



## Course Listings

*The Fall (F), Winter (W) and Spring (S) designations at the end of each course description designates the quarter(s) that the course has typically been taught during the previous four academic years. Courses with no designation have typically been taught on a variable schedule. These designations are subject to change.*

### ■ BIOSTATISTICS

#### Upper Division Courses

**100A. Introduction to Biostatistics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Suitable for juniors/seniors. Students who have completed courses in statistics may enroll only with consent of instructor. Not open for credit to students with credit for course 110A. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in biological sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. P/NP or letter grading. F/S

**100B. Introduction to Biostatistics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 100A. Not open for credit to students with credit for course 110B. Introduction to analysis of variance, linear regression, and correlation analysis. P/NP or letter grading. W

**110A. Basic Biostatistics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: Mathematics 31B. Not open for credit to students with credit for course 100A. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimates, statistical inference. P/NP or letter grading. F

**110B. Basic Biostatistics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 110A. Not open for credit to students with credit for course 100B. Topics include elementary analysis of variance, simple linear regression; topics related to analysis of variance and experimental designs. P/NP or letter grading. W

**115. Topics in Estimation.** (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 100A, 100B. Small and large sample properties of common estimation techniques arising in biostatistical application. Letter grading. S

**197. Individual Studies in Biostatistics.** (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

#### Graduate Courses

**200A. Biostatistics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 100A and 100B, or 110A and 110B. Topics in methodology of applied statistics, such as design, analysis of variance, regression. S/U or letter grading. F

**200B-200C. Biostatistics.** (4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses M153A, 200A, 202. S/U or letter grading. 200B. Multiple linear regression, including model validation, influence of observations, regression diagnostics; discriminant analysis; principal components; factor analysis and clinical trials. 200C. Measures of association and analysis of categorical data, theory of generalized linear models. W/S

**201. Topics in Applied Regression.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 200A. Further studies in multiple linear regression, including applied multiple regression models, regression diagnostics and model assessment, factorial and repeated measure analysis of variance models, nonlinear regression, logistic regression, propensity scores, matching versus stratification, Poisson regression, and classification trees. Applications to biomedical and public health scientific problems. Letter grading. W

**202. Theory of Regression Analysis.** (2) Lecture, two hours. Requisites: courses 110A, 110B. Co-requisite: course 200A. Additional theoretical topics in regression analysis for students concurrently enrolled in course 200A. Topics include regression applications of matrix algebra, multivariate calculus, and statistical computing. Letter grading. F

**M208. Introduction to Demographic Methods.** (4) (Formerly numbered 405.) (Same as Community Health Sciences M208 and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading. F

**M209. Statistical Modeling in Epidemiology.** (4) (Same as Epidemiology M212.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: Epidemiology M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

**M211. Statistical Methods for Epidemiology.** (4) (Same as Epidemiology M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as courses 100A, 100B). Requisites: Epidemiology 201A, 201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 201A and 201B and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

**212. Distribution Free Methods.** (4) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Theory and application of distribution free methods in biostatistics. S/U or letter grading. F

**213. Statistical Simulation Techniques.** (4) Lecture, three hours; discussion, one hour. Requisites: course 110B, Statistics 100B. Techniques for simulating important statistical distributions, with applications in biostatistics. S/U or letter grading. F/S

**214. Finite Population Sampling.** (4) Lecture, three hours. Requisites: course 110B, Statistics 100B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

**M215. Survival Analysis.** (4) (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Requisite: course 115 or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading. F

**219. Special Topics: Supplemental Topics.** (4) Lecture, three hours; discussion, one hour. Requisite: course 115. Topics in biostatistics not covered in other courses. Letter grading.

**M220. Advanced Experimental Statistics.** (4) (Same as Physiological Science M200.) Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. S/U or letter grading. S

**230. Statistical Graphics.** (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 110A, 110B. Graphical data analysis emphasizes use of visual displays of quantitative data to gain insight into data structure by exploring patterns and relationships, and to enhance classical numerical analyses, especially assumption validity checking. Principles of graph construction, graphical methods, and perception issues. S/U or letter grading.

**M232. Statistical Analysis of Incomplete Data.** (4) (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading. F/S

**233. Statistical Methods in AIDS.** (2) Lecture, two hours. Requisites: courses 110A, 110B, M215. Coverage of methods necessary to address statistical problems in AIDS research, including projection methods for the size of AIDS epidemic and methods for estimating incubation distribution. S/U or letter grading. S

**M234. Applied Bayesian Inference.** (4) (Same as Biomathematics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 115 (or Statistics 100C), 200A. Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading. F/W

**M235. Causal Inference.** (4) (Same as Psychiatry M232.) Lecture, three hours; discussion, one hour. Requisite: course 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading. S

**M236. Analysis of Repeated Measures Designs.** (4) (Same as Biomathematics M282.) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B. Presentation of classical and modern theories for analysis of repeated measures designs, with focus on computation and robustness. S/U or letter grading. W

**M237. Applied Genetic Modeling.** (4) (Formerly numbered M237B, and same as Biomathematics M207B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Preparation: coursework equivalent to courses 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M272; students may take either and are encouraged to take both. S/U or letter grading. S

**M238. Methodology of Clinical Trials.** (4) (Same as Biomathematics M284.) Lecture, three hours; discussion, two hours. Requisites: courses 200A, M215. Methodological principles of clinical trials, actual practice and principles of trials. Considerable focus on phase two trials and multiclinical phase three trials. Emphasis on major inferential issues. S/U or letter grading.

**240. Master's Seminar and Research Resources for Graduating Biostatistics MS Students.** (4) Seminar, three hours. Introduction to resources for finding statistical literature. Discussion of principles of making statistical presentations and how to write statistical reports, including writing abstracts and choice of key words. Discussion of journal article preparation and submission format and refereeing process to help students make progress on their master's reports. Letter grading. S

**245. Advanced Seminar: Biostatistics.** (2) Seminar, two hours. Requisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading. F/W/S

**250A-250B. Linear Statistical Models.** (4-4) (Formerly numbered M250A-M250B.) Lecture, three hours; discussion, one hour. Preparation: one upper division three-term theoretical statistics course. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, Gauss/Markov theorem, fixed and random component models, balanced and unbalanced designs. Letter grading. F/W

**251. Multivariate Biostatistics.** (4) Lecture, three hours; discussion, one hour. Requisite: course 250A. Multivariate analysis as used in biological and medical situations. Topics from multivariate distributions, component analysis, factor analysis, discriminant analysis, MANOVA, MANCOVA, longitudinal models with random coefficients. S/U or letter grading. S

**255. Advanced Topics and Probability in Biostatistics.** (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Topics include conditioning, modes of convergence, basic limit results for empirical processes, von-Mises calculus, and notions of

efficiency in statistics. Applications cover M-L-R estimation in two-sample and regression models, goodness of fit methods, smoothing techniques, and bootstrap. S/U or letter grading. S

**270. Stochastic Processes.** (4) Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Stochastic processes applicable to medical and biological research. Letter grading. F

**M272. Theoretical Genetic Modeling.** (4) (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Statistics 100B, Mathematics 115A and 131A. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading. F

**273. Classification and Regression Trees (CART) and Other Algorithms.** (4) Lecture, three hours. Preparation: Biostatistics 200C or consent of instructor. This course seeks to provide instruction in the use of statistical tools in the analysis of large datasets. The course will teach classification and regression trees as well as other adaptive algorithms. The course will apply CART software as well as other programs to real datasets. S/U or letter grading.

**275. Advanced Survival Analysis.** (4) Lecture, three hours; discussion, one hour. Requisites: course 255, Statistics 200A, 200B. Recommended: course M215. Censoring and truncation, single sample problems, K-sample comparisons, Cox regression model, hazard rate and density estimation, estimation in Markov chains and Markov renewal processes, multivariate models, competing risks. S/U or letter grading. F

**276. Inferential Techniques that Use Simulation.** (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Recommended: Biostatistics 213. Theory and application of recently developed techniques for statistical inference that use computer simulation. Topics include bootstrap, multiple imputation, data augmentation, stochastic relaxation, and sampling/importance resampling algorithm. S/U or letter grading. S

**277. Robustness and Modern Nonparametrics.** (4) Lecture, three hours. Requisite: Statistics 200A. Topics include M-estimation, influence curves, breakdown point, bootstrap, jackknife, smoothing, nonparametric regression, generalized additive models, density estimation. S/U or letter grading. W

**M278. Statistical Analysis of DNA Microarray Data.** (4) (Same as Human Genetics M278) Lecture, three hours. Preparation: Biostatistics 200C or consent of instructor. The course seeks to

provide instruction in the use of statistical tools used to analyze microarray data. The structure will correspond to the analytical protocol an investigator might follow when working with microarray data. S/U or letter grading. W

**279. Optimal Design Theory and Application.**

(4) Lecture, three hours. Preparation: basic programming skills. Requisite: Statistics 200B. Presentation of design methodology for regression problems, with applications to biostatistical problems. Letter grading. W

**M280. Statistical Computing.** (4) (Same as Biomathematics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

**285. Advanced Topics: Recent Developments.** (4) Lecture, three hours; discussion, one hour. Advanced topics and developments in biostatistics not covered in Biostatistics M210 through 219 or 270 through 276 or in other courses. Possible topics include time-series analysis, classification procedures, correspondence analysis, etc. S/U or letter grading.

**288. Seminar: Statistics in AIDS.** (2) Seminar: two hours. Requisite: course 200C. Designed for doctoral students. Recent statistical developments in analysis of AIDS data. Participants or outside speakers present their own research or discuss articles from the literature. S/U grading. W/S

**296. Seminar: Research Topics in Biostatistics.** (1-4) Seminar, two hours. Advanced study and analysis of current topics in biostatistics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading. F/W/S

**400. Field Studies in Biostatistics.** (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

**402A. Principles of Biostatistical Consulting.** (2) Lecture, one hour; discussion, one hour. Requisite: course 100B or 110B. Presentation of structural format for statistical consulting. Role of statistician and client. Reviews of actual statistician/client interactions and case studies. S/U or letter grading. W

**402B. Biostatistical Consulting.** (4) Discussion, two hours; laboratory, two hours. Requisite: course 402A. Principles and practices of biostatistical consulting. May be repeated for credit. S/U grading. F/W/S

**403A. Computer Management of Health Data.**

(4) Lecture, three hours; laboratory, two hours. Preparation: one statistics course. Concepts of health data management, design and maintenance of large databases on various media as well as across networks; computer programming tools and techniques facilitating data entry, transmission, data retrieval for statistical analyses, tabulation and report generation useful to biostatisticians, health planners, and other health professionals. Letter grading. F

**M403B. Computer Management and Analysis of Health Data Using SAS.** (4) (Formerly numbered 403B.)

(Same as Epidemiology M403.) Lecture, two hours; laboratory, two hours. Requisites: courses 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading. W

**406. Applied Multivariate Biostatistics.** (4)

Lecture, three hours; laboratory, one hour. Preparation: at least two upper division research courses. Requisite: course 100B. Use of multiple regression, principal components, factor analysis, discriminant function analysis, logistic regression, and canonical correlation in biomedical data analysis. S/U (optional only for nondivision majors) or letter grading. S

**409. Doctoral Statistical Consulting Seminar.**

(2) (Formerly numbered 289.) Seminar, one hour; laboratory, four hours. Designed for doctoral students. Development of experience and expertise in collaborating with faculty in Schools of Public Health and Medicine. Students meet with investigators and develop design and protocol for data analysis, implement data protocol when data is obtained, and write up the study with lead investigators. S/U grading. F/W/S

**410. Statistical Methods in Clinical Trials.** (4)

Lecture, three hours; discussion, two hours. Requisites: courses 100A, 100B. Design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, and stratification in human experimentation; various types of controls; prognostic factors, survivorship studies, and design of prognostic studies; organization of clinical trials—administration, comparability, protocols, clinical standards, data collection and management. S/U (optional only for nonmajors) or letter grading. S

**411. Analysis of Correlated Data.** (4) Lecture, three hours. Requisite: course 200A. Statistical techniques designed for the analysis of correlated data, including cluster samples, multilevel models, and longitudinal studies. Computations done on SAS and STATA. Mixed models and generalized estimation equations (GEE). Emphasis on application, not theory. S/U or letter grading. W

**413. Introduction to Pharmaceutical**

**Statistics.** (4) Lecture, three hours; discussion, one hour. Requisites: courses 100A, 100B. Exploration of various types of statistical techniques used in pharmaceutical and related industries. Topics include bioassay and other assay techniques (e.g., ELISAs and FACs analysis), quality control techniques, and pharmacokinetic and pharmacodynamic modeling. S/U or letter grading. S

**414. Principles of Sampling.** (4) (Formerly numbered 404.) Lecture, three hours; discussion, one hour. Requisites: courses 100B, Epidemiology 100. Statistical aspects of design and implementation of a sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. Letter grading. W

**419. Special Topics: Applied Statistics.** (4)

Lecture, three hours; discussion, one hour. Requisite: course 100B. Special topics in applied statistics not covered in other courses in professional series. S/U or letter grading. W

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading. W/S

**596. Directed Individual Study or Research.**

(2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. Letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 8)

Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading. F

**599. Doctoral Dissertation Research.** (2 to 8)

Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading. W

## ■ COMMUNITY HEALTH SCIENCES

### Lower Division Courses

**19. Fiat Lux Freshman Seminars.** (1) Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading. F/W/S

**90. Aging Frontier: Public Health Perspective.** (4) (Formerly numbered 190.) Lecture, three hours; discussion, one hour. Introduction to gerontology from public health perspective, emphasizing prevention of illness and promotion of healthy aging. Special attention to health and aging among women and racial/ethnic minorities. Letter grading.

**91. Peer Health Counselor Training.** (4) Lecture, four hours. Limited to students in Peer Health Counselor Program. Analysis of student health care issues as related to campus health care delivery system and to health care consumer. Identification of health needs, determination of appropriate resources, delivery of preventive and self-care education, and delineation of peer health counselor's role. P/NP or letter grading.

**99. Student Research Program.** (1-2) Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division Courses

**100. Introduction to Community Health Sciences.** (4) Lecture, three hours; discussion, one hour. Development of broad appreciation of community, cultural, developmental, and psycho-social factors as they affect health, health-related behavior, and implications for public health. Review of theories, models, and modalities of interventions and policies for health promotion and disease prevention. Letter grading. W/S

**132. Health, Disease, and Health Services in Latin America.** (4) Lecture, four hours. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition. P/NP or letter grading. F

**M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model?** (4) (Same as Asian American Studies M129.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders;

identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading. W

**179. Life Skills for College Women and Men.** (4) Seminar, four hours. Multidisciplinary exploration of student development in undergraduate experience, with focus on processes of identity formation and emotional and social development. Emphasis on variability associated with gender, race, ethnicity, culture, and sexual orientation. Testing of "real-life" relevance of theory and research. P/NP or letter grading. F/W/S

**181. Campus/Community Health and Wellness Promotion: From Theory to Practice.** (4) (Formerly numbered 196A.) Lecture, two hours; discussion, two hours. Limited to juniors/seniors. Theory, training, and experience in health/wellness promotion and health/wellness education in selected campus communities. Participation in supervised small-group program planning project. Letter grading. F/S

**187A. Introduction to Interventions for At-Risk Populations.** (4) Lecture, three hours; committee meetings and community service, two to six hours. Health and social needs/services from primarily a public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students are trained as case-workers and committee members. Letter grading. F/W

**187B. Introduction to Interventions for At-Risk Populations.** (4) Lecture, three hours; committee meetings and community service, two to six hours. Requisite: 187A. Health and social needs/services from primarily a public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students are trained as caseworkers and committee members. Letter grading. W

**195. Community or Corporate Internship in Community Health Sciences.** (4) Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Further supervision provided by public health organization for which students do internship. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising placement sponsor required. P/NP or letter grading. F/W/S

**197. Individual Studies in Community Health Sciences.** (2-4) (Formerly numbered 199.) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled

meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate Courses

**200. Global Health Problems.** (4) Lecture, two hours; discussion, two hours. Overview of health profile of the world in the 20th century. Global health problems and methods by which they have been dealt in context of the Alma Ata goal of "health for all by year 2000." Letter grading. F

**M208. Introduction to Demographic Methods.** (4) (Same as Biostatistics M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading. F

**210. Community Health Sciences.** (4) Lecture, three hours. Preparation: one social sciences course. Basic concepts, relationships, and policy issues in the field of community health, variability in definitions of health and illness, correlates of health and illness behavior, impact of social and community structure on health status, major contemporary approaches to health promotion and health education at community level. Use of comparative international perspective. Letter grading. F

**211A-211B. Program Planning, Research, and Evaluation in Community Health Sciences.** (4-4) Lecture, three hours; discussion, one hour; outside assignments, eight hours. Requisite: Course 210. Course 211A and Biostatistics 100A or Epidemiology 100 are requisite to 211B. Development, planning, and administration of public health programs in community settings. Introduction to range of research methods and techniques used in designing and conducting health research, with particular emphasis on evaluation of community-based public health programs. Course organized into three modules. Letter grading. W/S

**212. Advanced Social Research Methods in Health.** (4) Lecture, four hours; laboratory, two hours; outside assignments, eight hours. Requisites: courses 211A, 211B, Biostatistics 100B, 406. Problems of health survey design and data collection; measurement issues in data analysis and interpretation; use of computer for analysis of large-scale survey data using various statistical techniques. Letter grading. W

**213. Research in Community and Patient Health Education.** (4) Lecture, three hours;

discussion, two hours. Requisite: course 210. Application of conceptual, theoretical, and evaluation skills to community-based health education risk-reduction programs. Computer applications, data management, and research methodologies taught through microcomputer and mainframe computer management and analysis of program databases. Letter grading. F

**M216. Qualitative Research Methodology.** (4) (Same as Anthropology M284.) Discussion, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health care. Letter grading. S

**M218. Questionnaire Design and Administration.** (4) (Formerly numbered 218.) (Same as Epidemiology M218.) Lecture, four hours. Requisites: courses 211A and 211B, or Epidemiology 201A and 201B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading. F/W

**219. Theory-Based Data Analysis.** (4) Seminar, three hours. Enforced requisites: Biostatistics 100A, 100B, 406. Translation of theory into data analytic plan, its application to real data, and interpretation of results obtained through multivariate analysis. Analysis of quantitative data using range of multivariate techniques, such as linear multiple regression and logistic regression. Analysis of theoretical problem using student quantitative data or public use data. Letter grading. W

**221. Introduction to Sociocultural Aspects of Health.** (4) Lecture, three hours; discussion, one hour. Examination of how social stratification and culture relate to health and health-related behavior. Consideration of four major status characteristics: age, ethnicity, gender, and socioeconomic status. Description of epidemiological patterns and discussion of social meaning of the four characteristics. Letter grading. S

**222. Understanding Fertility: Theories and Methods.** (4) Lecture, three hours. Applies demographic theories and methods to describe fertility trends and differentials, social and proximate determinants of fertility; emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, social demography. Letter grading. W

**M223. Tobacco: Prevention, Use, and Public Policy.** (4) (Same as Health Services CM221.) Lecture, four hours. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions,

anti-tobacco efforts in the US, and international trends in tobacco use. Letter grading. F

**226. Women's Health and Well-Being.** (4) Lecture, four hours. Limited to graduate students. Interdisciplinary perspective critically examining research on women's health. Overview of scientific inquiry and methods; gender roles; status attainment and medical sociology. Review of current data on women's health. Letter grading. S

**229. Policy and Public Health Approaches to Violence Prevention.** (4) Lecture, four hours. How policies relate to violence and development of skills to transmit this knowledge. Examination of wide range of policy topics and how each might be associated with a reduction/increase in violence/violent injury. Letter grading. F

**230. Family and Sexual Violence.** (4) Lecture, three hours; community, three to four hours. Examination of rape, incest, and spouse and elder abuse. Presentation of definitions, causes, outcomes of research on family and sexual violence, as well as response of social service, medical, and criminal justice systems. Letter grading. W

**231. Maternal and Child Nutrition.** (4) Lecture, four hours. Nutrition of mothers, infants, and children in countries at various levels of socioeconomic development; measures for prevention and treatment of protein/calorie malnutrition; relationship between nutrition and mental development; impact of ecological, socioeconomic, and cultural factors on nutrition, nutrition education, and service. Letter grading. F/W

**M232. Determinants of Health.** (4) (Same as Health Services M242.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading. S

**M234. Obesity, Physical Activity and Nutrition Seminar.** (4) Lecture, three hours; outside work, one hour. Preparation: admission to UCLA postdoctoral fellowship training program in obesity and nutrition, or graduate public health or biological sciences student. Multidisciplinary introduction at advanced graduate level to research methods and topics on obesity and related conditions in humans and in relevant animal and in vitro models. S/U or letter grading. F

**236. Managing Drug Abuse from Public Health Perspective.** (4) Lecture, four hours. Exploration of numerous areas of public health impacted by drug use; public health options for controlling associated problems; positive and problematic aspects of drug use in terms of costs and benefits; variety of information resources

such as scientific literature, surveys, institutional databases, key indicators, key informants, and expert opinions; and use and application of specific decision-tools such as decision tree analyses, benefit-cost analyses, Delphi panels or other consensus-building approaches, and basic epidemic models when developing public health policies having to do with substance use and misuse. Letter grading. F

**237. Evolving Paradigms of Prevention: Interventions in Early Childhood.** (4) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading. S

**M239. Race and Ethnicity as a Concept in Practice and Research.** (4) (Formerly numbered 239.) (Same as Asian American Studies M239.) Discussion, three hours. Integration of cross-cultural findings in health care with current American (U.S.) health care system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading. F

**M244. Advanced Seminar: Medical Anthropology.** (2-4) (Same as Anthropology M263Q, Nursing M273, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

**M245A-M245B. Child Abuse and Neglect.** (2-2-1) (Same as Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M245A is requisite to M245B, which is requisite to M245C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. Letter grading. F/W

**246. Women's Roles and Family Health.** (4) Lecture, two hours; discussion, one hour. Rapidly changing roles of women throughout the world are having important effects on women's own health and that of their families. Analysis of multidisciplinary research from both developing and industrialized countries to provide basis for in-depth discussion of programmatic and policy implications. Letter grading. S

**247. Population Change and Public Policy.** (4) Lecture, four hours. Examination of international population change, population-related policies, and public health implications of demographic processes. Letter grading. F

**248. Women's Mental Health.** (4) Discussion, three hours. Designed for graduate students. Prevalence of psychological distress and psychiatric disorder among women, with emphasis on impact of social and cultural factors, including gender roles and socialization, stratification and inequality, work and family roles, diagnosis, help-seeking behavior, and treatment. Letter grading. F

**M249L. Ethical Issues in Public Health.** (4) (Same as Health Services M249L.) Lecture, four hours. Requisites: Health Services 200A, 200B, 200C. Case conferences, based on real-life experience, focus on ethical issues in health services organization and management, including ethical issues related to conflict of interest, quality of care, health insurance selection, choice of drugs, reproductive rights, AIDS, and resource allocation. Letter grading.

**M251. Human Resources and Economic Development.** (4) (Formerly numbered M236, same as Education M252C.) Lecture, four hours. Examination, in context of developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments. S/U or letter grading.

**M252. Health Policy Analysis.** (4) (Same as Health Services M233.) Lecture, three hours. Requisites: Health Services 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy. Letter grading. S

**M253. Advanced Topics in Health Services Research: Access to Care.** (4) (Same as Health Services M253.) Lecture, three hours. Requisites: courses 210, 270A, and 270B, or Health Services 237A, 237B, and 237C. Doctoral seminar designed to explore health services research regarding access to health care and policies to enhance access. Topics include conceptual frameworks, measurement issues, study designs, analytic approaches, and substantive findings and trends in access and access-related policies. Letter grading.

**254. Intentional Disasters: War and Refugees.** (2) Lecture, two hours. Recommended: courses 211A, 211B, 295, Epidemiology 100, one survey methods course. Previous international experience strongly encouraged. Overview of intentional disasters, with focus on technically underdeveloped areas and consequent population migration. Principal focus on health consequences of these events and strategies to address health issues. Letter grading. F

**M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries.** (2) (Same as Epidemiology M255.) Lecture, two hours. Injuries have been leading killer of children in the U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. Letter grading.

**M256. Interdisciplinary Response to Infectious Disease Emergencies: Public Health Perspective.** (4) (Same as Medicine/Oral Biology M256, Nursing M298) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Nursing during weeks two through five. Letter grading. W/S

**257. Program Planning in Community Disaster Preparedness.** (4) Lecture, four hours; outside study, eight hours. Requisites: courses 211A, 211B, 295. Health education and emergency management principles combined to design, plan, implement, and evaluate community disaster preparedness programs, including needs assessment, identification of target population, objective writing, program planning, and process, outcome, and impact evaluation. Letter grading. F

**258. Cooperative Interagency Management in Disasters.** (4) Lecture, four hours. Requisites: courses 211A, 211B, 295. Overview of interagency disaster management. How different agencies work together to respond to impact of disasters on public's health. Discussion of difficulties inherent in emergency management, as well as policy and program strategies. Letter grading. W

**M260. Health and Culture in the Americas.** (4) (Same as Anthropology M266 and Latin American Studies M260.) Lecture, three hours. Recommended requisite: course 132. Health issues throughout the Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading. W

**M263. Social Demography of Los Angeles.** (4) (Same as Sociology M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in the U.S. Examination of role of these factors in affecting health outcomes. Letter grading. S

**M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness.** (4) (Same as Anthropology M264 and Latin American Studies M264.) Lecture, three hours. Recommended

preparation: course 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with a variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading. S

**265. Images of Aging and Illness.** (4) Lecture, three hours. This course is intended to help students understand the images of the aged they hold, the images that serve various professional and commercial interests in society, and the images the aged themselves use to make sense out of their experiences. Letter grading. W/S

**270A-270B. Foundations of Community Health Sciences.** (4-4) Lecture, four hours. Requisite: course 210. Course 270A is requisite to 270B. Designed for doctoral students. In-depth analysis of theories, methods, and research on which community health sciences are based. Letter grading. W/S

**271. Health-Related Behavior Change.** (4) Lecture, four hours. Requisite: course 210. Unified behavioral science approach to natural determinants of change, as foundation for planned change in health-related behavior at community, group, and individual levels. Letter grading. W

**272. Social Epidemiology.** (4) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading. F

**273. Social Epidemiology of Chronic Disease.** (4) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of chronic diseases. Topics include hypertension, coronary heart disease, and cancer. Emphasis on lifestyles and other socioenvironmental factors associated with chronic diseases. Letter grading. F

**M275. Health and Illness Behavior.** (4) (Same as Sociology M249B.) Seminar, three hours. Requisites: graduate standing. Seminar discussion based on students' responses to readings on medicalization, health promotion as a moral enterprise and as consumerism, and preoccupation with the body. S/U or letter grading. F/W/S

**276. Complementary and Alternative Medicine.** (4) Lecture, three hours. Requisites:

course 100 or 210, Health Services 100. Analysis of use and acceptance of complementary and alternative medicine (CAM) by clients and providers. Core beliefs of CAM, relationship of CAM and spirituality, licensure and certification of CAM providers, relationship of CAM and conventional medicine, impact of CAM on client identity. Letter grading.

**M279. Building Stronger Communities for Los Angeles.** (4) (Same as Policy Studies M273) Lecture, four hours. This is an introductory survey course on family-centered community building (FCCB). The course will introduce graduate students as well as community practitioners to a range of topics, issues and frameworks to help build stronger, more cohesive and family-centered communities. Letter grading.

**M280. Drugs of Abuse from Neurobiology to Policy and Education.** (4) (Same as Neuroscience CM277.) Lecture, four hours. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Letter grading. W

**281. Capstone Seminar: Health Promotion and Education.** (4) Seminar, 90 minutes; discussion, 90 minutes. Requisite: course 210. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading. F/S

**282. Communication in Health Promotion and Education.** (4) Lecture, three hours. Requisite: course 210. Design, implementation, and evaluation of health communication strategies for health promotion programs. Equal emphasis on communication theories, models, and empirical research literature and on specific applications in health programs and case studies. Letter grading. F/W/S

**283. Aging and Health Behavior.** (4) Discussion, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among the aged. Letter grading. W/S

**284. Sociocultural Aspects of Mental Health.** (4) Discussion, three hours. Designed for graduate students. Examination of how society shapes mental health of its members and lives of those who have been identified as mentally ill. Group differences (e.g., gender, ethnicity) in disorder and how it is socially constructed. Letter grading. S

**286. Doctoral Roundtable in Community Health Sciences.** (4) Seminar, two hours. Designed for departmental doctoral students who must enroll every term until they are advanced to candidacy. Interactive seminar with focus on research process and social mechanisms in science. May be repeated for credit. S/U grading. F/W/S

**M287. Politics of Health Policy.** (4) (Same as Health Services M287.) Lecture, three hours; discussion, one hour. Requisites: course 210, or Health Services 200A and 200B. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading. W

**288. Health Communication in Popular Media.** (4) Lecture, three hours; discussion, one hour. Requisites: course 210 or prior social sciences courses. Designed for graduate public health students. Topics include how popular media portray health issues, how people use these media, and impact of these media on health behaviors and perceptions. Strategies to influence or understand media, such as media advocacy, health journalism, media literacy, and entertainment education. Case examples include both domestic and global health issues. Media content analysis, audience research, and assessment of media effects. Letter grading.

**290. Race, Class, Culture, and Aging.** (4) Lecture, three hours; discussion, one hour. Experience of aging for African American, Latino, and Asian elderly examined in context of their families, communities, and the nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading. W

**291. Health Policy and the Aged.** (4) Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for the aged, identifying failings in those policies within framework of broader health policy problems. Letter grading. F

**292. Communication and Media Development in Health Promotion/Education.** (4) Lecture, three hours; field practice, one hour. Requisites: course 210 or prior social sciences courses. Design of health communication materials using digital media that integrates practice and theory. Letter grading. W

**293. Social and Behavioral Research in AIDS: Roundtable Discussion.** (2 to 4) Discussion, two hours; individual consultation, two hours. Review and discussion of research programs directed toward identification of psychosocial, biobehavioral, environmental, and community factors related to prevention and control of AIDS/HIV. Letter grading. S

**M294. Social and Behavioral Factors of HIV/AIDS: Global Perspective.** (4) (Formerly numbered 294.) (Same as Psychiatry M288.) Lecture, four hours. Requisites: course 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors which influence both transmission and prevention of HIV/AIDS throughout the world. Letter grading. W

**295. Overview of Emergency Public Health.** (4) Lecture, four hours. Designed for graduate students. Overview of issues involved in disaster preparedness and response for public health agencies. Introduction to theoretical and practice aspects of field of emergency public health. Examination of disaster cycle and various natural and human-induced hazards from public health perspective. Letter grading. W

**296. Advanced Research Topics in Community Health Sciences.** (2 to 4) Discussion, two to four hours. Advanced study and analysis of current topics in community health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U or letter grading. S

**375. Teaching Apprentice Practicum.** (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading. F/W/S

**400. Field Studies in Public Health.** (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 60-unit minimum total required for MPH degree. Letter grading.

**M406. Preparing for a Smallpox or Other Bioterrorist Event.** (2) (Formerly Epidemiology M406.) Lecture, two hours. A major current public health issue is the massive effort to prepare for possible bioterrorist events. This class will focus on the practical application of the principles of epidemiology and public health in preparing for a smallpox or other bioterrorist event. Letter grading.

**M411. Issues in Cancer Prevention and Control.** (4) (Same as Health Services M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of the cancer epidemic, cancer control goals for the nation, and interventions designed to encourage smoking cessation/

prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading. F

**M418. Rapid Epidemiologic Surveys in Developing Countries.** (4) (Same as Epidemiology M418.) Lecture, four hours. Requisites: Biostatistics 100A, Epidemiology 100 and/or 200. Presentation of how to do health surveys in Third World countries. Practical assistance for planning and organizing surveys, including use of microcomputers to develop and test the questionnaire, select the sample, process and analyze data, and prepare final report. Letter grading. S

**M420. Children with Special Health Care Needs: Systems Perspective.** (4) (Same as Health Services M420 and Social Welfare M290i.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices which have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading. F

**426. School-Linked Services: Integrated Health, Education, and Social Services for Children in Communities.** (4) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Examination of school services in context of other dramatic changes, scope of problems facing youth, roles that schools may serve as organizers/delivery sites for comprehensive services, and factors that influence development of appropriate school service models. Letter grading. W

**427. Reproductive Health in Sub-Saharan Africa.** (4) Lecture, four hours. Requisites: Community Health Sciences 247 recommended. This course provides students with an in-depth understanding of the reproductive health challenges facing sub-Saharan Africa and the main programs designed to address them. Topics include family planning, STIs, abortion, adolescents, HIV/AIDS, and refugees. Letter grading. W

**432. Perinatal Health Care: Principles, Programs, and Policies.** (4) Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal health care, including perinatal epidemiology, outcome measures, public programs, controversies surrounding new technology, regionalization, organization of services at federal, state, and county levels, and medical/legal issues. S/U or letter grading. F

**433. Reproductive Health: Demographic Applications.** (4) Lecture, four hours. Introductory aspects of population dynamics; reproductive biology (male and female); contraceptive methods; fertility-related behaviors and STDs; methods to measure contraceptive (life tables

and program (evaluation) effectiveness. Letter grading.

**434A. Maternal and Child Health in Developing Areas.** (4) Lecture, four hours. Requisite: course 231. Major health problems of mothers and children in developing areas, stressing causation, management, and prevention. Particular reference to adapting programs to limited resources in cross-cultural milieu. S/U or letter grading. S

**435. Seminar: Advanced Issues in Women's Health.** (4) Seminar, three hours. Preparation: at least one prior women's health course, one to two biostatistics courses, one research methods course. Provides a more advanced and in-depth understanding of ways in which scientists "know" and considerations of women's place in scientific discourse. Examination of a series of case studies as a starting point for discussion. Letter grading. W

**M436A-M436B. Child Health, Programs, and Policies.** (4-4) (Same as Health Services M449A-M449B.) Lecture, four hours. Requisite: Health Services 100. Course M436A is requisite to M436B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading. W/S

**440. Public Health and National Security at the U.S.-Mexico Border.** (2) Lecture, two hours. Course explores community and environmental health as well as health services issues that are present along the U.S.-Mexico and coastal California borders. Integrated within this public health framework are issues and mitigation of national security and disaster-terrorist risks and hazards. Letter grading. S

**441. Planning and Evaluation of Global Health Programs.** (4) Lecture, four hours. Theory, guidelines, and team exercise for planning community health/family planning projects in the U.S. and in developing countries. Phases include community needs identification; goal setting; budget and work plan development; funding; staffing; evaluation design; data and cost analysis; and project presentation. Letter grading. W

**443. Assessment of Family Nutrition.** (4) Lecture, four hours. Requisite: course 231. Assessment of nutritional status of families in developing countries, with special reference to limited resources, terrain, and cross-cultural considerations, stressing anthropometric methods and techniques. S/U or letter grading. W

**447. Health and Social Context in the Middle East.** (4) Lecture, four hours. Recommended preparation: background in Islamic or Middle Eastern studies. Requisite: course 200 or 231 or 434A. Current health issues and problems of countries in the Middle East and implications for

socioeconomic development. Review of economic, demographic, and cultural variation of the region to provide background for discussion of trends and patterns of health and nutritional status of population in the area. Letter grading. W

**448. Nutrition Policies and Programs: Domestic and International Perspectives.** (4) Lecture, two hours; discussion, two hours; field visits. Preparation: one nutrition sciences course and/or nutrition program experience. Nutrition programs and policies in the U.S. and developing countries compared and contrasted. Analysis of role of major international, governmental, and nongovernmental agencies. Emphasis on meeting needs of vulnerable populations. Letter grading. W

**449. Nutrition and Chronic Disease.** (4) Lecture, four hours. Preparation: one graduate or undergraduate course each in chemistry or biochemistry, physiology, and nutritional sciences, or MD degree. Advanced-level seminar on nutritional needs of healthy individuals, current knowledge of role of nutrition in disease prevention, nutritional and metabolic responses to disease, and role of nutritional therapy in management of disease. Letter grading.

**451. Post-Disaster Community Health.** (4) Lecture, four hours. Requisite: course 295. Examination of how public health research and practices can be combined to address post-disaster community health needs. Identification of disaster-related health problems, data collection strategies, and service delivery approaches in a post-disaster environment. Letter grading. F

**452. Management of Food and Nutrition in Major Emergencies.** (4) Lecture, three hours. Designed for second-year master's or doctoral students interested in humanitarian relief. Basic principles required to design rational and cost-effective food and nutrition emergency relief approaches and programs. Letter grading. S

**M470. Introduction to Occupational and Environmental Health Education.** (2 or 4) (Formerly numbered 470.) (Same as Urban Planning M470.) Lecture, three hours. Preparation: at least three social sciences courses. Designed to provide students with understanding of problem areas of occupational and environmental health and health education interventions which can be applied. Letter grading. S

**474. Self-Care and Self-Help in Community Health.** (4) Lecture, two hours; discussion, two hours. Review of background, principles, concepts, programs, and research concerning the emerging field of self-care in health. S/U or letter grading.

**482. Practicum: Community Health Sciences.** (4) Discussion, two hours; fieldwork, up to 20 hours. Requisites: courses 210, 211A, 211B. Understanding of professional practice in health-related organizations. Letter grading. S

**483. Leadership Development and Empowerment for Health Promotion and Health Education.** (4) Lecture, three hours; discussion, one hour. Requisites: courses 210, 211A, 211B. Development of basic understanding of and competency in leadership development and empowerment support for health promotion in multicultural and distressed communities (e.g., south-central Los Angeles). Letter grading. S

**484. Risk Communications.** (4) Lecture, three hours; fieldwork, one hour. Requisites: courses 210, 211A, and 211B, or prior public health and behavioral sciences courses. Risk communication theory, research, and practice, including social and psychological bases of population risk perceptions, media theories, and how risk is portrayed in media. Environmental, product safety, food-borne and infectious diseases, disasters, and bioterrorism communications. Letter grading. S

**485. Resource Development for Community Health Programs.** (4) Lecture, three hours; fieldwork, one hour. Designed for graduate students. Overview course of fund and resource development for public health and community-based programs. Lectures and workshops include developing grant proposals, researching funding sources, evaluating proposals, developing volunteer and in-kind resources, and implementing capital campaigns. Letter grading. F

**487. Community Organization for Health.** (4) Lecture, three hours; fieldwork, four to six hours. Preparation: three public health, sociology, or anthropology courses. Requisite: course 210. Theory and practice of community organizations, including models and strategies of community organization and their application to health problems and health policy. Particular attention to use of community organization for health promotion and to change public policy. Letter grading. F/S

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research.** (2 to 12) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 12)

Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research.** (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research.** (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## ■ ENVIRONMENTAL HEALTH SCIENCES

### Upper Division Courses

**100. Introduction to Environmental Health.** (4) Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants. P/NP or letter grading. F/S

**M166. Environmental Microbiology.** (4) (Same as Civil and Environmental Engineering M166) Requisite: Civil and Environmental Engineering 153. Microbial cell and its metabolic capabilities, microbial genetics and its potential, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

**M166L. Environmental Microbiology and Biotechnology Laboratory.** (1) (Same as Civil Engineering M166L.) Laboratory, two hours; outside study, two hours. Corequisite: course M166. General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading. W/S

**197. Individual Studies in Environmental Health Sciences.** (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate Courses

**200A-200B. Foundations of Environmental Health Sciences.** (6-6) Lecture, six hours.

Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Letter grading. F/W

**200C. Environmental Health Sciences for Nursing Students.** (3) (Not the same as course 200C prior to Fall Quarter 1999.) Lecture, three hours. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Limited to nursing students. Introduction to physical agents, including noise, thermal environment, ionizing radiation, and nonionizing radiation. Exploration of exposure assessment of air pollution in urban areas, occupational exposure assessment for epidemiological inferences, exposure characteristics, air pollution and excess mortality, assessment of exposure to mixture chemicals, multimedia and ecological exposure assessment. Letter grading.

**201. Seminar: Health Effects of Environmental Contaminants.** (2) Seminar, two hours. Requisites: courses 200A, 200B, 230. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit. S/U or letter grading. F

**202. Seminar: Environmental Chemistry.** (2) Seminar, one hour. Requisites: courses 200A, 200B, 410A, 410B. Environmental chemistry aspects of environmental health sciences through multimedia analyses and biological and microbiological analyses. May be repeated for credit. Letter grading. S

**203. Seminar: Ecotoxicology.** (2) Seminar, two hours. Discussion of various topics in ecotoxicology. Topics vary from term to term and include aspects of environmental chemistry, toxicology, and ecology. May be repeated for credit. S/U grading. F

**204. Seminar: Exposure Assessment.** (2) Seminar, two hours. Discussion of various topics in exposure assessment. Topics vary by term and include aspects of population activity, microenvironments, types of monitoring (outdoor, indoor, personal, biomarkers), and multimedia sources of exposure. S/U grading.

**205. Environmental Health Sciences Doctoral Seminar.** (2) Seminar, two hours. Limited to environmental health sciences doctoral students. Presentation of current research of environmental health sciences doctoral students. May be repeated for credit. S/U grading. W

**206. Seminar: Applied Coastal Ecology.** (2) Seminar, two hours. Discussion of various topics in applied coastal ecology. Topics vary by term and include wetland ecology, restoration ecology, and ecology and management of coastal watersheds. May be repeated for credit. S/U grading.

**210. Public Health and Environmental Microbiology.** (4) Lecture, three hours.

Preparation: one course each in biology, organic chemistry, and biochemistry. Basic principles: cycling of matter, fates of natural and man-made compounds in the environment, wastewater and drinking water microorganisms and treatment, and public health microorganisms. S/U or letter grading.

**211. Science and Politics of Environmental Regulation: Coastal Pollution—Sources and Solutions.** (4) Lecture, three hours. Designed for graduate students.

Overview of environmental regulations that protect coastal resources, regulatory agencies that have jurisdiction over coastal resources, past and current coastal pollution problems in the U.S., solving pollution problems through treatment, advocacy, enforcement, restoration, remediation, and watershed management. Letter grading.

**212. Applied Ecology.** (4) Lecture, four hours.

Preparation: one ecology course. Application of ecological theory and principles to solve environmental problems, including conservation biology, assessment of environmental impacts, and restoration ecology and mitigation of environmental impacts. Letter grading. W/S

**225. Atmospheric Transport and Transformations of Airborne Chemicals.** (4) Lecture, four hours.

Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. S/U or letter grading. W

**230. Environmental Management.** (4) Lecture, four hours; discussion, one hour.

Requisites: Economics 100, Mathematics M112, 115A, Political Science 140A, 142B. Introduction to foundations and principles of environmental management, decision making, and evaluation of environmental policies and programs. Letter grading.

**231. Environmental Decision Systems**

**Analysis.** (4) Lecture, four hours; discussion, one hour. Requisite: course 230. Techniques and models of systems analysis and concepts of general system theory as applied to comprehensive study, planning, evaluation, and management of environmental decision systems. Experimentation with relevant computer programs. S/U or letter grading.

**232. Environmental Policy Decision Making.**

(4) Lecture, four hours. Requisites: courses 230, 231. Foundations, principles, and modeling of

environmental policy decision making. Critical analysis of normative and behavioral models of action choices for protection and enhancement of environmental health, and development of an alternative model. S/U or letter grading.

**234. Critical Readings in Environmental Policy for Scientists and Engineers.** (4)

Lecture, one hour; discussion, three hours. Requisite: course 230 or 235. Designed for graduate science and engineering students. Critical analysis of environmental policies, regulations, and decisions and their scientific basis. Literature revision, classroom presentation, and research paper required. Letter grading.

**235. Environmental Policy for Science and Engineering.** (4) Lecture, four hours.

Preparation: bachelor's degree in science, engineering, public health, public policy, political science, or economics, one year of statistics, one year of calculus. Introduction to core methods of environmental economics, policy analysis, basic econometrics, and survey design. Application of case-study approach with considerable memo and paper writing and revision. Emphasis on critical thinking about normative and positive aspects of environmental policies. Normative issues include evaluation of benefits and costs of environmental policies. Exploration of why some environmental policies are readily adopted by society, while other policies go unheeded or lead to perverse and counterproductive outcomes. Letter grading. F

**M239. Pollution Prevention.** (2) (Same

as Urban Planning M262C.) Seminar, one hour. Designed for graduate students. Series of talks by academics, policymakers, industry representatives, and public interest advocates addressing opportunities for and obstacles to adopting principles of pollution prevention, including several case studies of specific policy and industry initiatives in this area. S/U grading.

**240. Fundamentals of Toxicology.** (4) Lecture,

four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on the human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Letter grading. W

**M242. Toxicodynamics.** (4) (Formerly numbered 242.) (Same as Molecular Toxicology M242.)

Lecture, two hours; discussion, two hours. Requisite: course 240. Examination of biochemical, cellular, and molecular mechanisms by which chemicals induce toxicity in wide spectrum of organ systems and in a number of pathological conditions. Letter grading.

**243. Embryology and Teratology.** (4) Lecture,

four hours. Requisite: course 240. Description of normal mammalian embryology at whole animal, cellular, and molecular levels and of biological,

chemical, or physical perturbations of normal processes which produce congenital malformations. Letter grading.

**244. Reproductive and Developmental Toxicology.** (4) Lecture, four hours.

Requisite: course 240. Introduction to current theory and research related to reproductive and developmental toxicology. Letter grading.

**M245. Laboratory in Toxicological Methods.**

(2) (Same as Molecular Toxicology M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading. S

**M249. Toxics Reduction: Science, Engineering, and Policy Issues.** (4) (Same as Chemical

Engineering M290U and Urban Planning M262A.) Lecture, three hours. Requisites: Urban Planning 260. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. Letter grading.

**250D. Industrial Hygiene Practice.** (2)

Seminar, two hours. Requisites: courses 200A, 200B. Presentation of topics that are relevant to current practice of occupational health. Topics include discussions of regulatory framework, risk assessment and risk communication, new legislation, and emergent occupational health issues. S/U grading. S

**251. Prevention of Disease in Workers and Workplaces.** (3) Lecture, three hours.

Review of health conditions caused by occupational exposures, worker-oriented preventive methods, and workplace-related approaches to improving general health. Integration of exposure- and clinical-based preventive strategies. Appropriate for students in occupational-environmental medicine, preventive medicine, epidemiology, nursing, and occupational hygiene, and toxicologists interested in human implications. Letter grading. W

**252D. Properties and Measurement of Airborne Particles.** (4) Lecture, four hours.

Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. S/U or letter grading. S

**252E. Identification and Measurement of Gases and Vapors.**

(4) Lecture, three hours; discussion, one hour; other, two hours. Preparation: one year each of chemistry, physics, and calculus. Theoretical and practical aspects of industrial hygiene sampling and measurement of gases and vapors. Letter grading. S

**252F. Industrial Hygiene Measurements Laboratory.**

(3) Laboratory, three hours. Corequisites: courses 252D, 252E. Limited to industrial hygiene majors. Laboratory methods for sampling, measurement, and analysis of gases, vapors, and aerosols found in occupational environment. S/U or letter grading. S

**252G. Industrial and Environmental Hygiene Assessment.**

(4) Lecture, one hour; discussion, two hours; laboratory, two hours; other, four hours. Requisites: courses 200A, 200B, 252D, 252E, 252F. Environmental and industrial hygiene sampling strategies and assessment via walk-through surveys, lectures, group discussion, actual field measurements, laboratory calibrations, and analyses and reports, with emphasis on chemical, physical, and ergonomic hazards. Letter grading. S

**253A. Physical Agents in Work Environment.**

(2) (Formerly numbered 253.) Lecture, two hours. Preparation: one year of physics. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and heat in the workplace environment. S/U or letter grading. W

**253B. Physical Agents Laboratory.**

(2) Laboratory, two hours. Requisite: course 253A. Hands-on experience in use of survey instruments for evaluation of worker exposure to various physical agents encountered in work environment. Letter grading. W

**255. Control of Airborne Contaminants in Industry.**

(4) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisites: course 252D. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection. S/U or letter grading. F

**256. Biological and Health Surveillance Monitoring in Occupational/Environmental Health.**

(4) Lecture, three hours; discussion, one hour; assignments, three hours. Principles and applications of biological monitoring and health surveillance to assess occupational and environmental exposures to organic and inorganic chemicals and physical factors. Letter grading. F

**257. Risk Assessment and Standard Setting.**

(4) Seminar, four hours. Requisites: courses 240, 251, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational exposures with disease. Special emphasis on

critical evaluations of the literature. Attention specifically to interface of science and regulatory standards. S/U or letter grading. F

**258. Identification and Analysis of Hazardous Wastes.**

(4) Lecture, three hours; discussion, one hour; laboratory, one hour; one field trip. Requisites: courses 252E, Biostatistics 100A. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides a critical understanding of all analytical aspects of hazardous wastes, health aspects, and regulation and practice of handling hazardous wastes. Letter grading. W

**259A. Occupational Safety and Ergonomics.**

(4) (Formerly numbered 259.) Lecture, four hours. Discussion of design and modification of products and industrial manufacturing processes to eliminate or control hazards arising out of mechanical, electrical, thermal, chemical, and other potential energy sources and ergonomic risk factors. Discussion of case studies in industrial manufacturing, construction, and agriculture. Letter grading. S

**259B. Occupational Ergonomics Laboratory.**

(4) Laboratory, four hours. Requisite or corequisite: course 259A. Hands-on experience using typical instruments and analytical techniques utilized in professional practice and research in occupational ergonomics. Laboratory exercises cover anthropometry, force and strength measurements, biomechanical modeling and static prediction, energy expenditure prediction, posture and motion analysis, use of goniometer, and computer-aided workstation design. Letter grading.

**259C. Seminar Series: Occupational Ergonomics.**

(2) Seminar, two hours. Requisites: course 259A. Emphasis on research methodology as applied to prevention and control of worker-related musculoskeletal disorders. Topics include applied anthropometry, biomechanical modeling, strength measurement, postural analysis, fatigue, and medical surveillance of cumulative trauma disorders. S/U grading.

**259E. Occupational Safety and Health Program Management.**

(4) Lecture, four hours. Designed for graduate students. Introduction to application of management principles and techniques for management of safety and health and loss control programs. Letter grading.

**259F. Accident Investigation and System Safety.**

(4) Lecture, four hours. Requisite: course 259A. Introduction to retrospective and prospective safety hazard analysis, system safety, computer-aided hazard analysis, and methodology and process of accident investigation. Letter grading.

**259G. Fire Prevention, Protection, and Facility Design.**

(3) Lecture, three hours. Requisite: course 259A. Introduction to

application of fire sciences, engineering, and management principles to prevention, suppression, and control of fires and explosions and protection of persons and property from fire or explosion damage and injury. Letter grading.

**M259H. Biomechanics of Traumatic Injury.**

(4) (Formerly numbered 259H.) (Same as Biomedical Engineering M259H.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to applied biomechanics of accidental injury causation and prevention; discussion of mechanisms of injury that result in bone and soft tissue trauma; discussion of mechanisms of healing for effective rehabilitation after traumatic injury. Letter grading.

**261. Chemical Behavior of Aquatic Systems.**

(4) Lecture, three hours. Requisites: courses 200A, 200B, Chemistry 20A, 20B, Mathematics 3A. Chemistry of ocean waters, rivers, groundwaters, and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems. Letter grading. W

**264. Fate and Transport of Organic Chemicals in the Aquatic Environment.**

(4) Lecture, four hours. Preparation: bachelor's degree in science, engineering, geophysics, chemistry, biology, or public health. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. S/U or letter grading. S

**M270. Work and Health.**

(4) (Same as Community Health Sciences M278.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading. W

**C280. Principles of Nanobiological Interactions and Nanotoxicology.**

(4) Lecture, four hours. Preparation: basic understanding of biology and chemistry at level required for admission to University of California at undergraduate level in engineering, physical, or natural sciences. Introduction to commonly used vocabulary in nanoscience required to appreciate biological interactions and potential toxicity of nanomaterials. Discussion of synthesis and physical-chemical characterization of engineered nanomaterials. Development of understanding of

unique properties of engineered nanomaterials to their potential for transport, reactivity, uptake, and toxicity in natural environments and in body. Concurrently scheduled with course C180. S/U or letter grading. F

**296A-296N. Seminars: Research Topics in Environmental Health Sciences.** (2 each)

Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading, F/W/S

**296A. Coastal Ecological Processes and Problems.**

**296B. Teratogenesis.**

**296C. Advances in Environmental Evaluation and Conflict Management.**

**296D. Economic Impacts of the Contamination and Remediation of Coastal Waters.**

**296E. Molecular Topics in Boron Biology.**

**296F. Toxicology and Exposure Assessment of Toxic Chemicals.**

**296G. Advances in Aerosol Technology.**

**296H. Occupational Safety and Ergonomics.**

**296I. Industrial and Environmental Hygiene.**

**296J. Germ Cell Cytogenetic/Genetic Biomarkers.**

**296K. Aquatic Chemistry.**

**296L. Water Science and Health.**

**296M. Experimental and Modeling Studies of Atmospheric Pollution.**

**296N. Genetic Toxicology.**

**400. Field Studies in Environmental Health Sciences.** (2 or 4) Fieldwork, to be arranged.

Field observation and studies in selected community environmental health organizations. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

**401. Environmental Measurements.** (4)

Lecture, two hours; laboratory, four hours. Requisites: courses 200A, 200B, Chemistry 20A, 30AL. Instrumental methods for laboratory and field applications to assess quantity of environmental pollutants in air, food, and water, and to assess degree of exposure to such factors as noise and radiation. Letter grading. S

**410A. Instrumental Methods in Environmental Sciences.** (4) Lecture, four hours; discussion, two hours; other, two hours. Preparation: one year each of physics, chemistry, and biology. Theory and principles of instrumental methods through lectures and group discussions. Letter grading. W

**410B. Instrumental Methods Laboratory in Environmental Health Sciences.** (4) Lecture, one hour; discussion, one hour; laboratory, four hours; other, two hours. Preparation: one year each of physics, chemistry, and mathematics. Requisites: courses 200A, 200B. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples. Letter grading. W

**M411. Environmental Health Sciences Seminar.** (2) (Same as Environmental Science M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading. F/W/S

**M412. Effective Technical Writing.** (2) (Same as Environmental Science and Engineering M412.) Lecture, one hour. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Emphasis on accuracy, clarity, conciseness, and avoidance of common errors in advanced technical writing, using critique, exercises, and examples. S/U grading. F

**454. Health Hazards of Industrial Processes.**

(4) Lecture, two hours; field trips, four hours. Requisite: course 255. Industrial processes and operations and occupational health hazards that arise from them. Letter grading. W

**461. Water Quality and Health.** (4) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 401. Introduction to water quality, with coverage of hydrology, water chemistry, and various chemical contaminants that may affect human health. Various treatment methods and health implications. S/U or letter grading. F

**470. Environmental Hygiene Practices.** (2)

Lecture, two hours. Requisites: courses 200A, 200B, 230, 401, Epidemiology 100. Field principles and practices of environmental sanitation as applicable to the sanitarian. Topics include theory, code enforcement, and inspection procedures for applicable environmental topic areas. S/U or letter grading.

**495. Teacher Preparation in Environmental Health Sciences.** (2) Seminar, two hours.

Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research.**

(2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 8)

Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research.** (2 to 8)

Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research.** (2 to 8)

Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

■ **ENVIRONMENTAL SCIENCE AND ENGINEERING**

*Graduate Courses*

**400A. Environmental Science and Engineering Problems Course.** (8) Discussion, eight hours.

Primarily designed for environmental science and engineering doctoral students. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of course 400C).

**400B. Environmental Science and Engineering Problems Course.** (8) Discussion, eight hours.

Requisite: course 400A. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of course 400C).

**400C. Environmental Science and Engineering Problems Course.** (8) Discussion, eight hours.

Requisite: course 400B. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. Letter grading.

**400D. Environmental Science and Engineering Problems Course.** (8) Discussion, eight hours. Preparation: successful completion of internship approved by doctoral committee and program director. Requisite: course 400C. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. S/U or letter grading.

**410A-410B-410C. Environmental Science and Engineering Workshops.** (2-2-2) Discussion, two hours. Primarily designed for environmental science and engineering doctoral students who are conducting problems courses. Development of multidisciplinary skills essential to solution of environmental problems studied within courses 400A through 400D. Development of presentation skills. S/U grading.

**M411. Environmental Health Sciences Seminar.** (2) (Same as Environmental Health Sciences M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

**M412. Effective Technical Writing.** (2) (Formerly numbered 412.) (Same as Environmental Health Sciences M412.) Lecture, one hour. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Emphasis on accuracy, clarity, conciseness, and avoidance of common errors in advanced technical writing, using critique, exercises, and examples. S/U grading.

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual or Tutorial Studies.** (2 to 8) Tutorial, to be arranged. Supervised investigation of advanced environmental problems. S/U grading.

## ■ EPIDEMIOLOGY

### Upper Division Courses

**100. Principles of Epidemiology.** (4) Lecture, two hours; discussion, four hours. Preparation: one full biological sciences course. Not open for credit to students with credit for course 200. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading. W/S

**197. Individual Studies in Epidemiology.** (2 to 4) (Formerly numbered 199) Tutorial, four hours. Limited

to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate Courses

**200A. Methods I: Basic Concepts and Study Design.** (6) Lecture, six hours; discussion, four hours. Requisite or corequisite: Biostatistics 100A. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading. F

**200B. Methods II: Prediction and Validity.** (6) Lecture, six hours; discussion, four hours. Requisites: 200A, Biostatistics 100A, 100B. Introduction to basic concepts, principles, and methods of epidemiologic data analysis. Letter grading. W

**200C. Methods III: Analysis.** (4) Lecture, three hours; laboratory, one hour. Enforced requisites: courses 200A, 200B. Introduction to basic concepts, principles, and methods of epidemiologic data analysis. Letter grading. S

**202A. Epidemiology: Theory and Methodology.** (4) Lecture, four hours. Requisite: course 200C. Advanced principles and methods of epidemiologic analysis. Topics include relating prevalence and incidence, analysis of clustering and seasonality; measures of effect, sources of bias, regression to the mean, estimation and hypothesis testing in epidemiology; models for risk and rates; cohort analysis. S/U or letter grading.

**203. Topics in Theoretical Epidemiology.** (2) Lecture, two hours. Selected topics from current research areas in epidemiologic theory and quantitative methods. Topics selected from biologic models, epidemiologic models, problems in inference, model specification problems, design issues, analysis issues, and confounding. May be repeated for credit with consent of instructor. S/U grading.

**M204. Logic, Causation, and Probability.** (4) (Same as Statistics M243.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: course 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading. F

**M211. Statistical Methods for Epidemiology.** (4) (Same as Biostatistics M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: courses 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and

graphical techniques. Expansion of topics introduced in courses 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

**M212. Statistical Modeling in Epidemiology.** (4) (Same as Biostatistics M209.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: course M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

**M218. Questionnaire Design and Administration.** (4) (Same as Community Health Sciences M218.) Lecture, four hours. Requisites: courses 200B and 200C or Community Health Sciences 211A and 211B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading. F

**220. Principles of Infectious Disease Epidemiology.** (4) Lecture, three hours. Requisite: course 100. Ascertainment of infection, transmission, and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth or illustrate epidemiologic principles. S/U or letter grading. F

**221. Prevalent and Emerging Infectious Diseases in the World.** (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A, 100B. Designed for graduate students and medical doctors seeking broad knowledge and detail on prevalent and emerging infectious diseases, including influenza/acute respiratory infections, cholera/diarrheal disease, tuberculosis, hepatitis B, malaria, measles, neonatal tetanus, HIV/AIDS, pertussis (whooping cough). S/U or letter grading.

**222. Arthropods as Vectors of Human Diseases.** (4) Lecture, four hours. Requisites: courses 100, 220. Comprehensive overview of morphology, systematics, natural history, host/vector/pathogen relationships, and spectrum of diseases carried by arthropods for graduate students, public health professionals, and medical doctors seeking information on global prevalence of arthropod-borne diseases. Letter grading. S

**223. Biology and Ecology of Human Parasitic Diseases.** (4) Lecture, four hours. This course will focus on providing information on all aspects of the parasitic organisms causing human disease. This will include their morphology, biology, means of diagnosis and the diseases they cause. From an epidemiological perspective special emphasis will be placed on the way in which parasites maintain themselves in nature and the manner in which the organisms are transmitted to people. Letter grading. W

**224. Zoonotic Diseases and the Public's Health.** (4) Lecture, four hours. Examination of a wide variety of infectious agents (viruses, bacteria, and protozoan and helminth parasites) causing diseases in individuals and populations. Emphasis on how diseases exist in the natural environment, how they are transmitted from animals to humans, and methods for their prevention and containment. Letter grading. S

**225. Role of Public Health Laboratory in Disease Control.** (2) Lecture, two hours. Requisite: course 100. Role of public health laboratory is to support testing needs of the programs. To successfully fulfill this role, laboratory must provide information based on most sensitive and specific technologies available. Coverage of common infectious disease agents of public health importance and definition of impact of molecular biology on disease detection and epidemiology in modern public health laboratory. S/U or letter grading.

**226. Public Health Responses to Bioterrorism.** (4) Lecture, four hours. Requisite: course 220 or 221. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading. S

**227. AIDS: A Major Public Health Challenge.** (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A or 110A. Presentation of epidemiologic, biologic, psychological, and clinical characteristics of AIDS and HIV-1 infection. Discussion of policy implications and intervention strategies. S/U or letter grading. S

**228. Biology of HIV.** (4) Lecture, three hours. Preparation: two biology courses. Requisites: course 100, Biostatistics 100A. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in the laboratory. Letter grading. W

**229. Epidemiology of Foodborne Illnesses.** (2) Lecture, two hours. Requisites: course 100, Biostatistics 100A. Food poisoning is a significant cause of morbidity and mortality in both developing and developed world. Examination of etiologic agents of food poisoning and factors specific to foods that allow them to become agents of disease transmission. S/U or letter grading.

**230. Epidemiology of Sexually Transmitted Diseases.** (4) Lecture, four hours. Requisite: course 100. Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or letter grading. S

**231. Principles of Control of Infectious Diseases.** (2) Lecture, two hours. Requisites:

course 100 and 220. A comprehensive study of the table for the control of infectious diseases and the application of these tools in public health programs to achieve an epidemiologic impact on disease reduction, elimination or eradication. Letter grading. S

**232. Methods in Reproductive Epidemiology.** (2) Lecture, two hours. Requisites: course 100. This course will introduce epidemiology students to a range of different methodologies used to collect data and conduct analysis on reproductive epidemiology topics. These will include methods that produce quantitative data and methods that produce qualitative data. The emphasis will be to instruct students on the use of methods appropriate for challenging and sensitive research topics such as sexual behavior, abortion use, and sexual abuse. Letter grading. S

**240. Cardiovascular Epidemiology.** (2) Lecture, two hours. Topics include definition, pathogenesis, descriptive epidemiology, magnitude of risk factors, strategies for prevention, lipoprotein metabolism, and epidemiology of diabetes, hypertension, and chronic lung disease. Letter grading. S

**241. Issues in Cancer Prevention Research and Policy.** (2) Lecture, two hours. The course is designed to help participants develop a more informed understanding of the promise of preventive strategies for cancer and of the philosophical, scientific, and practical challenges that these strategies entail. Although each of these topics can stand alone, the course sequence is designed to build upon ideas that move from general to more specific. S/U grading.

**242. Cancer Epidemiology.** (4) Lecture, four hours. Requisite: course 100. Introduction to basic concepts of cancer and molecular and genetic epidemiology. Review of current epidemiologic research in cancer in recent medical and epidemiological literature. Research proposal on a cancer-related topic required. S/U or letter grading. F

**243. Molecular Epidemiology of Cancer.** (4) Lecture, four hours. Requisite: course 242 or 295. Introduction to basic concepts and methodology of molecular epidemiology of cancer and review of current molecular epidemiologic research of cancer in recent medical and epidemiological literature. S/U or letter grading. S

**244. Research Methods in Cancer Epidemiology.** (2) Lecture, two hours. Requisites: course 100, Biostatistics 100A. Biologic, quantitative, philosophical, and administrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening, and cancer control. Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding. S/U or letter grading. S

**245. Epidemiological and Clinical Issues in Research on Aging.** (2) Lecture, two hours. Overview of concepts and current epidemiological and clinical issues in research on aging. Presentations by current epidemiological and clinical researchers at UCLA and coverage of range of current research topics on aging, with focus on conceptual and methodological issues related to each topic area. S/U or letter grading.

**246. Epidemiology of Aging.** (2) Lecture, two hours. Requisite: course 100. Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting the elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading. F

**247. Epidemiology of Injuries in the Elderly.** (2) Lecture, two hours. Requisite: course 100. Description of frequency of, risk factors for, and possibilities of preventing injuries in the elderly populations. Comparison of injury outcomes (morbidity and mortality) in younger vs. older populations. Emphasis on methodologic issues of studying elderly people. S/U or letter grading. W

**248. Psychiatric Epidemiology.** (2) Lecture, two hours. Requisite: course 100. Introduction to basic concepts and research methods in psychiatric epidemiology. Topics include case definition, study design, instrumentation, and epidemiology of selected psychiatric disorders. Letter grading. W

**249. Genetic Epidemiology.** (2) Lecture, two hours. Requisite: at least one course in epidemiology, biostatistics, and genetics. This course is aimed at providing epidemiology and biostatistics students a working knowledge of the basic concepts in the emerging field of genetic epidemiology. The principal focus is on the genetic study of complex diseases, determining genetic contributions to a disease, identifying genes and characterizing their main effects and interactions with environmental factors. Letter grading. F

**250. Terrorism and Mass Destruction.** (2) Lecture, two hours. In the wake of terrorist attacks in several American cities, public health students and practicing professionals need understanding and training to respond to disasters and acts of terrorism and mass destruction. The impacts of terrorism and disasters encompass health, psychological, social, political, and economic effects. The timing, location, and circumstances relating to the terrorist attacks and disasters are also important elements. S/U or letter grading.

**251. Epidemiology of Nonintentional Injuries.** (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Biostatistics 100A. Pertinent epidemiology methods for study of nonintentional trauma, including that from motor

vehicle crashes, occupational exposures, falls, and other major external causes, which focus on research approaches, data sources, analytical techniques. Substantive findings on related subproblem areas presented for critical review. Letter grading. F

**252. Epidemiologic Methods in Violent Injury.** (4) Lecture, three hours; discussion, one hour. Requisite: course 100. Description and critical evaluation of epidemiologic methods in approaches to understanding incidence risk factors and prevention strategies of violence and violence-related injury. Letter grading. W

**253. Acute Traumatic and Chronic Repetitive Injuries from Work-Related Exposures.** (2) Lecture, two hours; discussion, one hour. Requisites: course 100, Biostatistics 100A. Lectures and discussions on magnitude, scope, research approaches, and intervention strategies for work-related acute traumatic and chronic repetitive (musculoskeletal) injuries. Emphasis on injury research methods for all external causes of injury, utilizing epidemiology for high-risk group and risk-factor identification and injury prevention. S/U or letter grading.

**254. Nutritional Epidemiology.** (2) Lecture, one hour; discussion, one hour. Preparation: one introductory epidemiology course. Examination of relationships between dietary exposures and risk of developing chronic disease. Epidemiologic principles combined with nutritional science to critically evaluate current and past issues affecting nutritional epidemiologic studies. Concepts used to explore early studies of population-based dietary assessment, as well as contemporary studies of gene expression, biomarkers, and genetic polymorphisms in relationship to nutrition and risk of chronic diseases. S/U or letter grading. W

**M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries.** (2) (Same as Community Health Sciences M255.) Lecture, two hours. Injuries have been a leading killer of children in the U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. Letter grading.

**257. Nutritional Epidemiology.** (2) Lecture, two hours. Requisites: course 100. This lecture course is an introduction to the study of foods and nutrients in the causation or prevention of diseases. The course will discuss methods for collecting data on diet, study design and analysis, and specific research studies about nutritional influences on disease. S/U or letter grading. W

**258. Epidemiology of Obesity, Diabetes, and Related Disorders.** (4) Lecture, two hours; laboratory, two hours. Preparation: basic biochemistry, epidemiology, molecular biology,

physiology, and statistics courses. Survey of entire landscape of nutritional, biochemical, and genetic aspects of obesity and diabetes and their microvascular and macrovascular complications. Review of descriptive and analytical epidemiology of these seemingly distinct yet clearly clustered disorders, including so-called metabolic syndrome. Study of distributions and determinants of these disorders in Westernized populations to appreciate how and why these epidemics occurred. Through case studies students learn process of generating etiologic hypotheses that can be tested using modern molecular epidemiologic methods. Techniques and principals of molecular genetics relevant to epidemiologic studies. Analysis of real data sets that include both genotype and phenotype information, with emphasis on examination of various gene/environment interactions. S/U or letter grading. W

**259. Disaster Epidemiology.** (2) Lecture, two hours. Requisites: course 100, Community Health Sciences 295. Introduction to epidemiologic methodology to study disasters and their health outcomes, including surveillance, loss estimation, risk factor assessment, intervention, and evaluation. Letter grading.

**260. Environmental Epidemiology.** (2 or 4) Lecture, two hours; discussion, two hours. Requisite: course 100. Epidemiologic methods applied to evaluation of human health consequences of environmental hazards. Lectures on GIS, risk assessment and meta-analysis and a wide range of case studies including air pollution, environmental tobacco smoke, cell phones and radiation. Focus on techniques to critically evaluate and interpret current literature. Letter grading. F

**261. Occupational Epidemiology.** (4) Lecture, two hours; discussion, two hours. Requisite: course 100. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading. S

**262. Seminar: Environmental and Occupational Cancer Epidemiology.** (2) Seminar, two hours. Requisite: course 100. Discussion of examples of recent epidemiologic studies, with focus on environmental and occupational exposures, especially in areas where controversies have arisen such as for electromagnetic fields and childhood leukemia, and bladder cancer and trihalomethanes levels of drinking water. S/U or letter grading. W

**263. Exposure Assessment in Occupational and Environmental Epidemiology.** (2) Lecture, two hours. Requisite: course 100. Exposure assessment is often the most challenging aspect of epidemiologic studies of occupational and environmental hazards. Focus on integration of industrial hygiene principles and epidemiologic

methods to improve exposure assessment protocols and exposure analyses for occupational/environmental health studies. S/U or letter grading. W

**265. Epidemiologic Methods in Occupational and Environmental Health.** (2) Lecture, two hours. Introduction to epidemiology methods applied to evaluation of human health consequences of occupational and environmental hazards, including study design, exposure assessment, and statistical techniques commonly encountered in research focused on assessing adverse health effects resulting from occupational and environmental exposures. Topics include clusters, meta-analysis, risk assessment, and policy development. Illustrated by case studies, with focus on techniques to critically evaluate and interpret current literature. Letter grading. W/S

**266. Global Health and Tropical Medicine.** (2) Lecture, two hours. Introduction to tropical diseases and global health. How humanitarian health issues, maternal-child health, research in tropics, World Health Organizations, and political/medical constraints all are related with respect to health on worldwide scale. Letter grading. W

**267. Methodologic Issues in Reproductive Epidemiology.** (2) Seminar, two hours. General discussion of methodologic issues important to epidemiologic studies of reproductive outcomes, including fertility, low birth weight, prematurity, birth defects, pregnancy loss, and perinatal mortality. Approaches to study design and exposure assessment and identification of potential sources of bias illustrated through review of recent studies published in literature and with particular focus on occupational and environmental exposures and birth cohorts. S/U or letter grading. F/W/S

**268. Introduction to Pharmacoepidemiology.** (2) Lecture, two hours. Requisite: course 100. Pharmacoepidemiology is application of epidemiologic knowledge, reasoning, and methods to study of effects and uses of drugs. Survey of contemporary roles of pharmacoepidemiology in drug development and public health, with historical background of its evolution and projections of future prospects. S/U or letter grading. S

**271. Assessing the Validity of Complementary and Alternative Healthcare Procedures.** (2) Lecture, two hours. Requisites: None. This course will explore the validity of alternative and complementary healthcare procedures with special emphasis on disorders in the field of neurology. It will focus on methods of analyzing clinical and experimental research published in journals which provide support or refute claims made by practitioners of these procedures. The primary procedures that will be discussed will be acupuncture, chiropractic, manipulation, massage and herbal remedies. Letter grading. W

**273. Responsible Conduct of Research in Global Health.** (2) Lecture, one hour; discussion, one hour. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading. S

**280. Connecting the Epidemiological, Medical, and Mathematical Aspects of Infectious Diseases.** (4) Lecture, four hours. Requisites: courses 100 and Epidemiology 220, or permission of instructor. The aim of this course is to deepen and further integrate knowledge on infectious diseases. To accomplish this goal, the course will focus on a small number of infectious diseases to enable in-depth study. Infectious disease will be presented and discussed from three viewpoints that facilitate greater understanding. The first viewpoint is the epidemiology of the disease, the second is the immunology and molecular basis of the disease, and the third is the mathematical analysis of the disease. S/U or letter grading. W

**290. Seminar: Epidemiology—Infectious and Tropical Disease.** (2) Seminar, two hours. Review of research on specific diseases of public health importance. May be repeated for credit. S/U or letter grading.

**291. Seminar: Epidemiology Methodology.** (2) Seminar, two hours. Requisite: course 100. Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. S/U or letter grading. F/S

**292. Advanced Seminar: Epidemiology.** (2) Seminar, two hours. Requisite: course 200C. Current research in epidemiology. May be repeated for credit. S/U grading. F/W/S

**293. International HIV/AIDS Seminar.** (2) Seminar, two hours. Ongoing discussion of worldwide pandemic of HIV/AIDS, with emphasis on problems of surveillance, reporting, and intervention. Discussion of recent literature. Presentations by fellows from other countries. S/U grading. F/S

**294. Epidemiology and Policy of Occupational and Environmental Health Issues.** (2) Discussion, two hours. Requisites: courses 100 and/or 260. Introduction to demands that go beyond “pure science,” with focus on issues such as risk communication, potential influence (and ethics) of oversight panels and external review groups on presenting results and conclusions, and interest of government agencies. S/U or letter grading. F

**295. Seminar: Epidemiology—Cancer.** (2) Seminar, two hours. Requisite: course 100. Introduction of basic concepts of cancer epidemiology and review of current epidemiological research in cancer in recent medical and epidemiological literature. May be repeated for credit. S/U or letter grading. F

**297. Advanced Seminar: Population Genetics and Nutrition.** (2) Seminar, three hours. Preparation: basic courses in biochemistry, epidemiology, molecular biology, physiology, and statistics. Designed for second-year master’s and doctoral students. Lectures, student presentation, and discussion of key topics of current interest in field of nutrition and gene-nutrient interaction. Assessment of significant area of study in nutrition and genomics in student group projects. Applications cover cancer, cardiovascular disease, diabetes, and obesity. S/U or letter grading. S

**400. Field Studies in Epidemiology.** (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

**402. Advanced Data Analysis in Occupational and Environmental Epidemiology.** (4) Lecture, two hours; laboratory, two hours. Preparation: one data management course. Requisites: courses 200B and 200C, or 200B and 261. Development of strategies for analyzing data in occupational and environmental settings. Use of multivariate data analysis techniques typically used in occupational cohort studies, nested case-control studies, and ecologic studies in environmental epidemiology. S/U or letter grading.

**M403. Computer Management and Analysis of Health Data Using SAS.** (4) (Same as Biostatistics M403B.) Lecture, two hours; laboratory, two hours. Requisites: Biostatistics 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading. S

**M406. Preparing for a Smallpox or Other Bioterrorist Event.** (2) Lecture, two hours. A major current public health issue is the massive effort to prepare for possible bioterrorist events. This class will focus on the practical application of the principles of epidemiology and public health in preparing for a smallpox or other bioterrorist event. Letter grading.

**410. Management of Epidemiologic Data.** (2) (Formerly numbered 410B.) Lecture, two hours. Data management for various epidemiologic study designs, confidentiality concerns; data management systems; introduction to mainframe computer. S/U or letter grading. S

**411. Research Resources in Epidemiology.** (2) Lecture, one hour; discussion, one hour. Instruction and practical experience in use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication. Letter grading. F/W

**412. Public Health Surveillance.** (2) Lecture, two hours. Requisites: course 100, Biostatistics 100A. Overview of public health surveillance methodology, including (1) design, implementation, and evaluation of surveillance systems, (2) analysis and interpretation of surveillance data, and (3) application of surveillance methods to specific health-related outcomes. Letter grading. W

**413. Methods of Scientific Communication.** (2) Lecture, two hours. Requisite: course Epidemiology 100. Principles of scientific writing and communication. Approaches to developing effective written, oral and visual presentations of epidemiologic research findings. Communication issues arising in the conduct of research, including the informed consent process. S/U or letter grading. W

**414. Practical Epidemiologic Investigations.** (2 or 4) Lecture, one or two hours; laboratory, one or two hours. Requisite: course 100. Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings. Letter grading.

**415. Epidemiology for Developing Countries.** (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A. Practical use of epidemiology, microcomputers, and spreadsheet models for estimating morbidity and mortality, developing intervention or prevention strategies, and setting program priorities in Third World settings. Letter grading. W

**417. Injury Prevention Strategies and Countermeasures.** (2) Lecture, two hours. Requisite: course 100. Lectures with discussion on injury prevention strategies and countermeasures, including critical review of effectiveness in the public health context. Emphasis on major public health injury problems from assaultive, self-inflicted, or unintentional causes. S/U or letter grading.

**M418. Rapid Epidemiologic Surveys in Developing Countries.** (4) (Formerly numbered 418.) (Same as Community Health Sciences M418.) Lecture, four hours. Requisites: courses 100, Biostatistics 100A. Presentation of how to do

health surveys in Third World countries. Practical assistance for planning and organizing surveys, including use of microcomputers to develop and test the questionnaire, select the sample, process and analyze data, and prepare final report. Letter grading. S

**419. Applications in Musculoskeletal Epidemiology.** (4) Lecture, two hours; laboratory, two hours. Requisites: course 100, Biostatistics 100A. Introduction to principles and practical issues of epidemiologic data analysis for addressing musculoskeletal-related hypotheses. Use of data sets from relevant components of National Health Interview Survey and from musculoskeletal-related epidemiologic studies. Use of SAS programming language, with applications in both UNIX and Windows. Letter grading.

**420. Field Epidemiology in Developing Countries.** (2) Seminar, two hours. Requisite: course 100 or 200A or 200B. Introduction to practical concepts and issues in conducting epidemiologic field research in developing countries, including formulating research questions, study site selection, ethical considerations, and logistics of data and specimen collection. S/U or letter grading. F

**495. Teacher Preparation in Epidemiology.** (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research.** (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research.** (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total

course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research.** (2 to 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## ■ HEALTH SERVICES

### Lower Division Course

**19. Fiat Lux Freshman Seminars.** (1) Seminar, one hour. Discussion and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/ NP grading.

**99. Student Research Program.** (1 to 2) Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division Courses

**100. Health Services Organization.** (4) Lecture, four hours; discussion, one hour. Preparation: 4 units of social sciences. Structure and function of American health care system; issues and forces shaping its future. P/NP or letter grading. F/S

**M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems.** (4) (Same as Asian American Studies M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and health care delivery in the U.S. Letter grading.

**C121. Tobacco: Prevention, Use, and Public Policy.** (4) Lecture, four hours. Designed for juniors/seniors. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in the U.S., and international trends in tobacco use. Concurrently scheduled with course CM221. Letter grading.

**CM141. Women, Health, and Aging: Policy Issues.** (4) (Same as Gerontology M141 and Women's Studies M141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women

experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM241. Letter grading.

**197. Individual Studies in Health Services.** (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. Letter grading.

### Graduate Courses

**200A-200B. Health Systems Organization and Financing.** (4-4) (Formerly numbered 200A-200B-200C.) Lecture, four hours; discussion, two hours. Limited to graduate health services students. In-depth analysis of health services systems in the U.S., using relevant theories, concepts, and models. S/U or letter grading. F/W/S

**M202. Qualitative Research Design and Methodology for Indigenous Communities.** (5)

**M204A-M204B-M204C. Seminars: Pharmaceutical Economics and Policy.** (1-1-2) (Same as Economics M204L-M204M- M204N.) Seminar, three hours every other week for three terms. Requisites: course M236, Economics 201A, 201B, 201C. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress and S/U or letter grading. F/W/S

**205. Pharmaceutical Policy.** (4) Lecture, three hours. Policy issues pertaining to pharmaceutical sector. Topics include determinants of expenditures on drugs, price setting in industry, health insurance coverage for pharmaceuticals, and research and development process. Letter grading. W

**206. Latino Health Policy: Theory, Method and Data.** (4) Lecture, three hours; discussion, one hour. This course will acquaint students with theory, method, and data pertaining to Latino health policy issues. Topics to be covered include minority disparity model, theories on Latino culture, issues on communicable diseases, immigration, assimilation and physician supply. S/U or letter grading. F

**207A-C. Current Health Services Topics.** (3) Seminar, three hours, once a month. Provides opportunity to examine and discuss current health services topics in various practice sectors, with a focus on organizational leadership and direction in addressing these issues. S/U or letter grading. F/W/S

**214. Measurements of Effectiveness and Outcomes of Health Care.** (4) Lecture, three hours. Prerequisites: courses 200A, 200B, M422, Biostatistics 100A. Historical perspective for development of health status measures and their utilization in assessment of outcomes and effectiveness in medical care. Review of current methods in context of current research and practice. Letter grading.

**220. Seminar: Cost Containment.** (4) Seminar, three hours. Through lectures and discussion of journal articles, analysis of success and failure of alternative methods of controlling U.S. health care costs. Examination of how other countries have controlled their costs. Letter grading.

**CM221. Tobacco: Prevention, Use, and Public Policy.** (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors and graduate students. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in the U.S., and international trends in tobacco use. Letter grading. F

**231. History of Public Health.** (4) Discussion, three hours. Designed for doctoral students. Emphasis on topics which illuminate current issues in public health policy. Discussion of historical perspectives on health care providers, health care institutions, health care reform movements, public health activities, childbirth, and AIDS. S/U or letter grading. W

**232. Governmental Health Services and Trends.** (4) Lecture, four hours. Preparation: two upper division social or behavioral sciences courses. Prerequisite: course 100. Systematic analysis of interface between organized programs of personal health services and governmental agencies at all jurisdictional levels. Study of changing relationships between traditional public health and newer medical care and quality control functions. S/U or letter grading.

**M233. Health Policy Analysis.** (4) (Same as Community Health Sciences M252.) Lecture, three hours. Prerequisites: courses 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy. Letter grading. S

**234. Health Services Organization and Management Theory.** (4) Lecture, four hours. Preparation: two upper division social sciences courses. Prerequisites: courses 100, 131. Application of contemporary organization and management theory to systems that provide personal health care services. Environmental characteristics, missions/goals, structure and processes of health services organizations. S/U or letter grading. F/W

**235. Law, Social Change, and Health Service Policy.** (4) Lecture, four hours. Preparation: two upper division political science or sociology courses. Prerequisite: course 100. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs. S/U or letter grading. F/S

**M236. Microeconomic Theory of Health Sector.** (4) (Formerly numbered 236.) (Same as Policy Studies M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Prerequisite: Biostatistics 100A. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading. F/W/S

**237A. Special Topics in Health Services Research Methodology.** (4) Lecture, one hour; discussion, three hours. Prerequisites: Biostatistics 200A. Approaches to conceptualization, modeling, design, literature reviews, sampling, and data collection. Require students to develop a health services research proposal. Letter grading. F/W

**237B. Special Topics in Health Services Research Methodology.** (4) Lecture, one hour; discussion, three hours. Prerequisite: Biostatistics 200B or Biostatistics 201 or equivalent. Introduction to multivariate analysis technique in health services research. Model specification and estimation, regression diagnostics, variable transformations, instrumental variables. Application of statistical software using a large-scale national database. Letter grading. W

**237C. Issues in Health Services Methodologies.** (4) Lecture, four hours. Prerequisites: Biostatistics 200A, Biostatistics 200B or Biostatistics 201, Health Services 237A and 237B. Designed for doctoral students. Intended to train students in statistical and economic methods used in health services research, with a focus on practical application of advanced regression models. Letter grading. S

**238. Politics of Health Care.** (4) Lecture, four hours. Prerequisite: course 100. Concepts and procedures for political analysis; national, state, and local politics in health care; examination of selected case studies. S/U or letter grading.

**239. Aging and Long-Term Care.** (4) Lecture, four hours. Prerequisites: courses 100, 238, Community Health Sciences 270A, 270B. Long-term care of the chronically ill elderly examined from perspective of political and sociodemographic trends, including populations at risk, policy options, and alternative forms of care such as nursing homes, home care, and care by informal support systems. Letter grading.

**240. Health Care Issues in International Perspective.** (4) Lecture, four hours. Preparation: two health administration courses, two upper

division social sciences courses. Analysis of crucial issues in health care; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning, and other aspects of health care systems probed in settings of European welfare states, developing nations, and socialist countries. S/U or letter grading. S

**CM241. Women, Health, and Aging: Policy Issues.** (4) (Formerly numbered M241.) (Same as Social Welfare M290D.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM141. Letter grading. S

**M242. Determinants of Health.** (4) (Same as Community Health Sciences M232.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading. S

**247. Research Topics in Health Economics.** (4) Lecture, four hours. Prerequisites: courses 100, M236. Seminar in economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, health care costs and controls, diffusion of technology, and cost-benefit analysis of health programs. S/U or letter grading.

**249D-249S. Special Topics in Health Services.** (2 to 4 each) Hours to be arranged. Prerequisites for each offering announced in advance by department. Advanced seminars covering current issues and special topics in health policy, health financing, and organization and administration of health services. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change.

**249D. Principles of Organization Leadership: Applications in Public Health and Welfare.** (4) Lecture, three hours; discussion, three hours. Designed for graduate students. Examination of principles and models of organization leadership, including presentation by current leaders in the fields of health and welfare. Theories and empirical investigations of leadership qualities. Letter grading. S

**M249E. Advanced Topics in Health Economics.** (4) (Formerly numbered 249E.) (Same as Policy Studies M266.) Seminar, four hours. Prerequisites: courses 200A, 200B, M236. Advanced

treatment of a number of topics in health economics, including mental health economics, pharmaceutical economics, and relationship between labor supply, welfare, and health. Letter grading. S

**249F. Quality Assessment and Assurance.** (4) Seminar, four hours. Preparation: one health services or epidemiology course. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Fundamental issues in quality assessment, quality assurance, and measurement of health status. S/U or letter grading. W

**249G. Decision Analysis and Cost-Effectiveness Analysis.** (4) Seminar, three hours. Requisites: courses 200A, 200B. Doctoral-level seminar focusing on techniques to assess a broad spectrum of medical technologies: therapeutic and diagnostic tests and procedures, clinical practice patterns, public health interventions, and pharmaceuticals. Demonstration of how decision analysis provides basic framework for conducting various economic evaluations. Letter grading. F

**249H. Current Research Issues.** (2 to 4) Discussion, two hours. Designed for doctoral students. Review of articles in health services journals nominated as the best published during 1990. Analysis of articles to determine contribution to theory, methods, and/or implications for management or policy in health services organizations or health services as a field. S/U or letter grading. F

**249I. Seminar Series.** (2 to 4) Seminar, two hours. Designed for doctoral students. Presentation of proposed or ongoing research projects by faculty and students, with discussion to determine relevant methodological and policy issues, as well as to offer constructive criticism. S/U or letter grading. W

**M249J. Mental Health Services.** (4) (Same as Psychiatry M251.) Lecture, three hours. Requisites: courses 200A, 200B. Designed for doctoral students. Survey of contemporary American delivery of health services to emotionally and mentally ill and retarded. Analysis of characteristics of such services, with historical background of their evolution and projections of their future prospects. Letter grading.

**249K. Health Care Practice Guidelines, Variations in Care, and Patient Outcomes.** (4) Lecture, three hours. Requisites: courses 200A, 200B, M422, Biostatistics 100A, 100B. Designed for graduate students. Participation of students in critical review and discussion of selected papers dealing with course topics, including small and large area variations in care, and development and implementation of clinical guidelines. Emphasis on implications for health policy. Letter grading. S

**M249L. Ethical Issues in Public Health.** (4) (Formerly numbered 249L.) (Same as Community Health Sciences M249L.) Lecture, four hours. Requisites: courses 200A, 200B. Case conferences, based on real-life experience, focus on ethical issues in health services organization and management, including ethical issues related to conflict of interest, quality of care, health insurance selection, choice of drugs, reproductive rights, AIDS, and resource allocation. Letter grading. W/S

**249M. Review of Current Health Services Management Literature.** (2) Lecture, two hours. Designed to help students remain current on recent developments in health services management and to place these current developments in proper context of academic research and theory. Letter grading. F/W/S

**249N. Accessing, Analyzing, and Presenting Health Care Management Data.** (2) Lecture, two hours. Designed to provide first-year MPH health professional students with basic skills, and acquisition and quantitative analysis of data for health care management, as well as written and oral presentation of those results. Letter grading. F

**249O. Tobacco and Public Policy.** (4) Lecture, four hours. This course is designed to equip graduate students in public health with information and analysis of the principal issues in tobacco control. As administrators, researchers, and activists in the field of tobacco control, the faculty feel that all public health professionals in all specialties of public health should be fully informed on strategies to combat the world-wide tobacco epidemic. Letter grading. S

**249P. Ethical Issues and the Healthcare Executive.** (2) Lecture, two hours. Introduce students to the ethical issues facing managers in healthcare organizations today. Provide understanding and resolution of these issues within a framework. Students will be acquainted with the ethical aspects of management and administration of health services, understand the impact of judicial and legislative actions on the scope of decision-making, analyze and resolve ethical issues within the context of organizational decision support systems. Letter grading.

**249Q. Special Topics in Health Services: Editorial Board Apprenticeship.** (2) Seminar, two hours. Designed for postdoctoral fellows and advanced PhD students. Participation in peer review process for academic journal, "Health Psychology," with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U grading.

**249R. Special Topics in Health Services: Cancer Prevention and Control Research.** (2) Seminar, two hours. Limited to graduate students.

Presentations by faculty members and outside speakers, as well as students, on research topics in cancer prevention and control as well as career development issues such as grant writing, scientific review process, research funding, and other academic issues. Presentation of student research in progress as well as solicitation of feedback from class regarding grant proposals, manuscript submissions, and future directions for research. Possible reviews of assigned articles, with focus on particular topics in cancer prevention and control. S/U grading. S

**249S. Special Topics in Health Services: Introduction to Science of Implementing Evidence-Based Practice.** (4) Seminar, four hours. Requisites: courses 200A, 200B. Designed to provide basic understanding of science of implementing evidence-based practice. Through series of didactic teaching and interactive case discussions, introduction to integrated framework to understand key issues related to implementing evidence-based practice and set of tools to apply to evidence base to improving healthcare quality. Guest lecturers included who are nationally recognized experts in topic content area. Interactive discussion and case analyses based on materials closely related to lecture materials. S/U or letter grading. F

**250. Evolution of Health Professions in the 20th Century.** (4) Lecture, two hours; discussion, two hours. During the 20th century there have been dramatic changes in composition of "helping" professions. Review of forces responsible for these changes and description of processes by which lay persons are educated/socialized into major subgroups of health professions. Review of major social forces external to health care system that affect its composition. Letter grading.

**251. Quality Improvement and Informatics.** (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A. Introduction to concepts of health care quality measurement, process improvement, and information systems, as well as organizational aspects of implementing them. Letter grading. F/S

**M252. Medicare Reform.** (4) (Same as Policy Studies M267.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading. S

**M253. Advanced Topics in Health Services Research: Access to Care.** (4) (Same as Community Health Sciences M253.) Lecture, three hours. Requisites: courses 237A, 237B, 237C, or Community Health Sciences 210, 270A, and 270B.

Doctoral seminar designed to explore health services research regarding access to health care and policies to enhance access. Topics include conceptual frameworks, measurement issues, study designs, analytic approaches, and substantive findings and trends in access and access-related policies. Letter grading.

**254. Multi-Disciplinary Perspectives: Research Approaches to Managed Care.** (4) Seminar, three hours. Seminar explores the perspectives and methodologies of nine academic disciplines relevant to health services research. Scholars in each discipline will introduce their framework and discuss applications to current research in managed care. Letter grading.

**M255. Obesity, Physical Activity, and Nutrition Seminar.** (4) (Same as Community Health Sciences M234.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading. F

**260A-260B. World Health.** (2-2) Lecture, two hours. Designed for graduate students. Overview of world health, with emphasis on health care outside the U.S. Key areas include burden of infectious diseases, health economics, and impact of health care policy on health care delivery. In Progress and letter grading. F/W/S

**265. Challenges in Clinical Health Services Research.** (4) Lecture, four hours. Requisites: courses 200A, 200B. Designed to prepare students for challenges involved in conducting health services research on clinical topics and populations. Topics include formulating appropriate questions, identifying sources, mechanism of conducting field studies, identifying funding sources, writing grants, and publishing findings. S/U or letter grading. W

**266A-B. Community-Based Participatory Health Research: Methods and Applications.** (4-4) Lecture, one hour; discussion, one hour; fieldwork, two hours. Limited to clinical scholar fellows. Mentoring of field experiences with introduction to critical issues in conducting research in community settings. Review of assignments, interventions, and evaluation designs for community settings and discussion of practical issues in partnering with communities. Letter grading. F/W

**M269. Health Care Policy and Finance.** (4) (Same as Policy Studies M269.) Seminar, three hours; outside study, nine hours. Requisites: courses 200A, 200B, M236, Biostatistics 100A, 100B. Exploration of demand for health insurance, policies for public insurance (Medicaid and

Medicare), the uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive health care markets. Letter grading. W

**M274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations.** (4) (Same as Psychology M274) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in the U.S. Where appropriate, discussion of international issues as well. S/U or letter grading. W

**286. American Political Institutions and Health Policy.** (4) Lecture, three hours; discussion, one hour. An in-depth introduction to American political and policy making institutions. Letter grading. F

**M287. Politics of Health Policy.** (4) (Same as Community Health Sciences M287.) Lecture, three hours; discussion, one hour. Requisites: courses 200A and 200B, or Community Health Sciences 210. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading. W

**288. Role and Impact of Technology on Health Services.** (4) Lecture, four hours. Examination of role and impact of technology on health services in the U.S. from point of view of system itself. Exploration of various types of technologies for their policy, economic, and organizational impact. S/U or letter grading. S

**289. Healthcare Disparities.** (2) Seminar, two hours. Limited to graduate students. Exploration of what constitutes and explains disparity in healthcare. Emphasis on understanding history of disparities in the U.S. to understand current state of disparities, and on evaluating effectiveness of ongoing strategies to eliminate them, such as increasing insurance coverage and delivery of culturally competent healthcare. Examination of sociological models that explain disparities in healthcare and evaluation and expansion on these models. Letter grading. W/S

**400. Field Studies in Health Services.** (2 or 4) Lecture, three hours. Preparation: summer internship. Required of all graduating MPH students. Continuation of summer placement in organizations for delivery, financing, and evaluation of health services. Preparation of consulting report based on organizational problem or project from summer internship. Exposure to selected professional development issues. Letter grading.

**401. Public Health Informatics.** (4) Lecture, three hours. The course introduces students to

the field of public health informatics, as well as examines the impact of information technology on the practice of public health. Examination of the entire process, from systems conceptualization and design, to project planning and development, to system implementation and use. Letter grading. W

**403. Healthcare Financial Accounting.** (4) Lecture, four hours. Provide introduction to financial and managerial accounting and its application to the health services industry. The course will also provide the basis for understanding the "language of business." S/U or letter grading. F/W

**M411. Issues in Cancer Prevention and Control.** (4) (Same as Community Health Sciences M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of the cancer epidemic, cancer control goals for the nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading. F

**M420. Children with Special Healthcare Needs: Systems Perspective.** (4) F

**M422. Practices of Evaluation in Health Services: Theory and Methodology.** (4) (Formerly numbered 422.) (Same as Sociology M402.) Lecture, four hours. Requisites: courses 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading. F/W/S

**427. Population-Based Health Planning.** (4) Lecture, four hours. Requisites: courses 200A, 200B, Biostatistics 100A. Introduction to techniques of forecasting health care needs, utilization, and expenditures using population-based planning. Letter grading.

**430. New Developments in E-Health and Internet.** (4) Lecture, four hours. Introduction of new technologies in health care e-commerce/Internet/new media area, with emphasis on general background, review of applications, and discussion of organizational and managerial issues dealing with successful use and implementation of technologies. S/U or letter grading.

**431. Managerial Processes in Health Services Organizations.** (4) Lecture, one hour; laboratory, three hours. Requisites: courses 100, 234. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, system, and interorganization. Unique features of health services organizations are stressed as applications are presented. Letter grading. S

**432. Integrative Seminar: Health Services Management.** (4) Seminar, four hours. Requisite: course 431. Residents and preceptors are responsible for presenting cases of actual administrative problems for solution by teams of students and faculty. S/U or letter grading. W

**433. Health Services Organization Policy and Strategy.** (4) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 234, M236, Biostatistics 100A, Management 403. Conceptual, analytical, and technical aspects of policy and strategy formulation in health services organizations. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation. Letter grading. W/S

**434. Employer/Employee Health Management.** (4) Lecture, two hours; discussion, two hours. Preparation: a combination of three graduate courses in health planning, hospital finance, health policy, health insurance, occupational health, health services research, and health information systems. Requisite: course 100. Preview and analysis of how employer and employee groups provide, sponsor, and manage health-related services for others. S/U or letter grading.

**436. Healthcare Financial Management.** (4) Lecture, four hours. Requisites: courses 234, 403. Application of financial management and accounting principles to health care facilities, including unique financial characteristics of health care facilities, third-party reimbursement, cost finding and rate setting, operational and capital budgeting, auditing, and risk management. S/U or letter grading. F/W

**437. Legal Environment of Health Services Management.** (2) Lecture, two hours. Requisites: courses 200A, 200B. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, and contracts. S/U or letter grading. S

**438. Issues and Problems of Local Health Administration.** (4) Lecture, three hours. Preparation: one health services course. Requisites: course 100, Epidemiology 100. Overview of administrative issues currently faced by local health departments, including providing public health programs during fiscal constraint, quality improvement, interagency relationships and partnerships, and political and public interactions. Letter grading. F/W/S

**439. Dental Care Administration.** (4) Lecture, three to four hours. Requisites or corequisites: Biostatistics 100A, Epidemiology 100. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Letter grading. S

**440A. Health Information Systems: Organization and Management.** (4) Lecture, two hours; laboratory, three hours. Requisites: courses 200A, 200B. Principles of and systems related to organization and management of a health facility's health information system. Letter grading. S

**440B. Health Information Systems: Organization and Management.** (4) Lecture, two hours; laboratory, three hours. Requisite: course 440A. Health and administrative research using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and agency. Introduction to principles of medical auditing; analysis of medical and health services. S/U or letter grading.

**441. Ambulatory Care in the U.S.** (4) Seminar, three hours. Requisites: courses 132, 200A, 200B, Management 403. Introduction to organization and management concepts, problems, and issues in ambulatory health services, including financial management and information systems requirements. Letter grading.

**442. Managed Care.** (4) Lecture, three hours. The lecture will orient students to the position of managed care in the U.S. and how it functions, and introduce them to important technical and organizational developments. Explore changes in the organization and delivery of health care as the result of growth of managed care. Letter grading. F/S

**443A. Biological and Social Bases of Prevention.** (4) Lecture, two hours; discussion, two hours. Requisites: courses 100 (or 200A and 200B), Biostatistics 100A, Epidemiology 100. Designed for graduate students. Development, current status, and potential of preventive medicine in public health practice, focusing on risk indicator approach (exercise, alcohol, stress, etc.), with consideration of program settings, delivery problems, and issues. Letter grading.

**444. Applied Methodology in Health Planning.** (4) Lecture, three hours; fieldwork, four hours. Requisites: courses 200A, 200B. Demonstration of methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area. Letter grading.

**445. Health Care Marketing.** (2) Lecture, two hours. Requisites: courses 200A, 200B. Introduce students to the concepts of healthcare marketing. Principles of market-driven decision making processes are explored. Students will examine development of key elements in annual marketing process. Consumer, competitor, company analysis, market segmentation, and target markets are examined. S/U or letter grading. W/S

**447. State Health Policy Issues.** (4) Seminar, three hours. Requisite: course 238. Focus on health policy development and implementation at state government level, with emphasis on financing, direct provision, and regulation of health care services, facilities, equipment technology, and manpower. Exploration of intergovernmental relationships. S/U or letter grading.

**447E. Health Insurance Principles and Programs.** (4) Lecture, four hours. Preparation: one health services course. Requisites: courses 100, 232. Examination of social, actuarial, and commercial assumptions underlying private health insurance. Comparison with government-sponsored health insurance. Analysis of diversity of voluntary medical care insurance plans under different sponsorships and with varied scopes of coverage and benefits and their implications for public and private medical care developments. S/U or letter grading.

**M448. Health Policy Issues for Dental Professionals.** (2) (Same as Dentistry M422.) Lecture, two hours. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. S/U grading.

**M448D. Case Studies in Dental Practice.** (2) (Same as Dentistry M433A.) Lecture, two hours. Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U grading.

**M449A-M449B. Child Health, Programs, and Policies.** (4-4) (Same as Community Health Sciences M436A-M436B.) Lecture, four hours. Requisite: course 100. Course M449A is requisite to M449B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

**450. Healthcare Financial Applications.** (4) Lecture, four hours. Requisites: courses 200A, 200B. Study of health care financial management, including variables of cost of funds, availability of physicians to provide the necessary patients, efficiency of operations, and legal constraints. Letter grading. W

**501. Cooperative Program.** (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate advisor and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research.** (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research.** (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research.** (2 to 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## ■ MOLECULAR TOXICOLOGY

### *Upper Division Courses*

**M110A. Drug Mechanisms: Use and Abuse.** (4) (Same as Pharmacology M110A.) Lecture, four hours; discussion, four hours. Introduction to pharmacology and toxicology for undergraduate students, emphasizing drug development and the mechanisms of actions of drugs and toxic agents. Letter grading. W

**197. Individual Studies in Molecular Toxicology.** (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**M211A-211B-211C. Molecular Toxicology Seminar.** (1-1-1) Seminar, one hour. Seminar series which alternately features outside speakers and members of the molecular toxicology community (students, post-doctoral fellows, and faculty) dealing with topics relevant to molecular toxicology. F/W/S

**M241. Introduction to Chemical Pharmacology and Toxicology.** (6) (Same as Pharmacology M241.) Lecture, six hours. Preparation: organic and biological chemistry. Designed for molecular and medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action. S/U or letter grading. S

**M242. Toxicodynamics.** (4) (Same as Environmental Health Sciences M242.) Lecture, two hours; discussion, two hours. Requisite: Environmental Health Sciences 240. Examination of biochemical, cellular, and molecular mechanisms by which chemicals induce toxicity in wide spectrum of organ systems and in a number of pathological conditions. Letter grading. F

**M245. Laboratory in Toxicological Methods.** (2) (Same as Environmental Health Sciences M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading. W/S

**246. Molecular Toxicology.** (4) Lecture, four hours. Enforced requisite: Environmental Health Sciences 240. Fundamental aspects of toxicology required for deep understanding of toxicological processes, with research-oriented outlook. Dissemination of information about important molecular toxicological topics to make students think about them from research perspective. Students learn about cutting-edge research areas of molecular toxicology, how to most optimally extract important information from research papers, how to critique papers, how to formulate alternative hypotheses for data in papers, how to formulate ideas for future research, and how to express their ideas effectively in oral settings. Letter grading. F

**296A. Research Topics in Molecular Toxicology: Chemical Toxicology.** (2) S/U grading. F/W/S

**296B. Research Topics in Molecular Toxicology: Molecular Carcinogenesis.** (2) S/U grading. F/W/S

**296C. Research Topics in Molecular Toxicology: Teratogenesis.** (2) S/U grading. F/W/S

**296D. Research Topics in Molecular Toxicology: Molecular Topics in Boron Biology.** (2) S/U grading. F/W/S

**296E. Research Topics in Molecular Toxicology: Germ Cell Cytogenetic/Genetic Biomarkers.** (2) S/U grading. F/W/S

**296F. Research Topics in Molecular Toxicology: Genetic Toxicology.** (2) S/U grading. F/W/S

**596. Directed Individual Study or Research.** (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. May not be

applied toward any degree course requirements. May be repeated for credit. Letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations.** (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research.** (2 to 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## ■ PUBLIC HEALTH

### *Lower Division Courses*

**10. Introduction to Public Health.** (4) Seminar, three hours. Designed for lower division students. Introduction to range of topics, issues, and frameworks to help students understand current public health issues and public health systems, policies, and practices. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars.** (1) Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**53. Introduction to the Health of Underserved and Linguistic Minority Communities.** (4) Lecture, three hours. Population projections, characteristics, birth rates and outcomes, causes of death and death rates, patterns of reportable disease, services utilization, patterns of immigration, health insurance, provider training, risk behaviors, and chronic diseases in the Latino and other underrepresented minority communities in Los Angeles County. Letter grading.

**99. Student Research Program.** (1-2) Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### *Upper Division Courses*

**M106. Health in the Chicano/Latino Population.** (4) (Same as Chicana and Chicano Studies M106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in the U.S. and Mexico. Letter grading.

**150. Contemporary Health Issues.** (4) Lecture, four hours. Designed for juniors/seniors. Exploration of nation's health challenges, epidemiologic basis of public's health, organization and financing of health services in the U.S. and elsewhere, and current strategies for advancing people's health. Letter grading.

**M151. Health Care in Transitional Communities.** (4) (Same as Sociology M142) Lecture, three hours; discussion, one hour. Analysis of the social, cultural, economic and political processes affecting the organization and accessibility of health care in transitional and disadvantaged communities. Fieldwork is required. Letter grading.

**M160A. Health Outreach and Education for At-Risk Populations.** (4) (Same as Medicine M160A) Lecture, four hours; possible field observations. First in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for the disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, with field visits. S/U or Letter grading.

**M160B. Health Outreach and Education for At-Risk Populations.** (4) (Same as Medicine M160B.) Lecture, two hours; discussion, two hours. Requisite: course M160A. Second in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, discussion groups, and field activities including health education. P/NP or letter grading.