary Care. (1½ per week) Su, F, W, Sp. Prerequisite: Refer to Ambulatory and Community Medicine 463.
Grumbach, Dower

Residents in the Primary Care Track of Pediatrics are responsible for patient care in a multispecialty primary care clinic. Other rotations include those common to the regular Pediatrics Residency Program as well as related clinical services such as Dermatology, Otolaryngology.

490. Clinical Pediatrics at *SFGH.* (1½ per week) Su, F, W, Sp.
SFGH **M. Grossman**

Interns rotate through newborn nursery, pediatric wards and clinic, communicable diseases ward, and emergency room. They are responsible for the care of patients, under the direction of the attending staff, including history-taking, physical examination, laboratory tests, and consultation.

495. Clinical Pediatrics. (1½ per week) Su, F, W, Sp. Interns. *UC* **Grumbach**

Interns, under supervision, are responsible for patient care in the wards and outpatient clinic including history-taking, physical examination, laboratory tests, diagnosis, and treatment.

Pedodontics

109. Clinical Pedodontics. (0-1) F, W, Sp. Prerequisite: Third year standing. Clinic Variable. **M. Morris and Staff**

Clinical diagnosis, plan of treatment, dietary analysis and counseling, fabrication of appliances for and treatment of children requiring tooth guidance, space management, and preventive orthodontics. Units assigned upon completion of clinic requirements.

109.01. Clinical Pedodontics Rotation. (0-2) F, W, Sp. Prerequisite: Concurrent enrollment in Dental Auxiliary Utilization 109.01. Clinic rotation. **M. Morris and Staff**

Pedodontic restorative procedures are performed during a two-week block rotation. The present concepts of four-handed dentistry are applied while rendering comprehensive care for children. Units are assigned upon completion of clinic requirements.

130A-B-C. Pedodontics. (1-1-1) F, W, Sp. Prerequisite: Operative Dentistry 125A-B-C.
M. Morris and Staff

Lecture course presenting dental procedures unique to, or modified to meet, the needs of the child. Examination, diagnosis, treatment planning, pain control and management, restorative procedures, preventive orthodontics, diet analysis, and caries control are stressed.

170.01A-B-C. Clinical Pedodontics. (3-3-3) F, W, Sp. Clinic 9 hours.
M. Morris and Staff

Clinical experience in comprehensive care for children with congenital or hereditary anomalies. Management of rampant caries and techniques of instruction in home care and caries control. Current techniques in patient management and pain alleviation. Recognition and treatment of developing malocclusion.

170.02A-B-C. Clinical Pedodontics. (3-4, 3-4, 3-4) F, W, Sp. Clinic 9-12 hours.
M. Morris and Staff

Continuation of Pedodontics 170.01A-B-C.

171.01A-B-C. Pedodontic Seminar. (1-5, 1-5, 1-5,) F, W, Sp. Seminar 1-5 hours.
M. Morris

Assigned readings of current and classical literature in pedodontics and allied specialty areas with review and discussion of each reading assignment to prepare student to critically evaluate dental literature.

171.02A-B-C. Pedodontic Seminar. (2-3, 2-3, 2-3) F, W, Sp. Prerequisite: Pedodontics 171.01A-B-C. Seminar 2-3 hours.
M. Morris and Staff

Continuation of Pedodontics 171.01A-B-C.

172A-B-C. Clinic and Seminar. (2-2-2) F, W, Sp. Clinic and Seminar 60 hours.
M. Morris and Staff

Hospital procedures: admitting, orders, histories, charts and records, laboratory tests, reports, and administrative considerations. Organizing and equipping the hospital operating room for comprehensive dental care of patients under general anesthesia. Clinical experience in treating chronically ill hospitalized patients.

173. Clinical Pedodontics. (0-6) SS. Prerequisite: Pedodontics 170.02A-B-C. Clinic Variable. **M. Morris and Staff**

Students provide dental care for a non-English speaking migrant population, utilizing facilities of the mobile clinic.

174. Pedodontic Seminar. (2) SS. Prerequisite: Pedodontics 171.01A-B-C. Seminar 4 hours. **M. Morris and Staff**

Seminar on problems attending the care and treatment of non-English speaking children. Modifications of treatment plans to ensure dental care which requires a minimum of professional supervision for maintenance.

175. Pediatric Oral Surgery. (3) F. *SFGH:* 90 hours. **Khosla, Devlin**

Hospital procedures, management of trauma and emergencies involving the primary and young succedaneous teeth. Extractions, re-implantation, pulp protection, stabilization of luxated teeth, management of infection, and supportive therapy are emphasized.

176. Pediatric General Anesthesia. (0-3) F. *CHMC:* 90 hours.
K. Schroeder and Staff

An introductory course in general anesthesia to familiarize the student with general anesthesia; the attendant problems and risks, the agents used and methods of delivery. Clinical experience under close supervision.

177. Pediatric Hospital Dentistry. (2) F, W, Sp. Hospital dentistry 6 hours.
M. Morris, Weis

Students are assigned to an interdisciplinary health care team and are responsible for delivery of dental care for all in-house patients. Definitive dental care is provided on the ward as well as in the operating room.

180.01B-C. Pedodontic Seminar. (1) W, Sp. Prerequisite: Completion of third year pedodontic lecture series and approval of the Dean. **B. Smith**

Documented discussions on occlusion, mixed dentition analysis, malocclusions, missing incisors and premolars, hypoplasias, anomalies, injuries, and oral manifestations of systemic disease. Designed for students considering pedodontics as a specialty. Counseling is provided for postdoctoral education.

189.01. Clinical Practice in Pedodontics. (0-9) F, W, Sp. Prerequisite: Pedodontics 130A-B-C and completion of clinical pedodontics and all third year clinical and didactic courses in operative dentistry. Approval of Clinic Review Committee. Clinic Variable. **M. Morris and Staff**

Course provides additional clinical experience in pedodontics.

189.02. Community Pedodontics. (0-4) F, W, Sp. Prerequisite: Completion of clinical requirements for graduation or approval of Clinic Review Committee.
M. Morris, Stark and Staff

Elective clinic course in pedodontics. Students provide care for children at selected migrant farm labor camps. Course includes preventive education, comprehensive operative procedures including pulp therapy and necessary minor dental surgery, taking and processing needed radiographs.

Periodontology

109. Clinical Periodontics. (0-6) F, W, Sp. Prerequisite: Periodontology 121.
Parr and Staff

Treatment of periodontal diseases.

110. Periodontics—Recognition. (1) Sp.
Armitage

Introduction to the recognition and diagnosis of inflammatory periodontal disease. The pathogenesis of periodontal disease. The pathogenesis of periodontal disease is discussed from clinical, histopathological, and biochemical points of view.

119. Periodontal Therapy (Introduction). (½) Sp. Clinic five 4-hour periods.
Madsen

Introduction to the techniques of supragingival scaling and root planing.

121. Peridontal Therapy (Introduction). (1) F. Prerequisite: Periodontology 110.
Armitage

Introduction to the rationale and objectives of periodontal therapeutic procedures. Also considered are the recognition and treatment of periodontal disease in children, acute periodontal emergencies, and periodontal considerations in restorative dentistry.

129. Clinical Periodontics. (0-½) F, W, Sp. Prerequisite: Periodontology 110 and 119. Clinic Variable, Lab rotation 6 hours.
Madsen, S. Miller

Introduction to clinical techniques in oral prophylaxis including plaque control, scaling, root planing. During fall and winter quarters, students provide dental hygiene therapy for senior patients. The spring quarter is utilized for treatment of their own patients.

131. Periodontics. (1) F. Prerequisite: Peridontology 121. **Parr**

The demonstration and rationale of surgical treatment of peridontal lesions.

150. Periodontics. (2) Sp. Lecture and Demonstration 2 hours. **K. Horowitz**

Introduction to the oral hygiene problems of the periodontal patient and the means and methods available to the dentist and auxiliaries to motivate the patient to self-care.

160. Periodontics. (1) F. Prerequisite: Periodontology 150. **Madsen**

Classification of periodontal diseases and methods of their prevention. Principles of pathology are correlated with therapeutic procedures. A faculty panel discusses the role of the hygienist in dental practice.

161. Periodontics. (1) W. Prerequisite: Periodontology 160. **K. Horowitz**

The demonstration and rationale of surgical treatment of periodontal lesions. The role of the dental hygienist in dental practice, especially related to prevention, recognition, and aid in treatment of periodontal diseases.

170A-B-C. Histopathology of the Periodontium (2-2-2) F, W, Sp. Lecture 1 hour, Lab 3 hours. **Dienstein**

Dynamics of inflammation and its role in the periodontal tissues.

171A-B-C. Clinical Periodontics. (0-8-4) F, W, Sp. Prerequisite: Enrollment in periodontology program. Clinic 12 hours.
Shibata, Green and Staff

Clinical procedures in periodontal therapy.

172. Examination and Treatment Planning. (1) F. Prerequisite: Enrollment in postgraduate specialty program or consent of instructor. **Parr**

Lectures on examination and treatment planning.

172.01. Hospital Anesthesiology. (6) SS. Prerequisite: Consent of instructor. Clinic 24 hours, Seminar 10 hours. **Chang**

Practical course in operating room anesthesia. Instruction in hospital administration, physical and preanesthesia evaluation of the patient, monitoring of vital signs, administration of intravenous psychosedation, general anesthesia, and handling of resultant medical emergencies. Clinical instruction is supplemented by seminars.

172.02. Hospital Periodontics. (2) F, W, Sp. Prerequisite: Periodontology 171A-B-C.
Shibata

Clinical periodontics integrated into the regular medical and rehabilitative activities of *MZ*. Course provides patients with quality dental care, appreciation for preventive dentistry, and concept of total health care. Students are exposed to various medical conditions.

173.01. Periodontal Therapy. (2) SS. Prerequisite: Periodontology 171A-B-C. Clinic 60 hours. **Shibata and Staff**

Clinical procedures in periodontal therapy. This course is an enlargement on earlier clinical experience.

173.02A-B-C. Periodontal Therapy. (4-4-4) F, W, Sp. Prerequisite: Periodontology 171A-B-C. Clinic 12 hours.
Shibata, Green and Staff

Advanced clinical procedures in periodontal therapy.

173.03. Periodontal Therapy. (2) SS. Prerequisite: Periodontology 173.02C. Clinic and Seminar 60 hours.
Shibata, Green and Staff

Advanced surgical techniques in management of periodontal lesions.

174. Periodontics. (1) SS. Prerequisite: D.D.S. degree. **Parr**

A seminar to discuss and evaluate the problems common to the specialties of orthodontics and periodontics.

175A-B-C-D. Treatment Planning and Surgery Seminar. (0-3, 0-3, 0-3, 1) F, W, Sp, SS. Seminar 1 hour. **Shibata and Staff**

Students present and discuss management of their cases that are either planned for treatment or currently under treatment. They are expected to defend their treatment plan and therapeutic procedure based on relevant literature and clinical experience.

175.01A-B-C-D. Advanced Treatment Planning and Surgery Seminar. (1-1-1-1) F, W, Sp, SS. Seminar 1 hour.
Shibata and Staff

Students present and discuss management of their cases that are either planned for treatment or currently under treatment. They will be responsible for defending their treatment plan and therapeutic procedures based on relevant literature and clinical experience.

176. Original Investigation in the Field of Periodontology. (1-5) F, W, Sp. Prerequisite: Enrollment in postgraduate specialty program or consent of instructor. Lab 3-15 hours. **Goodson**

Research.

177. Seminar on Periodontal Surgery. (2) F, W, Sp. Seminar 2 hours. Prerequisite: D.D.S. degree and consent of instructor.
Raust

Study in depth with literature review and seminar discussions on surgical techniques used to treat lesions involving the hard and soft tissue of the periodontium.

178. Occlusion. (1) F, W. **W. H. Noble**

Course provides a broad concept of the principles of occlusion, upon which definitive therapeutic procedures can be based.

180. Periodontics. (1) W. **Parr**

Implementation of the skills and knowledge of periodontology in the private practice environment.

180.02A-B-C. Advanced Periodontics. (1-1-1) F, W, Sp. Prerequisite: Periodontology 131 and consent of instructor. Seminar 1 hour. **McGirl**

Study in depth, with literature review and seminar discussions of areas of periodontology having major clinical significance.

180.03. Periodontal Surgical Techniques. (1) F. Prerequisite: Periodontology 131. **Shibata**

Surgical techniques are presented which may be used to treat lesions occuring in the hard and soft tissues of the periodontium.

181. Seminar on Connective Tissue. (1) W. Prerequisite: Biochemistry 110A-B and 111 or concurrent enrollment. **Bhatnagar**

Biochemical and molecular biological basis of connective tissue growth, development, and disorder. Topics discussed include cleft palate, TMJ, chondrodystrophies, wound healing, periodontal disease, arthritis

and fibrotic diseases including arteriosclerosis, cirrhosis, and gingival fibroplasia.

189.01. Clinical Periodontics. (0-9) F, W, Sp. Prerequisite: Periodontology 109. Clinic Variable. **Green and Staff**

Continuation of clinical experience beyond the level of Periodontology 109.

199. Laboratory Project in Periodontology. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

201A-B. Experimental Methods in Biological Research. (3-3) § F, W. Lecture 2 hours, Lab 3 hours. **Goodson**

Elements of experimental design, statistical inference, and methods of laboratory and clinical research.

209. Periodontology Literature Review Seminar. (2) § F, W, Sp. **Armitage**

Seminar designed to correlate basic sciences with problems in periodontology and evaluate concepts in the direction of research, clinical application, and teaching. Selected papers in the literature are reviewed and evaluated. Other instructors are invited to participate.

Pharmaceutical Chemistry

120. Principles of Pharmaceutical Chemistry. (3) § F. Prerequisite: Chemistry 113. **Jorgensen, Castagnoli**

A study of physiochemical and biological factors which contribute to drug action; *in vivo* and *in vitro* biotransformations of drugs and related organic compounds.

121. Principles of Pharmaceutical Chemistry. (2) W. Prerequisite: Pharmaceutical Chemistry 120 and concurrent enrollment in Pharmacology 121. **Jorgensen, Wolff**

A systematic survey of the chemical features of synthetic drugs, including correlations between chemical structure and biological activity. Emphasis on steroids, hormones, and drugs for metabolic disorders.

122. Principles of Pharmaceutical Chemistry. (3) Sp. Prerequisite: Pharmaceutical Chemistry 120.
Brochmann-Hanssen, McDonagh

A systematic survey of the chemical features of synthetic drugs, including correlations between chemical structure and biological activity. Emphasis on drugs affecting the autonomic nervous and cardiovascular systems as well as renal function.

132. Principles of Pharmaceutical Chemistry. (3) F. Prerequisite: Pharmaceutical Chemistry 120.
Brochmann-Hanssen, Jorgensen

A systematic survey of the chemical features of synthetic drugs, including correlations between chemical structure and biological activity. Emphasis on drugs affecting the central nervous system.

134. Principles of Pharmaceutical Chemistry. (2) Sp. Prerequisite: Pharmaceutical Chemistry 120 and concurrent enrollment in Pharmacology 134. **R. B. Meyer**

A systematic survey of the chemical features of synthetic drugs, including correlations between chemical structure and biological activity. Emphasis on anti-infective and anti-neoplastic drugs.

151. Pharmaceutical Analysis. (3) W. Prerequisite: Chemistry 113 and 115.
Brochmann-Hanssen

Principles of pharmaceutical analysis used for evaluation of drugs and dosage forms, with special emphasis on modern separation techniques and instrumental methods of analysis.

152. Radionuclides in Biology and Medicine. (1) § F. **Peng, Hoffer**

Discussion on radionuclides in frequent use in biology and medicine. The course is oriented toward topics of broad interest.

153. Radiopharmaceutics. (1) § W. Prerequisite: Pharmaceutical Chemistry 152 or 160. **Peng, Price**

A study of radionuclides used in nuclear medicine as pharmaceuticals. Dosage form design and related aspects are discussed.

154. Pharmaceutical Quality Control. (2) W. Prerequisite: Pharmacy 165, Pharmacy 166 or concurrent enrollment.
Brochmann-Hanssen

General principles of total quality control applied to the manufacture of pharmaceuticals, introduction to statistical quality control, its application to process studies, and evaluation of dosage forms. Consideration given to simplified quality control systems for small-scale manufacturing and hospital pharmacy.

156. Pharmaceutical Analysis. (2) Sp. Prerequisite: Pharmaceutical Chemistry 151. Lab 6 hours. **Brochmann-Hanssen**

Experiments in pharmaceutical analysis applied to drug entities, dosage forms, and samples of biological origin.

157. Bioanalytical Theory and Techniques. (3) W. Lecture 2 hours, Lab 3 hours.
Sadee

Analytical theory and techniques for determining drugs and metabolites in biological fluids.

158. Radioisotope Measurements. (1) W, Sp. Prerequisite: Pharmaceutical Chemistry 153 or consent of instructor. Lab 3 hours.
Peng

Detection and measurement of radionuclides commonly used in biology and medicine.

160. Fundamentals in Radioactivity. (2) § F. **Perez-Mendez**

This course will treat the principles in physical decay of radionuclides, characteristic of nuclear emissions, interaction with matter, and related aspects in radioactivity.

162. Radioisotope Imaging. (1) § Sp. Prerequisite: Pharmaceutical Chemistry 153 or consent of instructor. **Price**

This course will treat the theory and methodology in the application of radionuclides to organ imaging in nuclear medicine.

170. Group Studies Course. (1-4) F, W, Sp. Prerequisite: Consent of instructor.
Staff

Group studies of selected topics in pharmaceutical chemistry.

198. Supervised Study in Pharmaceutical Chemistry. (1-5) F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pharmaceutical Chemistry. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

200. Physical Chemical Properties and Biological Activity. (1) § W. Prerequisite: Consent of instructor. **Kollman**

Lectures and conferences dealing with the relationship between physical properties and biological activity, with special emphasis on the uses of molecular orbital calculations in this connection.

201. Advanced Survey of Medicinal Chemistry. (2) § F. Prerequisite: Consent of instructor. **Jorgensen**

Basic principles of medicinal chemistry and a survey of the relationships between structure and biological action for major drug classes.

202. Macromolecular Structure. (1) § W. Prerequisite: Consent of instructor.
Kuntz, Shafer

A review of protein and nucleic acid structures. Emphasizes the general principles which govern secondary and tertiary structure, with an introduction to the current approaches to this problem for proteins and transfer RNA.

203. Drug Metabolism. (1-2) § Sp. Prerequisite: Consent of instructor. **Sadee**

Study of the *in vivo* and *in vitro* biotransformation of foreign compounds with particular emphasis on drugs. When possible, detailed chemical and biochemical mechanisms are considered.

204. Hormones. (3) § W. Prerequisite: Consent of instructor.
M. Wolff, Jorgensen

Lectures and conferences dealing with structure-function relationships and action of hormones at the molecular level. Special emphasis is given to steroids and peptide hormones.

206. Modern Techniques is Pharmaceutical Chemistry. (2) § W. Prerequisite: Chemistry 113 and 157 or equivalents. Chemistry 165 recommended. **Craig**

Principles and methods of some of the modern techniques used in pharmaceutical chemistry: liquid-solid, liquid-liquid, and gas-liquid chromatography, ion exchange, counter-current separation and vacuum techniques.

207. Experiments in Modern Pharmaceutical Chemical Techniques. (2) § W. Prerequisite: Chemistry 113 and 157 or equivalents. Chemistry 165 recommended. Lab 6 hours. **Craig**

Laboratory work illustrating some of the modern techniques used in pharmaceutical chemistry, including chromatography, ion exchange, counter-current separation, and vacuum techniques.

211. Selected Topics in Pharmaceutical Chemistry. (2) § Sp. Prerequisite: Pharmaceutical Chemistry 120. **Jorgensen**

Reports and discussion of topics of current interest in pharmaceutical chemistry, with emphasis on relationships between chemical structure, physical properties, and biological response.

213. Basic Considerations in the Kinetics of Drug Absorption and Disposition. (3) § F. Prerequisite: Chemistry 115. Calculus background is recommended. Lecture 2 hours, Lab 3 hours.
Rowland, Tozer and Staff

A basic study of the concentration-time course of drugs and their metabolites, methods of pharmacokinetic analysis, and the de-

sign of dosage regimen. Laboratory emphasizes the application of electronic calculators and analog computers.

214. Advanced Aspects of the Kinetics of Drug Absorption and Disposition. (3) § Sp. Prerequisite: Pharmaceutical Chemistry 213 and Biochemistry 202 or equivalents. Lecture 2 hours, Lab 3 hours.
Riegelman, Benet and Staff

Advanced consideration of pharmacokinetics including multicompartment models, assessment of intrinsic absorption and disposition parameters, and correlation of pharmacological response with the concentration-time course of a drug. Laboratory will include analog and digital computational methods.

216. Biochemistry and Drug Action. (2) § Sp. **Eiler**

Genetic mechanism and drug action, cell division and antimitotics, adaptive phenomena in relation to control mechanisms, and the uncoupling agents.

217. Physical Pharmacy of Solid Dosage Forms. (3) § W. Prerequisite: Pharmaceutical Chemistry 160 or consent of instructor. **Staff**

Properties of solids, solid-solid interactions, solid dosage forms, and stability of solid dosage forms are discussed.

218. Physical Pharmacy of Liquid Systems. (3) § Sp. Prerequisite: Pharmaceutical Chemistry 217. **Staff**

Solubility, solution, diffusion, properties of solids of solutions, and drug stability.

219. Enzyme Mechanisms. (1-2) § Sp.
Kenyon, Santi

Selected topics on enzyme mechanisms. General survey of enzyme catalysis: general acid-base catalysis, propinquity effects, strain and conformational change. Covalent intermediates in enzyme catalysis. The role of cofactors in enzyme catalysis. Phosphate transfer reactions.

220. Graduate Seminar Program. (1) § F, W, Sp. **Staff**

A program involving the presentation of core material in pharmaceutical chemistry in the medicinal chemistry and pharmaceutics pathways. The presentations are made by graduate students and examination is by a series of cumulative examinations.

221. Research Conference in Pharmaceutical Chemistry. (1) § F, W, Sp. Prerequisite: Graduate standing in the Department of Pharmaceutical Chemistry. **Staff**

A series of weekly research conferences given by visiting lecturers, faculty, and advanced graduate students.

222. Seminar in Physical Chemistry. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Kuntz and Staff**

Topics of current research interest in physical and biophysical chemistry.

230A. Spectroscopy. (4) § W. Prerequisite: Chemistry 162 or equivalent. Lecture 3 hours, Lab 3 hours. Offered in alternate years.
Kuntz

The theory and application of molecular electronic and vibrational spectroscopy; optical rotatory dispersion and circular dichroism.

230B. Spectroscopy. (3) § Sp. Prerequisite: Chemistry 162 recommended.
James

Theory and application of nuclear magnetic resonance and electron-spin resonance; mass spectrometry.

230C. Spectroscopy. (1) § W. Lab 3 hours. **James**

Laboratory work in nuclear magnetic resonance and electron-spin resonance; mass spectrometry.

231. Spectroscopy. (1-4) § W. Prerequisite: Pharmaceutical Chemistry 230B.
Shafer

Selected topics in spectroscopy and related areas. Content of the course changes, as in the case of seminars. Course may be repeated for credit.

240. Radiochemical Synthesis. (1-2) § F, W, Sp. Prerequisite: Consent of instructor. Lab 3-6 hours. **Peng**

Theory and techniques related to the synthesis of isotopically labeled organic compounds. Course may be repeated for credit.

241. Radiobiochemical Analysis. (1) § W. Prerequisite: Consent of instructor. Lab 3 hours. **Peng**

Experimental techniques related to various aspects of radioassay of biological specimens, biochemical compounds, and drugs isotopically labeled with tritium and/or radio-carbon.

242. Radiotracer Methodology. (1) § W. Prerequisite: Pharmaceutical Chemistry 152 or 160, or consent of instructor.
Peng, Benet, Licko

Discussions on the theory and principles in the use of radionuclides as tracers in biological systems. Emphasis is on the design of experiments and data evaluation.

243. Chemical and Biological Effects of Ionizing Radiation. (1) § Sp. Prerequisite: Pharmaceutical Chemistry 152 or 160, or consent of instructor.
J. W. Harris, Painter, Peng

Effects of ionizing radiation on chemical and biological systems will be discussed.

250. Research. (1-8) § F, W, Sp. **Staff**

266. Conferences in Research Planning. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Discussion and practice in research problem formulation and design selection. Core classes and small group sessions are organized around students' interest by faculty within the area of specialization.

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. Degree.

300. Practicum in Teaching. (1) § F, W, Sp. Prerequisite: Graduate standing in the Department of Pharmaceutical Chemistry and participation in the ongoing teaching program. **Staff**

Conferences and discussion dealing with the teaching of courses in the School of Pharmacy under the direction of the faculty.

Pharmacognosy

198. Supervised Study in Pharmacognosy. (1-5) F, W, Sp. **Brochmann-Hanssen**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pharmacognosy. (1-5) F, W, Sp. **Brochmann-Hanssen**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Pharmacology

100A-B. Medical Pharmacology. (3-5) § W, Sp. Prerequisite: Biochemistry 100A-B and Physiology 120 and 125 or equivalents.
Katzung, Trevor

A systematic presentation of pharmacologic agents based on drug group classification. Major emphasis is on clinically significant aspects of therapeutic effects, toxic effects, and evaluation of drugs.

121. Pharmacology and Toxicology. (1) § W. Prerequisite: Concurrent enrollment in Pharmaceutical Chemistry 121.
V. Sutherland

Systematic survey of action and uses of drugs with emphasis on steroids, hormones, and drugs for metabolic disorders.

125. Pharmacology and Toxicology. (4) § Sp. Prerequisite: Biochemistry 120A-B and Physiology 120 and 125. Lecture 3 hours, Lab 3 hours. **Hondeghem, Burkhalter**

Systematic survey of action and uses of drugs acting on autonomic nervous and cardiovascular systems and the kidneys.

126B-C. Dental Pharmacology. (2-4) § W, Sp. Prerequisite: Physiology 110. Lecture 2 hours W; 3 hours Sp. Lab 3 hours Sp.
Staff

Objective of the course is to acquaint dental and dental hygiene students with the fundamentals of pharmacology. Various classes of drugs are examined in regard to actions, absorption, fate, excretion, and toxicity. Agents useful in dentistry are emphasized.

130. Toxicology. (2) W. Prerequisite: Pharmacology 125 and 136.
Hine, Hodge, Meyers, Piper, Vore

The occurrence, mode of action, recognition, and treatment of poisoning by environmental chemicals and therapeutic agents.

134. Pharmacology and Toxicology. (1) § Sp. Prerequisite: Concurrent enrollment in Pharmaceutical Chemistry 134.
Trevor, Apple

Systematic survey of action and uses of anti-infective and antineoplastic drugs.

136. Pharmacology and Toxicology. (4) § F. Prerequisite: Pharmacology 125. Lecture 3 hours, Lab 3 hours. **Burkhalter and Staff**

Systematic survey of action and uses of drugs acting on the central nervous system.

150.01. Pharmacology Research. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Students perform individual research in a field of their choice under the guidance and supervision of a member of the faculty.

170. Group Studies Course. (1-4) F, W, Sp. Prerequisite: Consent of instructor.
Staff

Group studies of selected topics in pharmacology.

170.01. Experimental Techniques in Pharmacology. (1-5) SS. Prerequisite: Consent of instructor and completion of biochemistry, physiology, and pharmacology courses. **Loh, Trevor**

Practical laboratory experience to acquaint the student with biochemical and physiological techniques used in the study of drug action in systems from the subcellular level to the intact animal.

193. Special Topics in Pharmacology and Toxicology. (1-3) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

A seminar course covering various aspects of pharmacology and toxicology.

194. Biochemical Techniques in Pharmacology. (1-3) § F, W, Sp. Prerequisite: Consent of instructor. Lab 3-9 hours. **Loh, Burkhalter**

A laboratory course in biochemical techniques as commonly applied to investigations of drug action.

198. Supervised Study in Pharmacology. (1-5) § F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pharmacology. (1-5) § F, W, Sp. **Staff**

A laboratory research project under direction of member of the faculty with approval of the chairman of the department.

206A-B-C. General Pharmacology. (3-3-3) § F, W, Sp. Prerequisite: Consent of instructor. **Trevor, Katzung, Loh**

Lecture-conference dealing with fundamental aspects of interactions between chemical compounds and the components of biological systems. Mechanisms of drug action at molecular, biochemical, membrane, tissue, and organ levels of the cardiovascular, muscular, and central nervous systems are considered.

209. Molecular Mechanisms of Action of Biologically Active Substances. (3) § F, W, or Sp. Prerequisite: Pharmacology 194 or consent of instructor. **Kun**

Advanced biochemical experimentation and theories concerning the mechanism of action of biologically active substances on a macromolecular level. The content of the course, beyond certain theoretical material, varies with each participant and consists of guided experiments in novel subjects.

210-A-B-C. Advanced Toxicology. (1-2, 1-2, 1-2) § F, W, Sp. Prerequisite: Consent of instructor. **Hine, Hodge, Meyers, Piper, Vore**

A detailed examination of the field of toxicology as it relates to agricultural, environmental, forensic, industrial, military, regulatory, and therapeutic problems. Emphasis placed on mechanism of action of toxic substances. Current advances and classical concepts of toxicology are presented.

220. Seminar. (0-1) § F, W, Sp. **Staff**

Seminars to discuss present methods and problems in current teaching and research in pharmacology and toxicology.

250. Research. (1-8) § F, W, Sp. **Staff**

292. Physiological Techniques in Pharmacology. (3) § F, W, or Sp. Prerequisite: Survey course in pharmacology or consent of instructor. Lab 9 hours. **Hondeghem, Katzung**

Principles and applications of physiological techniques used in the study of drugs. Emphasis is on the study of cardiovascular and autonomic agents.

296. Laboratory Techniques in Toxicology. (2) § Sp. Lab 6 hours. **Hodge and Staff**

Principles and application of experimental techniques in the evaluation of the toxicologic hazards of drugs and environmental chemicals: techniques for testing acute and chronic toxicity, skin irritation and sensitization, mutagenesis and carcinogenesis will be covered.

298. Thesis (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

300A-B-C, Practicum in Teaching. (1-3, 1-3, 1-3) F, W, Sp. Prerequisite: Advancement to candidacy for the Ph.D. degree. **Staff**

Opportunity is provided to participate in a formalized way in the teaching of pharmacology under the direction of the faculty.

Pharmacy

114. Introduction to the Analysis of Clinical Data. (3) F. Lecture 2 hours, Lab and Conference 3 hours. **K. Jacoby**

An applied statistics course where basic data analysis techniques and research designs are considered. Topics include: problem design, sample size, choice of estimates, and probability densities, including normal, t, x^2 and F.

115. Biopharmaceutics and Physical Pharmacy. (4) W. Prerequisite: Chemistry 115 and concurrent enrollment in Chemistry 116. Lecture 3 hours, Lab and Conference 3 hours. **Hoener, Hunt, Day, Spencer**

A study of the physical, chemical and biological factors which interest and dominate the design of dosage forms as drug delivery systems. Course includes laboratory preparation of basic drug delivery systems. Conference sections orient the student to non-prescription medications.

116. Biopharmaceutics and Physical Pharmacy. (4) Sp. Prerequisite: Pharmacy 115 and Chemistry 116. Lecture 3 hours, Lab 3 hours. **Hunt, Hoener, Day, Spencer**

Continuation of Pharmacy 115.

127. Prescription Study and Practice. (4) F. Prerequisite: Pharmacy Administration 112. Lecture 2 hours, Lab and Conference 6 hours. **Spencer, Day**

Application of philosophical, ethical, and legal principles to the practice of the profession of pharmacy. Due consideration is given to the dispensing of prescriptions.

128. Pharmacokinetics. (3½) W. Prerequisite: Pharmacy 116. Lecture 3 hours, Conference 1-2 hours. **Øie, Tozer**

Course covers the pharmacokinetic basis of variability in the therapeutic, pharmacologic and toxicologic effects of drugs.

129. Pharmacokinetics. (3½) Sp. Prerequisite: Pharmacy 128. Lecture 3 hours, Conference 1-2 hours. **Tozer, Øie**

Continuation of Pharmacy 128.

133. Biologic Products. (3) Sp. Prerequisite: Third year standing. **K. H. Lee**

A study of food and nutrition for all age groups. Diet therapy is discussed.

151. Community Health Education. (2) Sp. Lecture and Discussion 2 hours; participation in at least 4 community health education programs. **Spencer**

Course is designed to train students for participation in community health programs dealing with drug abuse education and other drug-health related areas, such as poison prevention, venereal disease, and birth control. Course may be repeated for credit.

155. External Drug Products. (4) F. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 6 hours. **Schwartz**

Discussion and laboratory exercises on the formulation of products for external use, including drugs and cosmetics. The course deals with the properties and ingredients of such products.

161. Biologic Products. (2) W. Prerequisite: Third year standing. **K. H. Lee**

A discussion of the pharmaceutical aspects and evaluations of the therapeutic values of biologic preparations in current clinical use, including enzymes, blood and its derivatives, plasma substitutes, hematologic preparations, and biologic products.

164. Veterinary Products. (3) Sp. Prerequisite: Microbiology 125, Pathology 135, Pharmacology 136 and Pharmacy 116. **Spinelli**

Course is designed to familiarize the student with the common ailments of domestic animals and livestock, products used for the prevention and treatment of such diseases, the interrelationship of pharmacist, veterinarian and animal owner, and legal limitations on veterinary dispensing.

165. Pharmaceutical Technology. (3) F. Prerequisite: Pharmacy 116. Lecture, 1 hour, Lab 6 hours. **Gibson, Cooper**

An introduction to the technology of liquid and semisolid pharmaceuticals. Special emphasis is given to the problems encountered and the materials used in pharmaceutical manufacturing.

166. Pharmaceutical Technology. (3) W. Prerequisite: Pharmacy 165. Lecture 1 hour, Lab 6 hours. **Gibson, Cooper and Staff**

An introduction to the technology of solid dosage forms, especially tablets and capsules. Emphasis is placed on problems encountered in preparation of this type of medication.

167. Pharmaceutical Technology. (3) Sp. Prerequisite: Pharmacy 166. Lecture 1 hour, Lab 6 hours. **Gibson, Cooper and Staff**

An advanced study of the relationship of the art and science of pharmaceutical technology to solid dosage forms.

168. Seminar in Clinical Pharmacokinetics. (2) Su, F, W, Sp. Prerequisite: Fourth year standing or consent of instructor. Reports and Conferences 6 hours. Enrollment limited. **Tozer, Riegelman**

Discussion and review of the literature on the clinical application of pharmacokinetic principles in drug therapy.

170. Group Studies Course. (1-4) F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Group studies of selected topics in pharmacy.

170.01. Listening and Talking to Patients. (2) Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 3 hours. **K. Jacoby, Stone**

An introductory course emphasizing patient interviewing. Small group techniques are used to develop and test communication skills. Observation of numerous patient communication and social problems with opportunities to video tape student interactions and interviewing responses.

180. Drugs and Society. (3) W. Prerequisite: Basic course sequence in pharmacology and consent of instructor. Enrollment limited. **M. Silverman**

An analysis of the roles of the drug industry, pharmacy and medical professions, trade associations, governmental agencies, the Congress, consumer groups, and the press in the development, safety, efficacy, quality, advertising, prescribing, and pricing of selected drugs.

196.27. Pediatric Specialty Clerkship at *SFGH.* (8) F, W, Sp. Prerequisite: Clinical Pharmacy 130, 131, 132, and 148 or 149. Consent of instructor. Enrollment limited. **Tong**

Students participate with the pediatric staff and work with problems frequently encountered in general pediatric medicine and those afflicting children of low income, overcrowded and substandard conditions. Activities include rounds, conferences, and participation in special projects.

196.55. Medical Specialties Clerkship at *SFGH.* (8) F, W, Sp. Prerequisite: Clinical Pharmacy 148 and consent of instructor. **Tong**

Students rotate through the Coronary Care, Chronic Dialysis and Communicable Disease Units, where they participate in conferences, work rounds and seminars, monitor drug therapy, provide therapeutic consults and drug information retrieval and analysis.

198. Supervised Study in Pharmacy. (1-5) F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Pharmacy. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

475. Parenteral Products. (3) W. Prerequisite: Third year standing. Lecture 2 hours, Lab 3 hours. **Schwarz, C. Jackson**

Introduction to the formulation and technology of parenteral preparations. Laboratory includes participation in hospital activities in which parenterals are made and administered.

Pharmacy Administration

111. Pharmacy Laws. (2) F. **J. R. Nielsen**

Introduction to court systems and administration boards and their relationship to the health professions. Discussion of basic principles of criminal law, negligence, and business law with particular emphasis on the legal relationship and responsibility of the practitioner to the patient.

112. Pharmacy Laws. (2) W. **J. R. Nielsen**

A detailed examination of Federal and State drug, cosmetic, and narcotic laws; their promulgation, enforcement, and effect upon the practice of pharmacy. Some administrative work.

150. Marketing. (4) W. **Staff**

An analysis of the marketing functions that facilitate the flow of pharmaceutical products from production to consumption and of the decision-making processes of marketing institutions. Emphasis is given to the environmental factors affecting marketing decisions.

154. Community Pharmacy Management. (4) Sp. Prerequisite: Pharmacy Administration 150 and 155. **Staff**

Principles of management, specially directed toward developing familiarity with current problems peculiar to community pharmacy operation. Emphasis is given to elements in locating, organizing, operating, and adapting a pharmacy.

155. Accounting. (3) F. Lecture 1 hour, Discussion 2 hours. **Staff**

Consideration of the fundamental concepts of accounting and its applied uses, with special emphasis on the accounting requirements of the community pharmacy. Problem cases and demonstrations are presented.

170. Group Studies Course. (1-4) F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Group studies of selected topics in pharmacy administration.

180A-B-C. Legal Problems Related to Health Care. (2-2-2) F, W, Sp. Prerequisite: Third year standing. Pharmacy Administration 180A is prerequisite to 180B, and 180B to 180C; but completion of entire sequence is not required. **J. R. Nielsen**

Conducted in cooperation with law students who are teamed with students from professional schools on this campus to investigate assigned problems of their respective disciplines, with particular emphasis upon the legal implications arising therefrom.

198. Supervised Study in Pharmacy Administration. (1-5) F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

Physical Therapy

100A. Anatomy. (4) F. Prerequisite: Anatomy 102 or equivalent. Lecture 2 hours, Lab 6 hours. **Nordschow**

This course is designed to present the foundation of the structure and function of the human body with emphasis in lecture and laboratory on topographical, skeletal, vascular, and neuromuscular aspects. Dissection of the upper limb, neck, and trunk are emphasized.

100B. Anatomy. (2) W. Prerequisite: Physical Therapy 100A. Lecture 1 hour, Lab 3 hours. **Nordschow**

This course is designed to present the foundation of the structure and function of the human body, with emphasis in lecture and laboratory on topographical, skeletal, vascular, and neuromuscular aspects. Review plus dissection of the lower limb is stressed.

101A. Pathology. (3) F. **M. L. Goldberg**

A general summary of the fundamentals of pathology with special emphasis on the correlation between pathological processes and the clinical signs, symptoms, and course of diseases. Gross pathology is demonstrated and autopsy material is available.

102A. Physiology. (3) F. Prerequisite: General human biology or equivalent. **Lukin**

A review of certain aspects of human physiology, with special emphasis on the cardiovascular system and metabolism. Specific aspects of pathological physiology are considered, especially in relation to stroke and heart disease. Applications of physical principles to physiology are discussed.

103A. Neuroanatomy. (2) F. Lecture 1 hour, Lab 3 hours. **Garoutte**

The development of the human nervous system with special reference to structure and functional relationships.

104A. Physical Therapy Procedures I. (6) F. Prerequisite: Introductory physics. Lecture 3 hours, Lab 9 hours. **Ahrens**

Lectures and laboratory practice in electrotherapy, kinesiology, and tests and measurements. Emphasized are therapeutic use of electricity in certain pathologic conditions, analysis of musculoskeletal function in normal and abnormal states, methods of performing, recording and interpreting testing and measuring procedures.

104B. Physical Therapy Procedures II. (6) W. Prerequisite: Physical Therapy 104A. Lecture 3 hours, Lab 9 hours. **Ahrens**

Lectures, demonstrations, and laboratory practice in hydrotherapy, massage, and therapeutic exercise. Emphasized are therapeutic uses of water and massage techniques applied to various pathologic problems and techniques of administration of exercises commonly used in orthopaedic, medical, and neurological conditions.

104C. Physical Therapy Procedures III. (6) Sp. Prerequisite: Physical Therapy 104A and 104B. Lecture 3 hours, Lab 9 hours. **Ahrens**

Lectures and laboratory practice in therapeutic exercise. Emphasized are methods of evaluating the patient and planning his program, use and care of assistive devices in rehabilitation of the handicapped, use and evaluation of changing concepts, and special techniques of exercise.

105B. Physical Medicine and Rehabilitation. (3) W. **Ranallo**

Lectures and clinical demonstrations concerning peripheral vascular problems, geriatric patients, various types of arthritis, muscular dystrophy, spinal cord injury, cerebrovascular accidents, the brain-damaged child, neck pain, and back pain.

106B. Clinical Medicine I. (5) W. **F. Schiller, T. Rodgers**

Lectures and clinical presentations of medical and neurologic patients are designed to increase the student's understanding of the basic interrelationship of structure and function of the various body systems. Conditions requiring physical therapy treatments are fully discussed.

106C. Clinical Medicine II. (5) Sp. Prerequisite: Abnormal psychology or equivalent. **E. Andrews**

Lectures in orthopaedic surgery, pediatrics, psychiatry, surgery, obstetrics, gynecology, geriatrics, and dermatology are presented by physicians in these specialties.

107B. Neuromuscular Physiology. (2) W. **Ralston**

A study of the physiology of striated muscle and peripheral nerve in relationship to controlling mechanisms within the central nervous system. Special emphasis is given to the physiological disturbances which occur in various types of human motor disability

108C. Basic Medical Procedures. (2) Sp. Lecture 1 hour, lab 3 hours. **Nordschow**

The study of procedures necessary for the total care of patients.

109C. Principles of Professional Practice and Administration. (5) Sp. Lecture 2 hours, Lab 9 hours. **Gilbert**

A study of professional attitudes and obligations and the organization and administration of a department of physical therapy. Laboratory work includes observation in outpatient clinics and a clerkship in an approved hospital by special arrangement of the clinical supervisor.

170.02. Survey of Congenital Defects. (2) W. Prerequisite: Gross anatomy course and consent of instructor. **Monie**

This elective course is designed to provide physical therapists with information on the more common human congenital defects. Environmental and genetic factors that produce malformations are considered and possible mechanisms discussed.

410D. Clinical Clerkship. (14) Su. Prerequisite: Completion of all physical therapy courses in curriculum sequence. **Gilbert and Staff**

Clinical clerkships consisting of one-month assignments in three different institutions or agencies. Under supervision, students participate actively in clinical evaluation and care of patients. Clinical clerkship lectures are also included.

Physiology

100. Organ System Physiology. (6) § W. Prerequisite: Anatomy 100 and 102, and concurrent enrollment in Biochemistry 100A-B; or consent of instructor. Lecture 4 hours, Conference 2 hours, Lab 4 hours. **Kellogg and Staff**

Normal function of the cardiovascular, respiratory, renal, and gastrointestinal systems and the metabolic functions of the body as a whole are studied in lectures, conferences, laboratory exercises, demonstrations, and clinical illustrations.

101. Endocrinology. (4) § Sp. Prerequisite: Anatomy 100 and Biochemistry 100A-B, or consent of instructor. Lecture 3 hours, Lab 3 hours. **Ganong**

The structure and function of the endocrine glands and selected aspects of endocrine pharmacology and pathology are studied in lectures, demonstrations, and clinical conferences.

110. Integrative and Nutritive Systems. (6) § Sp. Prerequisite: College-level biology, physics, and chemistry, or consent of instructor. Lecture 5 hours, Conference 3 hours. **Rothman and Staff**

Introduction to organ systems with emphasis on nervous, endocrine, circulatory, respiratory, and alimentary function in vertebrates. Importance of organ systems for the success of multicellular forms serves as focus. Fundamental cell processes are also discussed, emphasizing differentiated function.

120. Mammalian Physiology. (3) § W. Prerequisite: Physiology 125 required for students in School of Pharmacy; may be taken separately by graduate students with consent of instructor. **Mines**

Study of the integrative systems of the mammalian organism, particularly the nervous and endocrine systems.

125. Mammalian Physiology. (7) § F. Lecture 5 hours, Conference 2 hours, Lab 4 hours. **Mines**

Introduction to mechanisms by which mammals, especially man, function. The interaction of internal and external environments and their relationship to the functions of cells and muscular, circulatory, respiratory, gastrointestinal, and excretory systems.

150.01. Research in Physiology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Individual research in endocrinology, respiratory physiology, neurophysiology, cardiovascular physiology, cell physiology, or other areas offered by individual staff members.

150.02. Research in Endocrinology. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

Research in endocrinology carried out in the Department of Physiology.

170.02. Electronic Instrumentation. (3) § F. Prerequisite: College physics. **Winston**

Basic information on electricity and electronics. Circuitry and operating principles of a wide range of electronic instruments used in physiological and biochemical investigations.

198. Supervised Study in Physiology. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Physiology. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

200. Tutorial in Physiology. (0) § F, W, Sp. Prerequisite: Consent of Instructor. **Ganong and Staff**

Directed reading organized in seminar or tutorial fashion to review aspects of physiology under supervision of a member of the faculty.

201. Physiology of Vision. (2) § W. Prerequisite: Anatomy 103 or Physiology 110 or equivalent, or consent of instructor. **K. Brown**

Study of mechanisms underlying vision. Consideration is given to chemistry and anatomy of the visual system, but the emphasis is on neurophysiology, with coverage of the visual system from the photoreceptors to the visual cortex.

203. Cardiopulmonary Research Seminar. (1) § F, W, Sp. Prerequisite: Consent of instructor. Lecture 1½ hours. **Coleridge, Comroe**

Seminars on cardiovascular and pulmonary systems. Sessions on experimental methods and ways of solving cardiopulmonary problems. Work presented is discussed and evaluated by the faculty and fellows. Students present a critical evaluation of one of the seminars.

204. Seminar: Topics in Physiology. (1) § W. Prerequisite: A minimum of six units of introductory physiology. **Rothman**

This seminar discusses selected topics in cellular and integrative physiology. Readings are drawn from primary and secondary sources.

205. Functional Neuroanatomy Projects. (4) § Sp. Prerequisite: Consent of instructor. Lecture 3 hours, Lab 3 hours. **Heuser**

Each year a different neuroanatomical project is undertaken in order for students to learn a variety of techniques used in electron microscopy, including freeze-fracture. Students will be able to prepare a three hour seminar on a basic aspect of electron microscopic neuroanatomy.

207. Neuroendocrinology. (1-3) § Sp. Prerequisite: Endocrinology and neural sciences or consent of instructor. **M. Dallman**

Mechanisms for regulation of endocrine function by the central nervous system and the influence of hormones on the nervous system are considered in view of anatomical, biochemical, physiological and behavioral data in the literature. Course may be repeated for credit.

209. Physiology of the Auditory, Vestibular, and Other Sensory Systems. (2) § Sp. Prerequisite: Anatomy 103 or equivalent. **Merzenich**

Lectures and demonstrations provide basic information the physiology of the auditory system, vestibular system, chemical senses, and somatosensory system. Material includes historical and current concepts derived from relevant psychophysics, neuroanatomy, and neurophysiology.

210. Cellular Mechanisms of Hormone Secretion. (2) § Sp. Prerequisite: Physiology 101 or consent of instructor. **J. A. Williams**

Discussion of current literature pertaining to the mechanism of hormone synthesis, packaging, and release.

220. Seminar. (1) § F, W, Sp. Prerequisite: Consent of instructor. **Ganong**

Seminar presentations by guest speakers, alternating with discussion by physiology staff members of their current research. Each quarter a different topic of physiological interest is the subject of guest presentations. Course may be repeated for credit.

221. Advanced Cardiovascular, Renal, and Pulmonary Physiology. (2) § F, W, Sp. Prerequisite: Physiology 100 or equivalent. **Coleridge and Staff**

This course includes critical reviews of topics of current importance, presentation of unsolved problems by staff, and critical evaluation of published articles by the group, the total program is presented over six successive quarters.

222. Endocrinology Seminar. (1) § F, W. **Ganong**

Guest lectures alternating with reports of research in progress by members of the campus graduate group in endocrinology. A different topic of endocrinological interest is the subject of guest presentations each quarter. Course may be repeated for credit.

250. Research. (1-8) § F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

251. Research in Endocrinology. (1-8) § F, W, Sp. Prerequisite: Consent of instructor. **Ganong and Staff**

Research in endocrinology carried out in the Department of Physiology.

298. Thesis. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Ganong**

For graduate students engaged in writing the thesis for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Ganong and Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

300. Practicum in Teaching Physiology. (0) § F, W, Sp. Prerequisite: Previous training in physiology and consent of instructor. **Ganong and Staff**

Practice in teaching physiology under faculty supervision. Students supervise laboratory work, conduct conferences, deliver lectures, and assist in preparing and grading examinations. Responsibilities are assigned according to the individual's stage of development.

301. Scientific Writing. (0) § F, Sp. Prerequisite: Consent of instructor. Lecture 3 hours. **Comroe**

A seminar workshop designed to show the pre or postdoctoral fellow how to best put into words, tables and figures work done in the laboratory, and how to do so in a concise, precise, and logical form.

302. Group Practice in the Art of Lecturing. (0) § Sp. Prerequisite: Consent of instructor. Lecture 1½ hours. Enrollment limited. **Staub, Comroe**

A course in teaching techniques. Students present short lectures, and video tapes of these presentations are analyzed by self- and group-criticism.

Preventive Dentistry and Community Health

111. Changing Aspects of Dental Practice. (1) F. **Wycoff**

A survey course to acquaint the student with current social and professional problems in dentistry. Includes identifying the patient community, national and professional needs, and how they are met.

120. Behavioral Sciences. (1) W. **S. Gold**

This course is an introduction to the basic concepts, theories and findings of the social sciences. The application of these concepts and modes of reasoning to pressing social problems and the delivery of health services is the dominant theme.

121. Research Design. (1) F. **Wycoff**

A course which presents basic principles of biostatistics. Introduces the concept of experimental reliability, fundamental principles of sampling techniques, selection of data, and variability. The student plans, develops, and writes a research protocol.

138. Community Health Problems and Practice. (0-1) W, Sp. Clinic-Seminar rotation, 30 hours. **J. Fine**

Dental students work in community clinics which serve deprived areas. Both seminars and supervised clinical experience will be designed to provide the student with the opportunity to relate economic, social, and cultural theory to the people they will be treating.

168. Community Health Methods. (2) F. **Silverstein and Staff**

Dental hygiene students work in the North Oakland community with the Children and Youth Project staff. Students are assigned to area schools where oral screening is done. Students also make home visits.

180.01. Practice Management of Doctor and Patient Relationships. (1) F, Sp. **S. Gold**

Participatory seminars utilizing role playing, open discussions, and exercises to study interpersonal relationships in dentistry. Topics covered include active listening, effective ways of communicating, and creative conflict-solving.

188.01. Community Health Methods. (0-9) F, W, Sp. Seminars and Clinic Variable. **Tardif**

Students work in the Guadalupe Health Center, providing dental care in a community setting of comprehensive health care.

188.02. Community Health Methods. (0-9) F, W, Sp. Seminar and Clinic Variable. **Darke**

Students work at the South of Market Health Center, providing dental care in a community setting of comprehensive health care.

199. Laboratory Project in Preventive Dentistry and Community Health. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Wycoff, Silverstein**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

Psychiatry

110. Core Clerkship in Psychiatry. (1½ per week) Su, F, W, Sp. Prerequisite: Psychiatry 130 and 131A-B and Medicine 131A-B-C. **Boatman**

Four-week assignment to an outpatient or inpatient psychiatric service. Students, under supervision, are responsible for patient evaluation, participate in treatment planning and implementation, attend seminars related to clinical work, and make field visits to other types of psychiatric facilities.

130. Basic Clerkship—Communication Skills. (2) F, W. Lecture 1 hour, Seminar 1½ hours, Independent study 2 hours. **C. Brodsky**

Course provides students examples of different interviewing techniques and history taking procedures as utilized with patients of different ages, illnesses, and sociocultural backgrounds. Students interview patients directly, and through the medium of video tapes engage in supervisory and self-evaluative sessions.

131A-B. Introduction to Clinical Psychiatry. (2-2) W, Sp. Lecture 1 hour, Seminar 2-3 hours. **I. Glick and Staff**

Introduction to psychiatry as a clinical discipline. Basic behavioral science data is presented. Focus is on interviewing techniques, normal psychological development, description and treatment of psychopathological syndromes, and discussion of the interface between psychiatry and medicine. Videotaped lectures, patient interview, small group seminars.

140.01. Clinical Psychiatry. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Boatman**

Participation under close supervision in keeping with students' level of experience and special interests, in clinical psychiatric treatment of adult or child inpatients or outpatients.

140.02. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Boatman**

Clinical clerkship in off-campus hospitals, appproved by the chairman of the department and the Dean.

140.03. Clerkship in Sex Counseling. (6) Su, F, W, Sp. Prerequisite: Psychiatry 160.15 and 180, or consent of instructor. **Vandervoort**

Emphasis is on the development of skills in evaluating the differential need and treatment requirements of patients presented with complaints of sexual dysfunction. Instruction given in methods of counseling common problems.

150.01. Psychiatric Research. (1½ per week) Su, F, W, Sp. Prerequisite: Consent of instructor. **Callaway**

Participation according to students' level of experience in experimental work in such areas as neurophysiology, operant conditioning, psychophysiology, immunochemistry, and nonlexical communication. All work is under the close supervision of members of the faculty.

150.02. Block Elective in Human Development. (1½ per week) Su, F, W, Sp. **Lowenthal and Staff**

Guided reading and research in human development. Work may focus on culture and personality studies; social psychology of human development; socialization including the role of values; adaptive processes across the adult life course. Refer to Human Development and Aging courses.

160.01. Psychopathology of Speech and Language. (2) F, W, Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 3 hours. **Ostwald**

A clinical course focusing on speech and language pathology. Students' eligibility depends on previous experience with psychiatric patients and interest in specific problems of communication. Patients with characteristic syndromes will be interviewed and suitable treatment procedures performed under supervision.

160.02. Cinical Psychiatric Rounds. (2) F, W, Sp. Prerequisite: Consent of instructor. **Berblinger**

Psychiatric inpatients are interviewed and their characteristics and case histories used as the basis for discussions of psychiatric diagnosis. A seminar format allows for free discussion between students and instructors.

160.03. Demonstration of Psychotherapy with Outpatients. (2) Su, F, W, Sp. Prerequisite: Psychiatry 131 A-B or consent of instructor. **Berblinger**

Students observe psychotherapeutic sessions with outpatients who are under intensive treatment. The observation session is followed by a seminar discusson. The purpose of the course is audio-visual participation in and viewing of models of intensive psychiatric treatment.

160.04. Personality Assessment in Clinical Psychiatry: Theory and Practice. (1) W. Prerequisite: Psychiatry 130. **C. Brodsky**

Tutorial participation with a senior psychiatrist in studies of outpatients in the

Adult Psychiatry Clinic. Participation in weekly group sessions is designed to increase awareness of interpersonal dynamics. Directed reading, seminar discussions, and demonstrations.

160.05. Clinical Problems. (1) W. **C. Brodsky**

Tutorial with a senior psychiatrist in studies of outpatients in the Ambulatory Psychiatric Service. Participation in weekly group sessions is designed to increase awareness of interpersonal dynamics. Directed reading, seminar discussions and demonstrations are included.

160.06 Introduction to Interviewing and Evaluation. (½) F, W, Sp. Prerequisite: Psychiatry 130. Seminar 1½ hours. Enrollment limited. **C. Brodsky**

Opportunity to observe and audit diagnostic and psychiatric interviews conducted between a member of the faculty and one patient. Discussions follow the interviews.

160.07. Psychotherapy for Outpatients. (3-7) F, W, Sp. Prerequisite: Psychiatry 130 and consent of instructor. Lecture 3 hours, Lab 0-12 hours. **C. Brodsky**

Practical experience in psychotherapeutic work with outpatients to increase students' understanding of psychopathology, psychodynamics, and psychotherapeutics. Students are assigned patients under supervision of a member of the faculty. Assigned reading, seminars, and chart writing.

160.08. Psychosomatic Case Conference. (1½) F, W, Sp. Prerequisite: Consent of instructor. **Murphey**

Cases are presented in rotation by social work students. Emphasis is placed on the interrelationship between psychological, social, and somatic factors. Although primarily intended for social work students, course may be taken by psychiatric residents and other mental health professionals.

160.09. Advanced Psychotherapy. (2-4) Su, F, W, Sp. Prerequisite: One year of full time experience in the conduct of out-patient psychotherapy or equivalent. Lecture 2 hours. Lab 4-10 hours. **M. Horowitz**

The course covers psychotherapy of selected cases with recordings of the process, supervision during the treatment, and group seminars in which the therapy is reviewed in retrospect using microanalytic and macroanalytic levels of abstraction.

160.10. Clinical Sociology of Medicine. (2½) F, W, Sp. **Lennard, L. J. Epstein**

Medical practice is concerned with patients who suffer from chronic diseases; such patients face the problem of living with disability. Their diseases require profound changes in their lives. This course focuses on the personal and social experience of chronic patients.

160.11. Psychotherapeutic Interview Techniques. (4-5) F, W, Sp. **Ostwald**

Individual and group supervision of clinical work with patients. The focus is on developing rapport, obtaining relevant information, and establishing a satisfactory therapist-patient relationship. Supplementary reading assignments may be assigned.

160.12. Clinical Conferences of the Child and Adolescent Service. (1½) Su, F, W, Sp. **I. Philips and Staff**

Members of the faculty and visiting professionals present clinical discussions and new developments related to the field of child and adolescent psychiatry.

160.13. Hysteria. (2) F, W, Sp. Prerequisite: Consent of instructor. **Berblinger**

Seminar course designed for students who intend to enter primary care and nonpsychiatric specialties. Emphasis is on the diagnosis and management of the hysterical personality in medical practice. Clinical case material will serve as a basis for assigned reading.

160.14. Health Aspects of Human Sexuality. (2) Su, F, W, Sp. **Vandervoort**

A consideration of human sexuality as an integral part of health. Emphasis is on accurate information regarding the range of human sexual behavior, and the typical sexual concerns of patients. Equivalent of Psychiatry 180.

160.15. Introduction to Sex Counseling Principles. (4) Su, F, W, Sp. Prerequisite: Psychiatry 160.14 or 180. Consent of instructor. **Vandervoort, J. Mann**

A didactic experimental overview of the etiology and nosology of functional sexual problems and of the principles underlying treatment. Lectures, clinical demonstrations, and group process are included.

160.16A. Practicum in Sex Counseling. (8) Su, W. Prerequisite: Psychiatry 160.14 and 160.15, or 180, or consent of instructor. Psychiatry 160.16A must be taken in order and consecutively with 160.16B. **Vandervoort**

Six-month rotation in the Sex Counseling Unit involving presentations, case conferences, and supervised counseling experience with couples and individuals presenting sexual dysfunctions.

160.16B. Practicum in Sex Counseling. (8) F, Sp. Prerequisite: Psychiatry 160.14 and 160.15, or 180, or consent of instructor. Psychiatry 160.16B must be taken in order and consecutively with 160.16A. **Vandervoort**

Six-month rotation in the Sex Counseling Unit involving presentations, case conferences, and supervised counseling experience with couples and individuals presenting sexual dysfunctions.

160.17. Sexuality and Disability. (1) Su, F, W, Sp. Prerequisite: Psychiatry 160.14 or 180, or consent of instructor. **Vandervoort**

Course covers the role of sexuality in rehabilitation of physically and mentally handicapped, and principles of sexual counseling of the handicapped. Lectures, films, seminar, and community resource people involved.

160.18. Videotape Demonstration of Psychotherapy. (1) F, W, Sp. Prerequisite: Consent of instructor. **Nelken**

Videotapes of psychotherapy are shown after each therapy session. Therapist is eclectic and emphasis is on essentials of psychotherapy and the overlapping of various theoretical views. Discussion is encouraged, and ranges widely.

170.01. Introduction to the Study of Suicide. (2) F. Prerequisite: Consent of instructor. **Motto**

Suicide is surveyed from a multidisciplinary approach in seminars led by persons working in the field.

170.02. Basic Science Aspects of Psychiatry. (2) F, W, Sp. Prerequisite: Consent of instructor. **Feinberg**

This elective seminar explores in depth psychophysiological studies of mental disorders. Students have an opportunity to learn laboratory techniques as well as theoretical issues in EEG, sleep research and biofeedback.

170.03. Behavioral Specialist Pathway Elective. (2-6) F, W, Sp. Prerequisite: Psychiatry 110. **Ostwald**

Students in the Behavioral Specialist Pathway elect individual or group study of a topic not included in other formal courses. Supervised reading, research, field-work, and clinical assignments are given in accordance to the student's level of interest and experience.

170.04. Pediatric Psychiatry. (1) F. Prerequisite: Consent of instructor. **Bradman**

Seminar sketches normal development from infancy through adolescence, to point out potential psychopathogenesis in the various phases of development.

170.05. Psychology of Consciousness. (1) Sp. **Ornstein**

Course considers the new interest in consciousness in psychiatry and psychology and the relationship of mental and physical events. The objective study of hypnosis, sleep and dreams, and rational and intuitive modes of thought are included.

170.06. Research in Human Sexuality. (2) Su, F, W, Sp. Prerequisite: Psychiatry 160.14 or 180, and consent of instructor. Lecture 1 hour, Lab 3 hours. **D. Wallace**

Collaboration or directed research in various topics related to human sexuality.

170.07. Mental Health Aspects of Social, Physical, and Sensory Deprivation. (2) § W. Prerequisite: Consent of instructor. **Schlesinger, Meadow**

Compares and contrasts influences of cultural, physical, social, and sensory deprivation on cognitive and emotional development. Emphasis on social stigma and family response to handicapped child; nature of problems and treatment of handicapped groups, development and utilization of community resources.

170.12. Psychodynamics of Cognition and Emotion. (1½) Sp. **M. Horowitz**

An introduction to psychodynamics which will focus on cognitive schemata of self and others and the cognitive processes involved in conscious experience, psychological defenses, and unconscious process.

170.16. Studies in Self-Destructive Behavior. (1) F, W, Sp. Prerequisite: Psychiatry 170.01 and consent of instructor. **Motto**

Continuation of the study of mortality and morbidity resulting from self-destructive behavior. Subjects to be covered and the method of study are determined by the interests of the students.

180. Human Sexuality and Medical Practice. (2) Sp. **Vandervoort**

Social, behavioral, and clinical aspects of human sexuality are covered in a series of lectures and seminar periods. Lectures present didactic material and seminars focus on clinical and ethical problems related to sex and medical practice.

181. The Black Experience. (2) Sp. Prerequisite: Consent of instructor. **Cobbs**

Seminar discussions concerning the varieties of interpersonal experiences of black people which are relevant to understanding their personality development. This is of im-

portance in the initiation and maintenance of an effective doctor-patient relationship in any medical specialty.

182. Transcultural Psychiatry. (1) F, Sp. Prerequisite: Consent of instructor. **Hartog**

A series of seminars discussing transcultural psychiatry from entering the alien community and epidemiology to folk healing. The relevance to American urban and ethnic issues are emphasized. Examples, problems, methodology, and possibilities for research are also presented.

183. Emotional Expression. (2-3) § W. Prerequisite: Consent of instructor. Psychiatry 183 is equivalent to Psychology 183. Lecture 2 hours, Lab 0-3 hours. **Ekman**

Videotape is used to aid health professionals to become more aware of the nature of emotional experience, signs of emotional expression in patients' faces, and what their own facial expression may reveal to patients.

184. The Social Organization of the Hospital. (1) F, W, Sp. Open to registered students for credit. Other members of the campus community may audit course. Seminar 3 hours. **Gerson**

Analysis of work organization in large hospitals, with special emphasis on structural impediments to effective performance; conduct of the relationships among health workers and patients, and impact of hospital organization on the health worker and patient quality of life.

198. Supervised Study in Psychiatry. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **L. J. Epstein and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Psychiatry. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **L. J. Epstein and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

211. Theoretical Bases of Psychotherapeutic Inquiry. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **L. J. Epstein, Weinshel**

Directed reading and small group seminars regarding models of understanding and psychotherapeutic intervention in emotional disturbance.

212. Mental Health Consultation. (1-2) § F, W, Sp. Prerequisite: Consent of instructor. **M. R. Harris**

Course will focus on history, classification, concepts and theory as well as practice considerations relating to mental health consultation. In addition to seminar participation, students may, where appropriate, arrange a supervised field experience in mental health consultation.

213. Advanced Mental Health Consultation. (1-3) § F, W, Sp. Prerequisite: Psychiatry 212 and consent of instructor. **M. R. Harris**

Participants in this seminar have current or recent responsibility for a mental health consultation. Focus is on the theory and practice technique of mental health consultation. Consultation experiences provide the major content for discussion.

400. Psychiatric Grand Rounds. (1½) F, W, Sp. **R. S. Wallerstein**

Members of the Department of Psychiatry make clinically centered presentations reflecting all areas of the department's work. Each topic involves a two-session sequence, with the second week consisting of formal discussion of the previously presented work from various viewpoints.

402. Orientation to Psychiatric Research. (¾) Su. *LPNI* **Callaway**

Guided tours through the research facilities of Langley Porter Neuropsychiatric Institute and introductory presentations of research projects by individual investigators.

403. Therapeutic Process. (1½) Su, F, W, Sp. **Ostwald**

Individual consultation with psychiatric residents and other advanced trainees concerning treatment and management problems. Diagnostic questions, indications for somatic and psychological interventions, the course of therapy, and research issues are emphasized.

404. Theories of Personality. (1) F, W. *LPNI* **J. Fisher, Burke**

Focus is on personality theories other than Freudian, e.g., Piaget, Skinner, Rogers, existential psychology. Course includes an examination, study and discussion of contemporary personality theories, their concepts, systematic application to the behavioral sciences, and research potentials. Parallel reading is required.

405. Personality Assessment. (1) W, Sp. *LPNI* **J. Fisher, L. Davison**

Seminar presents techniques of assessing personality and intellectual functions in relation to psychodiagnostic evaluations and study of prognosis with psychotherapy. Discussion of development, design, and theory of clinical psychological methods and clinical applications and demonstrations with appropriate case material.

406. Supervised Teaching of Medical Students. (1-2) Su, F, W, Sp. **Ostwald**

Individual and group instruction is given for psychiatric residents working with medical students in Psychiatry 110. Technical and theoretical issues in supervision and learning are analyzed, together with selected reading assignments.

407. Research in Behavioral Sciences. (1-10) Su, F, W, Sp. *LPNI* **Callaway**

Course consists of supervised clinical and basic research in behavioral abnormalities, psychopathology, and experimental psychiatry. Specific subjects for research are chosen in conjunction with members of the staff.

409. Neuropathology. (4) Su, F, W, Sp. Elective. *LPNI* **Malamud**

Discussion of the neuropathology of neurological and psychiatric disorders with illustrations from gross and microscopic material.

410. Review of Social Psychiatry. (1) Su, F, W, Sp. *LPNI* **Ruesch**

Brief review of the various fields of contemporary behavioral science and their relevance for the health sciences and psychiatry.

412. Jungian Psychoanalytic Theory. (1) F, W, Sp. **Brookes**

On-going review of major principles of Jung's analytical psychology with special reference to their application to practice of psychotherapy. Designed to elaborate dynamics of psychotherapeutic process by utilizing psychotherapists from widely differing theoretical backgrounds in simultaneous dialogue around clinical material.

413. Introduction to the Computer. (2-3) F, W, Sp. **Starkweather**

Seminar presents a review of digital computing and its applications in psychiatry. Residents explore these concepts through their own programming efforts.

415. Literature In Child Psychiatry. (1) Su, F, W, Sp. *LPNI* **Binger**

Survey of the literature in child development and child psychiatry. Parallel reading is required.

416. Colloquium. (1) Su, F, W, Sp. Elective. *LPNI* **Callaway**

Discussion of readings on major problems in contemporary psychiatric research. Advance registration is required.

418. Research in Computer Simulation and Analysis of Behavior. (1-10) F, W, Sp. **Starkweather**

Supervised research with computer methods for the simulation of behavior in clinical interactions. Applications of computers to the analysis of human communication.

419. Child Development and Personality. (½) Su. Prerequisite: Consent of instructor. *LPNI* **F. Conrad, D. Morrison**

Seminar is focused on the most common and prevalently used methods of assessing intelligence, perceptual-motor integration and personality in children. Actual testing materials as well as supporting research are covered. Participation is required.

424. Research on Human Response to Stress. (4) Su, F, W, Sp. Prerequisite: Graduate or advanced resident standing. One year of advanced psychological or psychiatric work. **M. Horowitz**

Guided research using experimental, field, and clinical modes of investigation into the typical and ideosyncratic human responses to external stressors. The focus is on conscious and unconscious ideational, emotional, and defensive processes.

425. Mental Health Consultation. (1-2) F, W, Sp. Prerequisite: Consent of instructor. **M. R. Harris**

Course will focus on history, classification, concepts and theory as well as practice considerations relating to mental health consultation. In addition to seminar participation, students may, where appropriate, arrange a supervised field experience in mental health consultation.

426. Advanced Mental Health Consultation. (1-3) F, W, Sp. Prerequisite: Psychiatry 425. **M. R. Harris**

Participants in this seminar have current or recent responsibility for a mental health consultation. Focus is on the theory and practice technique of mental health consultation. Consultation experiences provide the major content for discussion.

450. Clinical Psychiatry. (1½) Su, F, W, Sp. Required for residents at *LPNI, SFGH,* and *UC.* Elective for all others. **L. J. Epstein, Motto, C. Brodsky**

Residents are responsible for the study and treatment of psychiatric patients and consultation of non-psychiatric patients under the supervision of senior staff members of the faculty. Parallel reading is required.

451. Advanced Psychiatry. (1½ per week) Su, F, W, Sp. Prerequisite: Chief residents. **M. R. Harris, L. J. Epstein**

Program planning and consultation concerning administrative, teaching and research roles of chief residents.

452. Child Psychiatry. (1½ per week) Su, F, W, Sp. Required for residents in their second year of child psychiatry. *LPNI* **I. Philips**

Residents in child psychiatry are responsible for the diagnosis and treatment of children with psychiatric problems and for therapeutic work with their parents under the supervision of the senior staff.

453. Advanced Child Psychiatry. (1½ per week) Su, F, W, Sp. Prerequisite: Psychiatry 452. Required for residents in their second year of child psychiatry. *LPNI* **I. Philips**

In addition to clinical work, the residents in child psychiatry are required to supervise the work of others and to preside over treatment reviews and interagency conferences.

454. Clinical Research. (1-10) Su, F, W, Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 0-27. *LPNI* **Ruesch**

Case presentations of hospitalized and ambulatory patients. The selection of patients, the particular treatment program, and the follow-up may be part of a previously planned research design.

456. Community Mental Health. (3) Su, F, W, Sp. Prerequisite: Open to third-, fourth-, and fifth-year residents. **D. Brown**

Lectures in the theory and practice of mental health consultation, program evaluation and administration, and preventive services. Supervision of related field experiences by senior faculty in seminar setting. Interdisciplinary interaction emphasized. Review of relevant literature.

463. Basic Psychiatry I. (1) F, W, Sp. **M. Horowitz**

Introduction to the basic psychiatric syndromes; required for first year psychiatric residents.

464. Basic Psychiatry II. (1) F, W, Sp. Prerequisite: Psychiatry 463. **I. Glick, Braff**

Introduction to the theory and practice of family, group, and behavior therapy; required for second year psychiatric residents.

465. Basic Psychoanalytic Concepts. (1) F, W, Sp. *LPNI* **Amini**

Seminar offers instruction in the theoretical bases of psychoanalysis.

466. Psychoanalytic Psychotherapy. (1) F, W, Sp. Prerequisite: Psychiatry 465. **Amini**

Seminar offers instruction in the technique of psychoanalytic psychotherapy and its theoretical basis.

468. Interdisciplinary Seminar in Human Development. (3). F, W, Sp. Prerequisite: Consent of instructor. Three-quarter course. **Lowenthal and Staff**

Theory and research covering adolescence to old age from sociological, psychological, psychoanalytical, and anthropological perspectives. Topics include stress, personality and cognitive change, time perspective values, socialization processes and adaptation. Reading and paper required.

469. Speech, Hearing, and Psychiatry. (1) Su, F, W, Sp. Prerequisite: Consent of instructor. **Ostwald**

Diagnosis and treatment of psychiatric problems associated with speech, hearing, or language difficulty. Supervised clinical work with selected patients according to resident's level of experience. Instruction with such alternative audiovisual communication systems as manual signing and voice printing.

472. Problems in Psychotherapy. (1½) W, Sp. **R. S. Wallerstein**

Problems in psychotherapy conducted within a psychodynamic framework. Topics include: treatment indications, goals, motivation and treatability, resistance and defense, transference and countertransference, dreams in psychotherapy, third party involvements, emergency and hospitalization, adjuvant drug management, note taking and recording, transfer and termination.

474. Videotape Demonstration of Psychotherapy. (2) F, W, Sp. **Nelken**

Instructor's psychotherapeutic sessions with the patient are videotaped and immediately played back and discussed with second and third year residents. The material is objective and repeatable; the therapist is frank and self-critical; various theoretical views are taken.

Psychology

113A-B. Human Growth and Behavior. (3) F, W. Prerequisite: First year standing or consent of instructor. **Schaw**

Examination of patterns and sequences of human development. Exploration of human behavior and maturation with a view to the influences affecting the human condition through the life span. Various theoretical bases are explored in conjunction with biological and psychosocial concepts.

170. Patient Compliance. (2) § F, W. **G. Stone**

Patients' cooperation with health regimens contributes significantly to outcomes of health care. This course reviews factors that affect degree of compliance achieved and examines results of attempts to improve compliance. Stress is placed on tailoring methods to specific clinical circumstances.

180. Psychosocial Aspects of Terminal Patient Care. (2) § F. **Garfield**

Course examines approaches to understanding the psychosocial issues in terminal illness. Focus is on the sequence of events encountered by the professional and patient from diagnosis through death.

180.01. Seminar in Psychology. (1) W. Seminar 1 hour. **Plainfield**

Weekly discussions in which students' clinical cases are analyzed by dynamic application of behavioral theory.

180.02. Psychological Aspects of Treatment Planning. (1) Sp. **Plainfield**

This course integrates students' basic training from the specialty courses in dentistry with knowledge of the psychological considerations necessary to individualize treatment. Appropriate treatment may then be planned to the practitioners' awareness of the unique needs of patients.

180.03. Advanced Psychology for Dental Hygienists. (1) Sp. Seminar 1 hour. **Plainfield**

Seminar discussions on the emotional aspects of interpersonal transactions among office personnel, therapists, and patients.

183. Emotional Expression. (2-3) § W. Prerequisite: Consent of instructor. Psychology 183 is equivalent to Psychiatry 183. Lecture 2 hours, Lab 0-3 hours. **Ekman**

Videotape is used to aid health professionals to become more aware of the nature of emotional experience, signs of emotional expression in patients' faces, and what their own facial expression may reveal to patients.

185. Nonverbal Communication. (1) § F. **Ekman**

Reading messages from the face and body; what patients reveal without words about their feelings and personality, and what you are revealing to them.

198. Supervised Study in Psychology. (1-5) § F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

201A-B-C. Seminar in Clinical Psychology. (2-2-2) § Yr. Prerequisite: Consent of instructor. **Steinhelber and Staff**

Seminar discussions of clinical work in clinical psychology and psychiatry, reports of research and current literature by students and staff, and lectures by faculty. Generally limited to advanced clinical psychology students.

202. Basic Physiological Psychology. (2-3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 0-3 hours. **Peeke**

Designed for the student with minimal preparation in physiology, anatomy, or physiological psychology. This course emphasizes the role of brain processes in emotion, motivation, attention, learning, and species-typical behavior patterns.

204A. Introduction to the Computer. (3) § F. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 6 hours. **Starkweather**

The computer is described as a useful tool for analysis and controlled experiment. Students learn to read and write programs of moderate difficulty.

204B-C. Computer Simulation of Personality and Human Interaction. (3-3) § W, Sp. Prerequisite: Psychology 204A or equivalent and consent of instructor. Lecture 1 hour, Lab 6 hours. **Starkweather**

The development and testing of theoretical models of personality explored by means of computer programs. The use of computers for simulation and symbol manipulation.

205. Advanced Seminar on Decision Theory. (2-4) § Sp. Seminar 2 hours, Lab 0-6 hours. **Claus**

Lectures and laboratory studies on psychological aspects of decision-making. Describes the concepts of mathematical and Bayesian models, objective and subjective probability, utility, game theory, decision structure, and levels of decisions. Applicability to health care systems is stressed.

207. Techniques of Behavior Change. (2) § F. Prerequisite: Consent of instructor. **G. Stone**

Consideration of situational and interactional approaches to changing human behavior and of the change agent's role. Conditioning, behavior modification, cognitive restructuring, group process, and other models are compared. Therapeutic educational, organizational, and social settings are examined.

208A-B. Psychology of Thinking and Information Processing. (3-3) § W, Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. Not offered 1976-1977. **G. Stone**

Major approaches to the fields of human perception and cognition, viewed as processes by which humans obtain and use information. Emphasis will be placed on individual differences. Students will prepare and participate in demonstration experiments.

209A-B. Uses of the Computer in Psychology. (2-2) § W, Sp. Prerequisite: Psychology 204A or equivalent and consent of instructor. **Starkweather**

Seminar presents a review of digital computing and its applications in psychology. Students explore these concepts through their own programming efforts.

210A-B-C. Interdisciplinary Seminar. (2-2-2) § Yr. Prerequisite: Consent of instructor. **Callaway, Peeke**

Visiting scientists present current research in anatomy, biochemistry, pharmacology, physiology, and psychology which contributes to the understanding of the neurobiological basis of human behavior. Students prepare for each visiting lecturer by reading and discussing pertinent publications.

213A-B-C. Seminar on Communication Through Nonverbal Behavior. (3-3-3) § Yr. Prerequisite: Consent of instructor. **Ekman**

Research and theories on facial expression and body movement in relationship to emotion, personality, social interaction, and culture.

214A-B-C. Psychophysiology. (2-2-2) § Yr. Prerequisite: Consent of instructor. **Kamiya**

Psychophysiology: analysis of the relationships between physiological and behavioral processes, primarily in humans. Special consideration is given the physiological aspects of feelings and emotions and their modifiability.

215. Theories of Personality (2) § F, W, or Sp. Prerequisite: Consent of instructor. **J. Fisher, Attkisson**

Survey of major theories of personality, structure, development of personality and research in personality.

217. Major Variants of Behavior: Abnormal Psychology. (2) § F, W, or Sp. Prerequisite: Consent of instructor. **J. Fisher**

Nature, development, and treatment of major behavior disorders (brain syndromes, functional psychoses, drug addiction) which result in disabling disturbance of interpersonal relations. Contemporary theories of personality development and clinical study of the major disorders.

219. Tests and Measurement. (2) § W. Prerequisite: Consent of instructor. **O'Sullivan**

Psychological test construction, including item analysis, standardization, reliability, and validity.

220. Seminar in Growth and Behavior. (4) § W. Prerequisite: Consent of instructor. **Schaw**

An interdisciplinary working seminar to cover the relevant literature from infancy to old age with a theoretical focus on psychoanalytic ego psychology in the light of related fields such as anthropology, sociology, history, physiology, and genetics.

223. The Special Biography. (2-3) § Sp. Prerequisite: Consent of instructor. **Schaw**

Seminar in historical change as seen in the lives of charismatic leaders. Lives of Gandhi, Luther, Malcolm X, Newton, Bolivar and Freud are examined. Students are expected to present short studies.

224. Clinical Inference and Research Strategies. (2-3) § Sp. Prerequisite: Consent of instructor. **Schaw**

Research proseminar on the use of clinical procedures in research. The staff's exploration of projective techniques (TAT) in cultural, historical, and clinical research to serve as focus for participants' presentation of related clinical procedures or techniques.

228. Research on Drug Abuse. (2) § F, W, or Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 3 hours. **Hargraves**

Directed research on various topics related to drug abuse, its treatment, and prevention.

229. Program Evaluation. (2) § W, Sp. Prerequisite: Consent of instructor. **Hargreaves, Atkisson**

Introduction to human service systems program evaluation. Intended for program administrators, program evaluators, and graduate students in health and other human service disciplines. Topics include integrating evaluation into management decision making; needs assessment; management information systems; evaluating results.

231. Brain Hemisphere Specialization. (2) § F, W, or Sp. Prerequisite: Consent of instructor. **Galin**

Review of evidence from studies of human brain injuries and "split brain" surgery. Localization of cognitive style; analytic vs. synthetic modes of experiencing the world; unity and disunity in consciousness; implications for psychiatry.

232. Clinical Prediction. (3) § W or Sp. Prerequisite: Consent of instructor. **R. Young**

Problems in the validation of clinical psychological procedures: specification of the measurement characteristics of psychological data; contrast of methods of information processing; analysis of criterion behavior; and efficacy of clinical judgment.

238. Biochemical Research in Neural Tissue. (1-3) § F, W, or Sp. Prerequisite: Consent of instructor. Lab 3-9 hours. **Ellman**

Supervised research experience including an introduction to biochemical and histological techniques for the study of neural tissue.

239. Investigation into Human Consciousness. (3) § F, W, or Sp. Prerequisite: Consent of instructor. **Ornstein**

Readings in the psychology and physiology of conscious experience.

245. Readings in Behavioral Neurochemistry. (2) § F, Sp. Prerequisite: Consent of instructor. **Ellman**

Readings in chemistry related to psychological phenomena; the biochemical bases of the effects of drugs, hormones, and disease states on cerebral function.

249. Special Studies in Psychology. (1-8) § F, W, or Sp. Prerequisite: Consent of instructor. **Staff**

Students select special problems to investigate on an individual or collaborative basis. These studies may be conducted through readings, the collection and analysis of empirical data, or the development of conceptual analyses or methodologies.

250. Research. (1-8) § F, W, Sp. **Staff**

256. Seminar in Clinical Neuropsychology. (2) § F, W, or Sp. Prerequisite: Consent of instructor. Seminar 1 hour, Lab 3 hours. **Davison, Steinhelber**

Clinical investigations of human brain-behavior functions, emphasizing relationships between higher cognitive components of behavior and brain disorders. The laboratory consists of supervised neuropsychological evaluations of brain damaged patients. Usually limited to advanced students in clinical specialities.

270. Behavior Change Methods in Public Health Practice. (2) § Su, F, W, Sp. Prerequisite: Bachelor's degree in nursing, psychology, or consent of instructor. **S. Hall**

Discussion and reading in behavior change topics related to public health problems.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

300. Practicum in Teaching Psychology. (0) § F, W, or Sp. Prerequisite: Consent of instructor. **Staff**

Supervised classroom or tutorial teaching experience.

Radiation Oncology

140.02 Clinical Clerkship in Radiation Oncology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **T. Phillips**

Participation in examination of cancer patients under treatment in radiation oncology, and in rounds, conferences, and clinics.

140.06 Clinical Clerkship in Radiation Oncology at *MZ*. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **J. Castro**

Participation in examination of cancer patients under treatment in the Claire Zellerback Saroni Tumor Institute at *MZ*. Students participate in rounds, conferences, and clinics, and see demonstrations of the use of newer radiotherapeutic techniques.

140.07 Diagnostic and Therapeutic Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **T. Phillips**

Clinical clerkship in roentgen diagnosis and therapeutic radiology. Two weeks are spent in roentgen diagnosis and two weeks in therapeutic radiology. Some of the material in roentgen diagnosis and clinical clerkship in radiation therapy is included.

403. Radiation Oncology Grand Rounds. (1) Su, F, W, Sp. **T. Phillips**

Rounds include presentation of problem cases with discussions of diagnosis and treatment as well as biologic implications. Frequent guest lectures are used to cover important aspects of oncology.

404. Specialty Seminars Concerning Cancer. (3) Su, F, W, Sp. **T. Phillips**

Seminars include discussions of the diagnosis, treatment and results of specialty oncology problems, including head and neck, gynecologic, otolaryngolic, pediatric, dermatologic, lymphomatous and general malignancies.

415. Seminars in Radiobiology. (1) F, W, Sp. **T. Phillips**

Study of principles of radiobiology and their application to radiotherapy. Seminars deal in depth with textbooks, selected readings and prepared seminars leading to understanding of mechanisms of action of radiation in clinical radiotherapy. Oriented to radiotherapy fellows and residents.

423. Concepts of Treatment Planning and Dosimetry in Therapeutic Radiology. (3) Su. Prerequisite: Residents assigned to therapeutic radiology. **V. Smith**

A workshop course to provide residents in therapeutic radiology with the elements of treatment planning and dose calculations.

424. Physics of Therapeutic Radiology. (1) F, W, Sp. Prerequisite: Residents assigned to therapeutic radiology. **V. Smith**

A lecture-seminar course with practical sessions to provide the resident with a basic knowledge of radiological physics with special reference to those aspects relating to therapeutic radiology.

454. Clinical Therapeutic Radiology. (1½ per week) Su, F, W, Sp. **T. Phillips**

Residents, under supervision, are responsible for diagnosis, treatment, and follow-up of patients referred to radiation therapy from the wards and outpatient clinics. Radiation therapy rounds include discussion of newly referred patients; chart rounds include the discussion of patients under treatment.

Radiology

100. Introduction to Clinical Radiology. (2) F, W, Sp. Prerequisite: Anatomy 100 and 103, Medicine 130, Pathology 102, and Psychiatry 130; concurrent enrollment in Medicine 131A-B-C. **Minagi**

Course provides instruction in basic aspects of therapeutic and diagnostic radiology and nuclear medicine. Illustration of diagnostic and therapeutic modalities in specific disease states provides instruction in use of radiologic resources.

140.01. Roentgen Diagnosis. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Margulis**

Clerkship in radiology. Observation of radiological procedures, interpretation of films, attendance at conferences, and study of the basic philosophy of radiological examinations and rules for interpretation.

140.03. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Margulis**

Clinical clerkship in approved hospital by special arrangement and approval of the chairman of the department and the Dean.

140.04. Clinical Clerkship in Nuclear Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Hoffer**

Observation of basic nuclear medicine procedures and participation in diagnostic tests employing radioisotopic tracers. Completion of Radiology 140.04, 140.12, 170.08, and 170.09 meet the State of California requirements for licensure to use radioactive isotopes in clinical medicine.

140.05. Roentgen Diagnosis at *MZ.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **A. Davidson**

Students serve a clerkship in the Diagnostic Division of the Department of Radiology. They observe performance of radiologic procedures and interpretation of films, attend conferences and learn basic philosophy of conducting radiologic examinations and the rules of interpretation.

140.07. Diagnostic and Therapeutic Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Margulis**

Clinical clerkship in roentgen diagnosis and therapeutic radiology. Two weeks are spent in roentgen diagnosis and two weeks in therapeutic radiology. Some of the material in roentgen diagnosis and clinical clerkship in radiation therapy is included.

140.08. Clinical Clerkship in Cardiovascular Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Carlsson**

Cardiovascular radiology provides an opportunity to become acquainted with the radiologic studies of the cardiovascular system through active participation in the examinations and their interpretation.

140.09. Clinical Clerkship in Diagnostic Radiology at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Minagi**

Students serve a clerkship in the Diagnostic Section of the Department of Radiology. They observe performance of radiologic procedures and interpretation of films, attend conferences, and learn basic philosophy of conducting radiologic examinations and the rules of interpretation.

140.11. Radiology Clerkship at *C.* (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. **Burhenne**

Course includes all types of radiologic procedures, pediatric radiology, and radiation therapy with emphasis on the radiologist as a consultant to other specialties as related to use and indications for all radiologic techniques.

140.12. Radioactivity Laboratory. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C. Consent of instructor. **Perez-Mendez**

Course is designed to teach accurate measurement radioactivity techniques for biomedical purposes.

140.13. Radiology and Medical Diagnosis. (1½ per week) Su, F, Sp. Prerequisite: Medicine 131A-B-C. **S. Ross**

For second year medical students, immediately following Medicine 131A-B-C, to help acquire knowledge and attitudes that ease transition from preclinical studies to clinical medicine. Radiographs with case presentations are used to help learn mechanisms of disease and clinical judgment.

170.01A-B-C. Introduction to Research on Learning. (2-2-2) F, W, Sp. Prerequisite: Consent of instructor. **S. Ross**

Designed to acquaint students with domain of educational research, specifically that on learning. Students learn vocabulary, recognize valid problems and valid results, and gain insight into the problem of method.

170.05. The Anatomy of Anatomy. (1-2) Su, F, W, Sp. Prerequisite: Anatomy 100 or concurrent enrollment. **S. Ross**

A lecture course limited to small groups, with opportunity for self-instruction in the learning laboratory, on selected aspects of anatomy and its clinical applications. Objective is to show the usefulness of knowing normal anatomy and its variants.

170.06. Pathology of Internal Organs. (1-2) Su, F, W, Sp. Prerequisite: Consent of instructor. Lecture 1 hour, Lab 0-3 hours. **S. Ross**

A lecture course limited to small groups, with opportunity for self-instruction in the learning laboratory, on selected aspects of gross morbid anatomy of internal organs and the natural history of their ailments; a study of disease as a process in time.

170.07. Clinical Applications of Anatomy. (1) Su, F, W, Sp. Enrollment limited. **S. Ross**

Using radiographs, this course demonstrates anatomy in the living. With various examples, it illustrates the concept of individual variations and the usefulness to physicians of precise knowledge of anatomy.

170.08. Nuclear Medicine Physics. (3½) Su, F, W, Sp. Prerequisite: Concurrent enrollment in Radiology 170.09. **Perez-Mendez, Kaufman**

Introduction to the physics of radioactivity, nuclear instrumentation and gamma ray imaging techniques.

170.09. Introduction to Nuclear Medicine. (3½) Su, F, W, Sp. Prerequisite: Concurrent enrollment in Radiology 170.08. **Hoffer and Staff**

Introduction to basic nuclear medicine diagnostic procedures, both *in vivo* and *in vitro*, and therapy with radiopharmaceuticals.

170.10. Radiologic Aspects of Surgery at *SFGH.* (1) Su, F, W, Sp. Prerequisite: Third year surgery. **Minagi, R. Lim, Laing**

Weekly seminar covering the radiologic studies of surgical cases emphasizing indications, risks, and information derived from procedures. Active participation in X ray interpretation is included.

198. Supervised Study in Radiology. (1-5) F, W, Sp. **Margulis and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Radiology. (1-5) F, W, Sp. **Margulis and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

220. Seminars in Radiological Physics for Physicists. (2) § F, W, Sp. Prerequisite: Bachelor's or higher degree in the physical sciences. **V. Smith, R. Baker**

Seminars provide physicists with an in-depth knowledge of radiological physics.

400. Seminar in Diagnostic Radiology. (1) Su, F, W, Sp. **H. Goldberg**

Faculty from radiology and other departments lecture and discuss various diseases of all systems of the body. Residents prepare case histories stressing roentgen findings and correlative surgical and laboratory work, special studies, library, and film research.

401. Diagnostic Case Rounds. (2) Su, F, W, Sp. **Margulis, Gooding**

Films of interesting cases from the daily work are presented and reviewed. Roentgenograms of surgically and pathologically proved cases are correlated with the gross and microscopic pathologic findings.

402. Specialty Seminars Concerned with Diagnosis. (3) F, W, Sp. *UC* **Margulis**

Seminars require preparation and presentation of roentgen findings on patients under discussion at medical, surgical, pediatric, obstetric and gynecologic departmental

conferences and seminars on congenital heart disease, disease of the gastrointestinal tract, and orthopaedics.

405. Radiological Research. (1-8) Su, F, W, Sp. Elective. **Margulis**

Numerous research projects are conducted in the department and facilities are available for new ones. Residents are encouraged to take advantage of these opportunities.

406. Elements and Clinical Applications of Radiation Physics. (2) Su, F, W, Sp. **Seidlitz**

The elements of radiological physics are studied in a series of lectures and problem assignments. The basic phenomena experienced in producing, measuring, and absorbing radiation are illustrated. Course is designed to give residents in radiology the necessary background to practice radiology.

408. Radiology in Specialty Seminars. (3) Su, F, W, Sp. *SFGH* **Coulson**

Interdepartmental seminars in which the radiological picture of problem cases either of diagnostic or therapeutic nature is presented. This course includes surgical and medical radiological rounds, consultative tumor board, clinicopathological conferences, and other departmental grand rounds.

409. Radiology in Specialty Seminars. (3) Su, F, W, Sp. *VA* **Ovenfors**

Interdepartmental seminars in which the radiological picture of problem cases either of diagnostic or therapeutic nature is presented. These include medical-surgical, clinicopathological, chest, medical X ray, rheumatology, neurology and neurological surgery conferences; consultative tumor board; and surgical and orthopaedic grand rounds.

410. Radiobiology: Radiation Effects on Genes and Chromosomes. (2) W. Prerequisite: Consent of instructor. **S. Wolff**

Concepts and mathematics of target theory related to damage of genetic apparatus. Biophysical and biochemical studies on induction of intragenic and intergenic mutations that give insight into the structure of chromosomes and interaction of radiation with biological material.

411. Introduction to Nuclear Medicine. (2) Su, F, W, Sp. Prerequisite: Concurrent enrollment in Radiology 421. **Hoffer and Staff**

Introduction to basic nuclear medicine diagnostic procedures, both *in vivo* and *in vitro*, and therapy with radiopharmaceuticals.

412. Pathology. (1) Su, F, W, Sp. *VA* **Ovenfors**

Course includes review of surgical pathology material and attendance at autopsy rounds.

413. Pathology. (1) Su, F, W, Sp. *SFGH* **Minagi**

Course includes presentation of pathological material of special interest to radiologists with emphasis on the correlation of diagnostic X rays and pathological findings and a study of the pathology of patients under radiation treatment.

414. Physics of Diagnostic Radiology. (2) W, Sp. Prerequisite: Radiology 406. Lecture 1½ hours, Lab 2 hours. **Seidlitz**

A seminar course with laboratory experiments designed to acquaint the student with current knowledge of physics applicable to diagnostic radiology. Topics include generation and extraction of radiologic information, image conversion, recording methods, and special purpose equipment.

419. Growth Kinetics of Cells, Tissues, and Tumors. (2) Sp. Prerequisite: Consent of instructor. **Cleaver, Patt**

An analysis of cell population growth in tissues, tumors, and cultures. Emphasis is given to radioactive tracers (thymidine and its biochemistry) and experimental methods for studying cell proliferation *in vivo* and *in vitro*.

420. Nuclear Medicine Seminars. (1) F, W, Sp. **Hoffer**

Rotating assignments of topics for discussion by residents in nuclear medicine training programs in all affiliated hospitals. Critical reviews of available information in limited areas are used to provide a broad review of nuclear medicine for all trainees.

421. Nuclear Medicine Physics. (2) Su, F, W, Sp. Prerequisite: Residents assigned to nuclear medicine section. **Perez-Mendez, Kaufman**

Introduction to physics of radioactivity, nuclear instrumentation, and gamma ray imaging techniques.

422. Basic Radiological Sciences. (3) Su. **Perez-Mendez, Kaufman**

Course intended for all first year residents in radiology; provides an introductory survey of radiobiology, diagnostic X ray physics, radioactivity, and radiation instrumentation.

450. Clinical Nuclear Medicine. (1½ per week) Su, F, W, Sp. Prerequisite: Radiology 422. **Hoffer and Staff**

Clinical experience in diagnostic and therapeutic nuclear medicine to satisfy requirements of American Board of Radiology for certification in diagnostic radiology and radiation therapy.

451. Clinical Diagnostic Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Radiology 450. **Margulis**

Residents, under supervision, carry out radiological examination and interpretation of X rays of patients referred from wards and outpatient clinics. The chief resident has certain administrative duties relative to the resident training program.

452. Clinical Diagnostic Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Radiology 450. *VA* **Ovenfors**

Residents, under supervision, are responsible for the diagnostic activities of the department, including diagnostic consultations and reports, history-taking, and physical examinations. In addition, the chief resident has certain administrative duties relative to the resident training program.

453. Clinical Radiology. (1½ per week) Su, F, W, Sp. Prerequisite: Radiology 450. *SFGH* **Coulson**

Residents are responsible for the diagnostic and therapeutic activities of the department under the direction of staff radiologists including diagnostic consultations and reports, history-taking, physical examinations, radiation therapy, and follow-up of patients referred for therapeutic consultations.

455. Radioactivity Laboratory. (1½ per week) Su, F, W, Sp. Prerequisite: Residents assigned to nuclear medicine section and consent of instructor. **Perez-Mendez**

Course is designed to teach accurate measurement radioactivity techniques for biomedical purposes.

Removable Prosthodontics

109. Removable Prosthodontics: Clinical Practice. (0-8½) F, W, Sp. Prerequisite: Third year standing. **Regli**

Clinic.

110B-C. Elementary Complete Denture Prosthodontics. (1-1) W, Sp. Prerequisite: Concurrent enrollment in Removable Prosthodontics 116B-C. **M. L. Parker**

Lectures on the elementary principles of complete denture prosthodontics emphasizing the biological background and clinical application of the technical steps.

116B-C. Elementary Complete Denture Prosthodontics. (2-2) W, Sp. Prerequisite: Concurrent enrollment in Removable Prosthodontics 110B-C. Lab 4 hours. **M. L. Parker**

A laboratory course on the elementary principles of complete denture prosthodontics. Laboratory exercises demonstrate technical and clinical procedures.

122. Immediate Dentures. (1) W, Sp. Prerequisite: Removable Prosthodontics 110B-C, 116B-C and concurrent enrollment in Removable Prosthodontics 126.02. **Fairchild**

Presentation of clinical procedures for immediate dentures.

126.01. Partial Dentures. (3) F, W. Prerequisite: Removable Prosthodontics 116B-C. Lecture 1 hour, Lab 6 hours. **Regli**

Fundamentals of partial denture design and construction of the partial denture.

126.02. Immediate Dentures. (2) W, Sp. Prerequisite: Removable Prosthodontics 110B-C, 116B-C and concurrent enrollment in Removable Prosthodontics 122. Lab 6 hours. **Fairchild**

Course provides experience in fabrication of immediate dentures.

126.03. Clinic. (3) F, W, Sp. Seminar and Clinic Variable. Total: 7 hours. **M. L. Parker**

Demonstration and participation in constructing complete dentures for a patient.

130A. Clinical Procedures. (0-1) F. Prerequisite: Removable Prosthodontics 126.01, 126.02 and 126.03. **E. Kelly, Regli**

The course bridges the preclinical courses and clinical courses in removable prosthodontics. It includes treatment planning, surgical, medical, or prosthetic treatment of edentulous abnormalities; and special clinical procedures not covered in other preclinical courses.

130B. Advanced Removable Partial Denture Design. (1) W. Prerequisite: Removable Prosthodontics 130A. **Krol**

Principles and concepts of partial denture design in relation to clinical dentistry. Treatment planning for removable partial dentures especially as related to preventive dentistry will be emphasized. Special attention will be given to design of the extension base partial denture.

130C. Orofacial Prosthetics. (1) Sp. Prerequisite: Removable Prosthodontics 130B. **Chierici and Staff**

Biologic principles underlying prosthetic treatment of patients with congenital and acquired malformations, defects and dysfunctions. Included is the development of normal and abnormal speech as it relates to prosthodontics. The basis for prosthodontic

therapy in temporomandibular joint disorders is also presented.

171A-B-C. Complete Prosthodontics. (4-4-4) F, W, Sp. Lecture 1 hour, Lab and Clinic 9 hours. **Regli, M. L. Parker and Staff**

Instruction in clinical and laboratory procedures related to complete prosthodontics.

172.01A-B-C. Partial Prosthodontics. (4-4-4) F, W, Sp. Lecture 1 hour, Lab and Clinic 9 hours.
Regli, M. L. Parker and Staff

Instruction in clinical and laboratory procedures related to partial prosthodontics.

172.02. Partial Prosthodontics. (5) SS. Lecture 1 hour, Lab and Clinic 12 hours.
Regli, M. L. Parker and Staff

Instruction in clinical and laboratory procedures related to partial prosthodontics. Continuation of Removable Prosthodontics 172.01A-B-C.

173. Clinical Practice. (4) SS. Prerequisite: Removable Prosthodontics. 171A-B-C, 172.01A-B-C and 172.02. Lab 12 hours.
Regli, M. L. Parker and Staff

Clinical practice on patients for partial and complete prosthodontics.

174A-B-C. Complete Prosthodontics. (3-3-4) F, W, Sp. Prerequisite: Removable Prosthodontics 171A-B-C. Lecture 1 hour. Lab 6 hours F, W; 9 hours Sp.
Regli, M. L. Parker, McCormick, Wilde

Instruction in clinical and laboratory procedures related to complete prosthodontics. Course will include in-service hospital treatment at *VA*.

175A-B-C. Partial Dentures. (3-3-4) F, W, Sp. Lecture 1 hour. Lab and Clinic 6 hours F, W; 9 hours Sp. **Regli, M.L. Parker and Staff**

176A-B-C. Special Study for Postdoctoral Students. (1-5) F, W, Sp. Research 3-15 hours. **Regli**

Original investigation in the field of removable prosthodontics.

177. Prosthodontics Seminar. (4) F, W, Sp. Prerequisite: Students in removable prosthodontics certificate program must enroll in this course each quarter and summer session for entire program. Seminar 4 hours.
Regli, M. L. Parker and Staff

Review of the literature related to prosthodontics.

180. Prosthodontics. (1) W, Sp. Prerequisite: Removable Prosthodontics 130C.
Brigante

Course offers instruction in procedures and materials other than those normally used in the clinic.

181. Fixed and Removable Methods. (1) F, W. Prerequisite: Fourth year standing.
Augsburger, Lum, Plainfield

Course is concerned with saving the patient's few remaining teeth. Methods for strengthening the abutments and attaching the removable partial denture encompasses implantology, crown preparation, systemic, psychological, technical and clinical design problems.

185. Multidisciplinary Approach to Maxillofacial Prosthetics. (1) F, W, Sp. Prerequisite: Consent of instructor. **T. Curtis**

Course designed to acquaint postdoctoral and senior dental students with the multidisciplinary aspects of maxillofacial prosthetics. Lectures will be given on maxillofacial prosthetic techniques, oncology, head and neck surgery, plastic surgery, oral surgery, therapeutic radiology, psychology and related oral biology.

189.01. Prosthodontics: Complete and Removable Partial. (0-9) F, W, Sp. Prerequisite: Removable Prosthodontics 109. Clinic Variable. **Regli**

Continuation of clinical experience at the level of Removable Prosthodontics 109.

189.02. Removable Prosthodontics: Treatment Planning. (1) F, W, Sp. Prerequisite: Consent of instructor and the Dean. Clinic 3 hours. Enrollment limited. **Regli**

189.03. Clinical Practice at *VA*. (1½-3) F, W, Sp. Prerequisite: Removable Prosthodontics 109 and approval of Clinic Review Committee. Clinic 4½-9 hours. Enrollment limited.
Wilde, McCormick

Advanced undergraduate instruction in clinical procedures in complete denture prosthodontics.

189.04. Clinical Maxillofacial Prosthetics. (0-6) F, W, Sp. Prerequisite: Consent of instructor and Clinic Review Committee. Lab variable. **T. Curtis**

Senior dental students will observe and perform maxillofacial prosthodontic services for patients in the Maxillofacial Clinic. A detailed case history will be required each quarter. Attendance at related tumor board conferences and field trips to other therapy centers.

199. Laboratory Project in Removable Prosthodontics. (1-5) F, W, Sp. **Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Multidisciplinary Approach to Maxillofacial Prosthetics. (1) F, W, Sp.
T. Curtis

Course designed to acquaint residents with the multidisciplinary aspects of maxillofacial prosthetics. Lectures will be given on maxillofacial prosthetic techniques, oncology, head and neck surgery, plastic surgery, oral surgery, therapeutic radiology, psychology and related oral biology.

489.01. Clinical Maxillofacial Prosthetics. (1-6) F, W, Sp. **T. Curtis**

Residents and advanced prosthodontic students will observe and perform maxillofacial prosthodontic services for patients in the Maxillofacial Clinic. A detailed case history will be required each quarter. Attendance at related tumor board conferences and field trips to other therapy centers.

Restorative Dentistry

171A-B-C. Advanced Restorative Dentistry. (3-3-3) Yr. Lecture 1 hour, Clinic 6 hours. **Schuchard, Stark**

Seminars and current literature review correlating basic and preclinical science with the practice of restorative dentistry. Selected cases requiring medical and dental diagnostic procedures and treatment planning will be presented.

173. Postdoctoral Clinical Practice. (2) SS. Prerequisite: Restorative Dentistry 171A-B-C. Clinic 60 hours.
Schuchard, Stark

Clinical practice applying advanced restorative procedures.

174A-B-C. Advanced Restorative Dentistry. (3-3-3) F, W, Sp. Prerequisite: Restorative Dentistry 171A-B-C. Lecture 1 hour, Clinic 6 hours. **Schuchard, Stark**

Advanced restorative dentistry. Seminars will be directed toward the psychology of patient management in relation to treatment planning. The clinical phase will provide experience in contact instruction.

175. Postdoctoral Clinical Practice. (2) SS. Prerequisite: Restorative Dentistry 174A-B-C. Clinic 60 hours.
Schuchard, Stark

Clinical practice applying advanced restorative procedures. Continuation of Restorative Dentistry 173 at advanced level.

176B-C. Clinical Research (1-5, 1-5) W, Sp. Prerequisite: Restorative Dentistry 171A-B-C, 173 and 174A-B-C. Research 3-15 hours. **Schuchard, Stark**

A research project in the field of restorative dentistry. Findings must be prepared for publication.

177.01A-B-C. Seminar. (2-2-2) F, W, Sp. Seminar 2 hours. **Schuchard, Stark**

Study and interpretation of current literature contributing to the advance of dental science. Discussion is directed toward defining areas of further study and considerations of modifying scope of dental education to include advances. Research protocols are developed and implemented.

177.02. Seminar. (2) SS. Prerequisite: Restorative Dentistry 177.01A-B-C. Seminar 2 hours. **Schuchard, Stark**

Continuation of Restorative Dentistry 177.01A-B-C.

177.03A-B-C. Seminar. (2-2-2) F, W, Sp. Prerequisite: Restorative Dentistry 177.02. Seminar 2 hours. **Schuchard, Stark**

Continuation of Restorative Dentistry 177.02.

177.04. Seminar. (2) SS. Prerequisite: Restorative Dentistry 177.03A-B-C. Seminar 2 hours. **Schuchard, Stark**

Continuation of Restorative Dentistry 177.03A-B-C.

Sociology

112. American Society and Its Problems. (3) Sp. **Staples**

Presentation of prominent sociocultural features of dominant systems in American society. Integration and dissonance between and among these systems with emphasis on major social problems which result, such as racism, inequality, youth, disjunction between technology and humanistic values.

120B. Statistical Concepts. (2) Sp. Prerequisite: Second year standing in the School of Nursing or consent of instructor. **Staff**

An introduction to concepts underlying statistical techniques; criteria for selection; how, where, and when used; logic of statistical inference; discussion of probability; discussion of biostatistics.

122. Health and Illness in American Society. (3) F. **Staff**

Broad survey of features of American society that produce either health or morbidity or both. A variety of significant factors are explored in conjunction with ideological implications for the quantity and quality of health care services.

124. Marriage and the Family. (3) § F.
Staples

Examination of family life styles in the United States and other societies. Changing forms of dating and marital practice are explored and the viability of the monogamous nuclear family is examined. An area of interest is Black family patterns.

126. Families of the Third World. (3) § W. Lecture 2 hours, Lab 3 hours. **Staples**

Examination of family structures and dynamics among Third World peoples. Families to be discussed include African and Afro-American, Asians, Native Americans and Latinos. Emphasis on continuities in the family life of these groups in their native land and the United States.

127. Race and Racism in the Modern World. (3) § F. Lecture 2 hours, Lab 3 hours. **A. Strauss**

An exploration of factors that create and maintain superordinate-subordinate relations ordered along racial lines. A cross-cultural analysis with special emphasis on race relations in the United States.

132. Individual and Change. (3) § F. Prerequisite: Consent of instructor. **Olesen**

The relationship of social structures to individuals and their behavior. Emphasis will be on individuals as members of society rather than on individuals or society as such.

134. Perspectives on Women's Roles in Health Care Delivery. (3) § Sp. **Olesen, L. Newman**

Analysis of sex roles in general and women's roles in particular in health care receipt and delivery, with particular emphasis on recruitment problems to health professions, images of women in therapeutic situations, and crosscultural features of health care.

136. Pain: Social, Organizational and Interactional Aspects. (3) § Sp. Lecture 2 hours, Lab 3 hours. **A. Strauss**

Pain as experienced, expressed, and managed in a variety of settings by patients, staff, and family. Sociological and organizational perspectives on assessing, legitimizing, and controlling pain.

137. Sociology of Sexual Behavior. (3) § F. Lecture 2 hours, Lab 3 hours. **Staples**

A sociological perspective of human sexuality as expressed in various forms, varied among different segments of the population and influenced by diverse social forces, with emphasis on sexual relations as an element of social relations.

138. Sociology of Change in Health Care Systems. (3) § W, Sp. Prerequisite: Open to upper division and graduate students. **Staff**

Review of social change in health care systems with particular attention to implications of change at all system levels such as patients, alternative curing practices, policies, new occupations, types of future care. Debate on and examination of key issues.

160. Religious Experience in Sociological Perspective. (3-4) Sp. Prerequisite: One upper division course in sociology or psychology or equivalent, and consent of instructor. Lecture 2 hours, Lab 3-6 hours. **Damrell**

Current trends in the sociology of religion. Emphasis on factors precipitating religious experience in explaining cultures, societies, subcultures, individuals. In-depth analysis of various religious phenomena including movements, sects, cults, churches, focusing on the relation between religious explanations and organizational structure.

167. Social Organization of Health Care with Primary Emphasis on Hospitals. (2) F. Prerequisite: Consent of instructor. **Glaser**

An inquiry into the nature of the organizational forms by which health care is distributed, with particular emphasis on hospital organization and the interaction between health care personnel.

168. Contemporary Social Problems. (3) § F. **F. Davis**

The genesis and natural history of social problems and a substantive survey of such leading contemporary problems as race relations, juvenile delinquency, the role of women in American society, and the distribution of health services in the United States.

198. Supervised Study in Sociology. (1-5) § F, W, Sp. **Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

203. Social and Psychological Aspects of Chronic Illness. (3) § F, W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **A. Strauss**

Problems faced by chronically ill persons and their families including crisis management, handling symptoms, managing regimens, social isolation, phases of the disease, temporal difficulties, normalization, dying. Some policy issues, including those confronting health personnel as well as the general public.

204. Sociology of Psychiatry. (3) § Sp. **Schatzman**

Psychiatric practices, professional careers, and institutions conceptualized sociologically, as historic, symbolic systems and interactional processes.

205. The Sociology of Health Professions and Occupations. (4) § F. **A. Strauss**

The nature of occupations and professions; their constellation in hospitals and clinics, the medical division of labor, specialties and specialization, professional and occupational ideologies, the sociology of work relationships, careers.

206. Sociology of Devalued Occupations. (2-4) § W. Prerequisite: Consent of instructor. **Olesen**

Review and analysis of occupational theory with special reference to the trends, both social and psychological, involved in occupations customarily considered "dirty" or devalued. Analysis of the organization of such work and the life styles of the persons who pursue it.

207. Microsociology. (2-4) § W. Prerequisite: Consent of instructor. **Olesen**

Analysis of social behavior utilizing concepts of territoriality, proxemics, social schema; review of relevant animal studies, as well as such concepts as privacy; consideration of cross-cultural uses of space.

208. Social Psychology of Health and Illness. (3) § W. Prerequisite: Required for graduate students in sociology. **F. Davis**

The relationship of social class, ethnic identification, group membership, family structure, occupation and life style to health and illness, and therapeutic interaction of laymen and health professionals.

212A-B. Sociological Theory. (2-2) § F, W. Prerequisite: Sociology 212A is prerequisite to 212B. Required for graduate students in sociology. **A. Strauss and Staff**

An examination and evaluation of classical and recent contributions to sociological theory. The main objective is the generation of a critical capacity with respect to received theory in both its formal and substantive varieties.

213. Studies in Participant Observation. (3) § W. Prerequisite: Consent of instructor. **Schatzman**

A basic course in the logic and operations of social research in the field. Lectures, readings and discussion on research strategies: entree, watching, listening, data recording, and analyzing.

214A. Discovery of Social Reality. (3) § F. Prerequisite: Required for graduate students in sociology. Lecture 1 hour, Lab 3 hours. **Schatzman**

Practicum in sociological field observation; course is designed to sensitize students to demographic and behavioral components of social life in public places. Observation of human aggregates in varied neighborhoods of a metropolis. Instruction in observational techniques and data organization.

214B. Discovery of Social Reality. (3) § W. Lecture 2 hours, Lab 3 hours. **A. Strauss, Glaser**

Sociological field observation. Instruction in observation, interviewing, the organization of data, descriptive analysis, and research writing. Continuation of Sociology 214A.

214C. Qualitative Analysis. (3) § F, Sp. Prerequisite: Sociology 214A and 214B. Lecture 2 hours, Lab 3 hours. **A. Strauss**

Examination of modes of analysis applicable to qualitative data; emphasis on dimensions and properties exhibited in student presented data.

214D. Qualitative Analysis. (3) § W. Prerequisite: Sociology 214A, 214B and 214C. Lecture 2 hours, Lab 3 hours. **A Strauss**

Qualitative analysis; the development of substantive and formal sociological theory. Emphasis on student presented data and their conceptualization.

215. Problems in Microsociology: Urban Life. (2-4) § Sp. Prerequisite: Consent of instructor. Sociology 207 recommended. **Olesen**

A graduate research seminar on selected problems in microsociology especially related to urban life, the urban environment, and its bearing on health care settings such as clinics. Application and critique of research and concepts in this area.

216. Comparative Organizations. (3) § W. Prerequisite: Consent of instructor. **Staff**

A critical review of classical and recent contributions to the sociology of formal organizations. A variety of types of organizations will be considered, with special emphasis on service organizations.

217. Seminar on the Future of the Family. (3) § Sp. Lecture 2 hours, Lab 3 hours. **Staples**

Exploration of changing dating, sexual, sex-role, marital and familial patterns in the United States. Discussion of futuristic models of family life as affected by socio-cultural forces. Special emphasis given to changing sex-role behavior as affecting male-female relationships.

219. Political Sociology of Aging. (3) § W. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Estes**

Major paradigms in the study of community and national power structures examined in terms of theoretical, methodological, empirical, ideological content. Issues of actual and potential power of the aging considered in light of available data and the major paradigms discussed.

220. Seminar in Sociology. (3) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Doctoral student seminar to discuss methods and problems in current research. Course may be repeated for credit.

222. Politics of Planning in the Human Services. (3) § Sp. Prerequisite: Consent of instructor. Lecture 2 hours, Lab 3 hours. **Estes**

Examination of trends in planning for the human services, including the role of government organizations, professionals and consumers in generating and benefiting from major human services planning reforms. Planning in the fields of health and aging are emphasized.

224. Epistemological Problems in the Social Sciences. (4) § W, Sp. Prerequisite: Consent of instructor. **F. Davis**

Central epistemological problems in the social sciences and their bearing on issues of the research role, modes of conceptualization, scientific communication, and public information.

230. Analysis of Symbolic Systems. (2-4) § Sp. Prerequisite: Consent of instructor. **Olesen**

Critical inspection and analysis of American symbolic systems, such as educational institutions and mass media of communication with respect to the diffusion and alteration of values in specific sections of the society, such as health professions.

232. Advanced Problems in Social Psychology. (2-4) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

An advanced seminar dealing with theoretical and conceptual problems in various areas of social psychology. Recent developments in theory and concept will be reviewed.

233. Seminar in Urban Social Relations. (3) § F. Lecture 2 hours, Lab 3 hours. **A. Strauss**

Research seminar on selected topics bearing on the social psychology of urban living and the sociology of cities.

234. Urban Financial Systems. (4) § F. Prerequisite: Consent of instructor. **Glaser**

The sociological problems and processes involved when people deal with banks, lawyers, accountants, savings and loans, brokers, finance companies and investment counselors in order to store and use money, obtain credit and loans, and invest money.

249. Studies in Sociology. (1-8) § F, W, Sp. Prerequisite: Consent of instructor. **Staff**

Students select special problems to investigate on an individual or collaborative basis. These studies may be conducted through readings, the collection or analysis of empirical data, or the development of conceptual analysis or of methodologies.

250. Research. (1-8) § F, W, Sp. Prerequisite: Admission to doctoral study and consent of instructor. **Staff**

298. Thesis or Comprehensive Examination. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the thesis for the master's degree or taking a comprehensive examination required for the master's degree.

299. Dissertation. (0) § F, W, Sp. Prerequisite: Advancement to candidacy and permission of the graduate adviser. **Staff**

For graduate students engaged in writing the dissertation for the Ph.D. degree.

Speech and Hearing Science

247. Special Studies in Audiology. (1-3) § F, W, Sp. Prerequisite: Consent of instructor. Lecture 1-2 hours, Lab 0-3 hours. **Owens**

Directed reading and laboratory work in the auditory process and its disorders.

249. Independent Study. (1-5) § F, W, Sp. Prerequisite: Consent of instructor. **Flower, Owens and Staff**

Students and instructor develop jointly a study plan involving tutorials, reading, and laboratory work. Students engage in intensive exploration of specific topics related to the anatomic, physiologic, psychophysical, and behavioral aspects of the speech and hearing sciences.

Surgery

110. Required Core Clinical Clerkship in General Surgery. (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences. **Ebert, Blaisdell, L. Way**

Core general clerkship in surgery. Students assigned to wards and clinics at *UC, SFGH, VA,* and *C.* The application of basic sciences to surgery is emphasized in ward rounds and seminars.

111. Required Core Clinical Clerkship in Advanced Surgery. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 and Surgery 110. **Ebert, Blaisdell, L. Way**

Students serve as senior clerks on the wards and in the operating rooms at *UC, SFGH,* and *VA.* Rounds and seminars focus on the physiological approach to surgery.

140.01. Advanced General Surgery Clerkship. (1½ per week) Su, F, Sp. Prerequisite: Surgery 110 and 111. **T. Hunt**

Senior clinical clerks participate in clinic, ward, and operating room with direct involvement in postoperative and preoperative care at *UC, SFGH, VA, C,* and *RDMC.*

140.02. Vascular Surgery Clinical Clerkship at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences and Medicine 110 or Surgery 110 and 111. **W. Moore**

Students serve as clinical clerks in the surgery service and participate in clinics, rounds, conferences, and surgery on patients.

140.03. Tissue Transplantation. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 131A-B-C and consent of instructor. **Salvatierra**

Participation in renal homotransplantation operations, ward rounds, transplantation and research conferences. Additional time is spent in the Surgical Research Laboratories, participating in experimental organ transplantation studies.

140.04. Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences and Medicine 110 or Surgery 110 and 111. **Ebert**

Clinical clerkship in approved hospitals on other universities by special arrangement and approval of the chairman of the department and the Dean.

140.05. Operable Heart Disease. (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences and Medicine 110 or Surgery 110 and 111.
UC **B. Roe,** *PMC* **Gerbode,** *VA* **Ullyot**

Ward rounds and conferences on patients with operable, congenital or acquired heart disease. Details of selection, differential diagnosis, and results of surgery are discussed.

140.06. Mission Emergency Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences and Medicine 110 or Surgery 110 and 111. **R. Lim and Staff**

Two-weeks participation on the Emergency Ward at *SFGH.* Students will work up selected cases, perform minor procedures under supervision, and follow all surgical emergencies as time permits.

140.07. Shock and Trauma Research. (1½ per week) Su, F, W, Sp. Prerequisite: Core curriculum in basic sciences and Medicine 110 or Surgery 110 and 111. **Sheldon**

Course involves clinical and laboratory investigation and a detailed study of specific patients with trauma and shock.

140.09. Clinical Clerkship in Trauma Surgery. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110 and 111 and consent of instructor. **Sheldon**

Clinical clerkship in the trauma service of the Department of Surgery at *SFGH.* The student will work a intern-clerk level as an integral part of the service.

140.10. Clinical Experience in Cardiothoracic Surgery. (1½ per week) Su, F, W, Sp. Prerequisite: Medicine 110 or Surgery 110 or 111. **Ullyot**

As an integral member of the cardiothoracic team, the student directly and actively shares in preoperative evaluation, operative procedures, and postoperative care. Cardiac and thoracic conferences and daily ward rounds provide the didactic teaching.

140.11. Burn Care Elective. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110. **Trunkey**

Clinical rotation on a large Burn Center Service. Pathophysiology of thermal injury including pulmonary aspects will be stressed. Students act as integral members of the team and participate directly in patient care.

160.03. Clinical Cardiopulmonary Surgery. (2) Sp. Prerequisite: Third or fourth year standing.
Ebert, B. Roe, Hutchinson, N. Fishman

Seminars are conducted on a series of subjects relating to cardiopulmonary surgery, which may be attended separately or in conjunction with weekly rounds on the cardiopulmonary patients.

160.05. Advanced Surgery Reading Course. (2) F. Sp. **Trunkey**

A weekly seminar where previously assigned papers are discussed and critiqued. Papers representing the classical and current concepts in general surgery are covered.

160.06. Total Parenteral Nutrition Clerkship. (5) Su, F, W, Sp. Prerequisite: Surgery 110 and consent of instructor. Lecture 3 hours, Lab 6 hours. **Sheldon**

Course emphasizes nutritional and metabolic requirements of injured, ill, and malnourished patients. Clinical rotation involves methods of preparation, administration, and assessment of patients receiving calorie protein or amino acid support as part of specific therapy.

170.01. Basic Surgical Techniques. (1) F, W. Prerequisite: Anatomy 100. Lab 4 hours. **Feduska**

Course emphasizes the basic principles of operative surgery including asceptic and operative techniques. Students function as surgeon, assistant surgeon, and anesthesiologist in the performance of specific operations on anesthetized dogs. Postoperative evaluation, management, and cardiopulmonary resuscitation are also emphasized.

170.02. Emergency Medical Care at *SFGH.* (1) F. Lecture 2 hours given in alternate weeks. **R. Lim and Staff**

Topics include first aid care with an introduction to suturing, splinting, resuscitation, psychiatric emergency, and civil disaster. Format includes lectures, discussions, films, practice, and tour of Mission Emergency. Course is offered primarily for first and second year medical students.

198. Supervised Study in Surgery. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Ebert and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Surgery. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Ebert and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. General Surgical Staff Conferences. (1½) F, W, Sp.
SFGH **Blaisdell,** *UC* **Ebert,** *VA* **L. Way**

Conferences include presentation of case studies with reference to the literature, case records, laboratory tests, and special studies. Faculty and occasional guest lecturers discuss surgical problems. Death and complications are reviewed weekly.

402. General Surgical Pathology Seminar. (1) F, W, Sp. Interns and residents.
UC **Rambo**

Seminars include case reports and demonstrations of the currently available gross and microscopic surgical pathological material from the operating rooms and pathology laboratories.

403. General Surgical Seminar. (2) Su, F, W, Sp. Interns and residents.
RDMC **Heer,** *SFGH* **Blaisdell,**
UC **Ebert,** *VA* **L. Way**

Seminar is held in the surgical wards with discussion of current problems concerning the diagnosis and management of general surgical patients.

450. Clinical Surgery. (1½ per week) Su, F, W, Sp.
UC **Ebert,** *SFGH* **Blaisdell,** *VA* **L. Way,**
RDMC **Heer,** *C* **V. Richards**

Residents, under supervision, are responsible for the preparation of case records, laboratory work, preoperative patient preparation, assistance at operations, postoperative care, and attendance at follow-up clinic. Senior residents have certain additional administrative, teaching, and clinical responsibilities.

452. Experimental Surgical Laboratory. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 450 and 452 may not be taken concurrently.
UC **Ebert,** *SFGH* **Blaisdell,** *VA,* **L. Way**

Course includes experimental investigations of general surgical problems and the development of technical and laboratory methods to be applied in general surgery.

453. Clinical and Experimental Surgery. (10) Su, F, W, Sp. **Ebert**

Assistant residents in off-campus hospitals approved by the chairman of the department and the Dean. Course includes clinical and experimental investigations of general surgical problems and the development of technical and laboratory methods to be applied in surgery.

490. Clinical Surgery. (1½ per week) Su, F, W, Sp. *SFGH* **Blaisdell**

Interns rotate through the general surgical service, including the intensive care unit. Under the direction of the attending staff, experience is provided in vascular, chest, hand and plastic surgery, and surgery of maxillofacial injuries.

495. Clinical Surgery. (1½ per week) Su, F, W, Sp. *UC* **Ebert**

Interns, under supervision, are responsible for the preparation of case records, laboratory work, preoperative patient preparation, assistance at operations, postoperative care, and attendance at follow-up clinic.

Teaching Methodology

170. Teaching Methods. (1) F, W, Sp. Prerequisite: D.D.S. degree. Seminar 2 hours. **Staff**

Course provides resource information in the form of a systematic overview of educational technology. This information is introduced in conjunction with the development by the individual student of an actual microcourse, teaching a single skill.

176. Practice Teaching. (1) F, W, Sp. Prerequisite: D.D.S. degree. Clinic 3 hours. **Staff**

Practical teaching experience in selected courses under the supervision of members of the staff.

180.02A-B-C. Teaching Methods. (0-3, 0-3, 0-3,) F, W, Sp. Prerequisite: Fourth year standing or consent of instructor. **R. J. Miller**

Predominantly group discussion based on selected readings in educational methodology. Specialists in education are invited to participate. Practical experience in teaching is included in Teaching Methodology 186.01A-B-C. Students teach in selected courses under supervision.

186.01A-B-C. Practice Teaching. (0-3, 0-3, 0-3) F, W, Sp. Lab 3 hours. **R. J. Miller**

Practical teaching experience in selected courses under the supervision of senior members of the staff.

Urology

Core Clerkship—Surgery 110 includes clinical clerkships in the outpatient clinics and hospitals, assistance at operations, and participation in residents' seminars.

140.01. Urology Clinical Clerkship at *UC.* (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110. **Tanagho**

Students work as interns on the Urology Service at *UC.* They also attend rounds and scheduled seminars with residents and visiting staff.

140.02. Urology Clinical Clerkship. (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110. **Tanagho**

Clinical clerkship in off-campus hospitals approved by the chairman of the department and the Dean.

140.03. Urology Clinical Clerkship at *VA.* (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110. **Tavel**

Students work as interns on the Urology Service at *VA.* They also attend rounds and scheduled seminars with residents and visiting staff.

140.04. Urology Clinical Clerkship at *SFGH.* (1½ per week) Su, F, W, Sp. Prerequisite: Surgery 110. **F. Hinman**

Students work as interns on the Urology service at *SFGH.* They also attend rounds and scheduled seminars with residents and visiting staff.

170.01. Fundamentals of Urology. (2) F, W, Sp. Prerequisite: Consent of instructor. **Tanagho and Staff**

Seminar and library research.

198. Supervised Study in Urology. (1-5) F, W, Sp. **Tanagho and Staff**

Library research and directed reading under supervision of a member of the faculty with the approval of the chairman of the department.

199. Laboratory Project in Urology. (1-5) F, W, Sp. Prerequisite: Consent of instructor. **Tanagho and Staff**

A laboratory research project under direction of a member of the faculty with the approval of the chairman of the department.

400. Seminar. (1½) Su, F, W, Sp. **D. R. Smith**

Seminar includes study of the basic sciences and urologic roentgenology with members of the attending staff.

401. Experimental Laboratory. (2) Su, F, W, Sp. **Tanagho**

Course includes experimental investigation in urologic problems.

402. Urologic Clinical Seminar. (2) Su, F, W, Sp. **D. R. Smith**

Seminar includes discussion of diagnosis and treatment of patients in the urology wards with the attending staff.

403. General Urologic Staff Conference. (½) Su, F, W, Sp. **D. R. Smith**

Conference includes presentation and discussion of urologic problems by the house staff and faculty.

450. Clinical Urology. (1½ per week) Su, F, W, Sp.
UC **D. R. Smith,** *SFGH* **F. Hinman,**
VA **Howard**

First year residents care for patients in the wards and outpatient clinics. Second and third year residents, under supervision, perform instrumental examinations on clinic patients. Senior residents, under supervision, perform instrumental and surgical proce-

dures and have administrative, clinical, and teaching responsibilities.

490. Clinical Urology. (1½ per week) Su, F, W, Sp. *SFGH* **F. Hinman**

Interns rotate through urological wards. Under the direction of the attending staff they are responsible for the care of patients, including history-taking, physical examination, laboratory tests, and consultation.