

Epidemiology has been defined as the study of the distribution and determinants of disease and injury in human populations. Epidemiologists study variations of disease in relation to such factors as age, sex, race, occupational and social characteristics, place of residence, susceptibility, exposure to specific agents, or other pertinent characteristics. Also of concern are the temporal distribution of disease, examination of trends, cyclical patterns, and intervals between exposure to causative factors and onset of disease. The scope of the field extends from study of the patterns of disease to the causes of disease and to the control or prevention of disease. What distinguishes epidemiology from other clinical sciences is the focus on health problems in population groups rather than in individuals.

Epidemiology is a young field with constantly expanding boundaries. The range of activities that may be at least partly epidemiologic includes determination of the health needs of populations, investigation and control of disease outbreaks, study of environmental and industrial hazards, evaluation of preventive or curative programs or treatments, and evaluation of the effectiveness and efficiency of intervention or control strategies. Many tools of epidemiology are borrowed from other fields such as microbiology, immunology, medicine, statistics, demography, and medical geography.

There is a growing core of purely epidemiologic methodology that includes not only statistical methodology and principles of study design, but a unique way of thinking that is beyond the rote memorization of rules. The contribution of epidemiology to any study involving groups of people is being increasingly recognized and demanded.

Epidemiologists may work in many settings, including international health agencies, state and local health departments, federal government agencies and health programs, health maintenance organizations, colleges and universities, and numerous research projects privately and publicly sponsored.

CONTACT INFORMATION

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DEGREES OFFERED

Master of Public Health (MPH)
Master of Science in Epidemiology (MS)
Doctor of Public Health (Dr.PH.)
Doctor of Philosophy in Epidemiology (PhD)

FACULTY

Chair

Jørn Olsen, MD, PhD, *Chair*
Beate R. Ritz, MD, PhD, *Vice Chair*

Professors

Haroutune Armenian, MD, MPH, DrPH, *In Residence*
Thomas J. Coates, PhD, *In Residence*
Susan D. Cochran, PhD, MS
Anne L. Coleman, MD, PhD, *In Residence*
Roger Detels, MD, MS
Ralph R. Frerichs, DVM, DrPH
Sander Greenland, DrPH
David Heber, MD, PhD, FACP, FACN
Leeka I. Kheifets, MA, PhD, *In Residence*
Robert J. Kim-Farley, MD, MPH, *In Residence*
Scott P. Layne, MD
Simin Liu, MD, ScD
Jørn Olsen, MD, PhD
Beate R. Ritz, MD, PhD
Teresa E. Seeman, PhD
Frank Sorvillo, PhD, *In Residence*
Zuo-Feng Zhang, MD, PhD

Professors Emeriti

Lawrence R. Ash, PhD
Ralph R. Frerichs, DVM, DrPH
Jess F. Kraus, PhD
Barbara R. Visscher, MD, DrPH

Associate Professors

Pamina Gorbach, MHS, DrPH

Assistant Professors

Joelle Brown, PhD, *In Residence*
Anne W. Rimoin, PhD, *In Residence*
Michelle Wilhelm-Turner, PhD, *In Residence*

Adjunct Professors

O. George W. Berlin, PhD
James R. Greenwood, PhD, MPH
Scott Haldeman, MD, PhD, FR.C.P. (C)
Paul Simon, MD, MPH
Marc A. Strassburg, DrPH
Nathan D. Wong, PhD

Adjunct Associate Professors

Deborah L. Ackerman, PhD
Sydney Maureen Harvey, PhD
Michael A. Kelsh, PhD
Peter R. Kerndt, MD, MPH

Adjunct Assistant Professors

Catherine L. Carpenter, PhD
Nina Harawa, PhD, MPH
Marjan Javanbakht, PhD
Mary Ann Limbos, MD, MPH
Roberta M. Malmgren, PhD
Shira Shafir, PhD
Lisa V. Smith, MS, DrPH

Preceptors

Susan M. Preston-Martin, PhD, MPH *Professor of Preventive Medicine, USC/Norris Comprehensive Cancer Center*

EPIDEMIOLOGY OBJECTIVES

The objectives of the Department of Epidemiology fall into three broad categories—research, teaching, and community service.

Research: It is the intention of the faculty to (1) advance the field of knowledge of disease causation, transmission, pathopoiesis, and prevention through studies of the distribution of diseases in human populations, through laboratory studies, and through incorporation and coordination of techniques derived from other disciplines and (2) to provide a technical base for development of the optimal use and distribution of health resources for the promotion of community health.

Teaching: The academic objectives are to prepare students for careers in research, teaching, and community service and to provide a stimulating academic environment that challenges students to expand their field of knowledge and to develop their understanding of epidemiologic methodologies and their ability to apply these to health problems.

Community Service: The faculty strives to provide service to the community by giving technical advice and assistance to other programs in the School of Public Health, to other academic institutions, to local, state, national, and international health agencies, and to other individuals or groups in the community, and by carrying out research that is relevant to community needs. Service activities of the faculty are both national and international in scope, with several working in less-developed regions of the world.

The department offers MS and PhD degrees in Epidemiology and, through the School of Public Health, the MPH and DrPH with a specialization in epidemiology. Students are required to take a core curriculum designed to provide them with the basic methodological tools and analytic skills common to the field. After that students may select a general curriculum that focuses on quantitative methods and a broad range of health conditions in populations or emphasize selected areas such as genetics or infectious and tropical diseases.

The MS and PhD programs are generally for students interested in careers in teaching and/or research in universities or research organizations. Students follow a more intensive curriculum in the area of methodology and biomedical sciences and usually minor in a mathematical, biologic, or social science. The MPH and DrPH programs generally prepare students for careers in the practice of epidemiology in local, state, national, and international health agencies. These students obtain broad training in public health as well as in epidemiology. The MPH and DrPH curriculums include

courses in environmental health, behavioral sciences, biostatistics, and health services. Dissertations deal with problem-solving research of a more practical nature.

■ MASTER OF PUBLIC HEALTH (M.P.H)

The MPH is a schoolwide professional degree in the field of public health. Epidemiology is one of the areas of specialization. Students are expected to focus on public health practice and to acquire a broad knowledge related to professional skills. Teaching experience is not required.

◆ Admission Requirements

Applicants must meet the University minimum requirement of an acceptable bachelor's degree with a B (3.0) average in upper division coursework and/or prior graduate study. Exceptionally qualified applicants may be considered on an individual basis. If undergraduate coursework has been deficient in breadth of fundamental training, students must take specified undergraduate courses after admission. Prior field experience is not required as a condition of admission, although a background of public health experience may be considered in the evaluation.

Applicants must perform satisfactorily on the verbal and quantitative sections (analytical section is not required) of a recent Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admission Test (DAT). MCAT or DAT scores are accepted only for applicants already holding MD or DDS degrees. Graduate Management Admission Test (GMAT) scores are accepted only for applicants to the joint M.B.A./MPH program. The GRE requirement may be waived for applicants with a doctoral degree from a U.S. university and five years of appropriate postdoctoral experience.



Department of Epidemiology Faculty

The school does not have a minimum combined score requirement. As a guideline, the average GRE scores for those offered admission over the past three years are Verbal: 570, Quantitative: 730, and Analytical: 690.

International applicants should consult the *UCLA Application for Graduate Admission* for information on the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) examination, and UCLA English as a Second Language Placement Examination (ESLPE) requirements.

The applicant's prior program of study should include adequate preparation in mathematics, physical sciences, biological sciences, and social sciences and typically includes two courses each in mathematics, biological sciences, social sciences; one course in physical sciences; and other courses that constitute an adequate preparation for the proposed area of specialization.

Applicants whose undergraduate or graduate work in the biological, physical, mathematical, and social sciences does not constitute adequate preparation for the proposed area of specialization must include courses in those sciences in their graduate programs; these may not be applied toward the minimum requirements for the degree.

Applicants must be one of the following:

1. Holders of a bachelor's degree from an accredited institution. Preparation in the sciences basic to public health must be adequate. Such sciences may include various combinations of (a) life sciences, (b) physical sciences and mathematics, (c) social sciences, (d) behavioral sciences. Applicants are not expected to be prepared in all four of these fields, but a background in a suitable combination of these sciences is required.
2. Qualified physicians at UCLA in the General Preventive Medicine Residency.
3. Qualified students in the Latin American Studies, African Studies, or School of Medicine articulated degree programs or in the Asian American Studies, Islamic Studies, Management, or School of Law concurrent programs.

◆ Course Requirements

Students must complete at least one year of graduate residence at the University of California and a minimum of 14 full courses (56 units), at least eight of which must be graduate courses and at least two of which must be 400-series courses. Only one 596 course (4 units) may be applied toward the six graduate courses; 597 and 598 courses may not be applied toward the degree.



Epidemiology student Dhanalakshmi Thirumulai receives the Celia and Joseph Blann Fellowship from Dean Linda Rosenstock and Professor Roger Detels.

Required school core courses include Biostatistics 100A or 110A, Community Health Sciences 100, Environmental Health Sciences 100, and Health Services 100. Each core course may be waived if students have taken a similar college-level course elsewhere and can pass the waiver examination.

Field training in an approved public health program of up to ten weeks (a minimum of 4 units but no more than 8) is required of candidates who have not had prior relevant field experience.

In addition to the core courses, at least three courses (2 or 4 units) outside the area of specialization are strongly recommended.

Students with no prior clinical doctoral degree are required to complete Biostatistics 100B, Epidemiology 200A, 200B, 200C, 220, 400, and 20 elective units. The 20 elective units are to be taken from the general list of electives: Epidemiology 202A, 203, M204, M211, M212, 221, 222, 226, 227, M228, 229, 230, 240, 242, 243, 244, 245, 246, 247, 248, 251, 252, 253, M255, 259, 260, 261, 262, 268, 270, 290, 291, 295, 401, 402, M403, 410, 411, 412, 414, 415, 417, M418, 419.

Students who have no prior clinical doctoral degree but are enrolled in an MD/MPH program are required to complete Biostatistics 100B, Epidemiology 200A, 200B, 200C, 400, and 20 elective units, up to 8 of which may be taken outside the department with consent of the advisor and a blue petition.

Students with a prior clinical doctoral degree are required to complete Biostatistics 100B, Epidemiology

200A, 200B, 200C, 400, and 8 total elective units, all of which must be taken inside the department.

All students must submit a report demonstrating competence in epidemiologic methodology. The report may not be submitted prior to completion of Epidemiology 400, which must be taken after completion of course 200C.

Only courses in which students receive a grade of C– or better may be applied toward the requirements for a master’s degree. S/U-graded courses may not be applied toward the degree requirements. Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California.

◆ *Comprehensive Examination Plan*

Students must pass a departmental comprehensive examination. Students who fail may be reexamined once. The aim of the examination, as a culminating experience, is to assess students’ ability to select theories, methods, and techniques from across the content matter of a field, integrate and synthesize knowledge, and apply it to the solution of public health problems.

◆ *Field Training*

Field training in an approved public health program is required of candidates who have not had prior relevant field experience. A minimum of 4 units, but no more than 8, is required.

◆ *Time to Degree*

From graduate admission to award of the degree (depending on the area of specialization), normal progress



Program participants in the UCLA-Fogarty Training Program in Occupational and Environmental health learn how to use an instrument that measures air particulate matter.

is from three to seven terms. The upper limit for completion of all requirements is seven quarters of enrollment, including graduate study at a University of California campus prior to admission to the School of Public Health. The maximum time allowed from enrollment to graduation, including leaves of absence, is five years.

■ **MASTER OF SCIENCE (MS) IN EPIDEMIOLOGY**

The MS in Epidemiology is a research-oriented degree within the general field of epidemiology. It includes the preparation of a thesis or comprehensive examination/ major written report. Teaching experience is not required.

◆ *Admission Requirements*

See the admission requirements for the MPH program. Additionally, it is the policy of the department to admit to the MS program only those applicants who hold a prior MPH or doctoral degree such as MD, DDS, DVM, PhD, or equivalent. The department also admits students whose ultimate objective is the PhD degree. The MS degree may be earned as part of the process of completing requirements for the PhD.

◆ *Course Requirements*

Students must complete at least one year of graduate residence at the University of California and a minimum of 56 units of graduate and upper division courses (38 units of core courses and 18 units of electives), at least 20 units of which must be in the 200 or 500 series. A maximum of one course from Epidemiology 290 or 291 and one 596 course (4 units) may be applied toward the total course requirement. If students are approved to write a thesis, 4 units of course 598 may also be applied toward the 18-unit elective requirement.

Required core courses include Epidemiology 200A, 200B, 200C, 220, 290 or 291, Biostatistics 100A or 110A, 100B or 110B; one additional statistics course (4 units) in regression or multivariate methods to be approved by the department; and Biostatistics 403A or Epidemiology 410 or equivalent. Equivalent courses must be approved by the department. Each core course may be waived if students have taken a similar college-level course elsewhere and can pass the waiver examination. A waiver course does not reduce the unit requirements. Elective courses include all those offered by the department with the exception of those stated above.

All courses included for advancement to candidacy, except Epidemiology 290 or 291, must be taken for a letter grade



Epidemiology student Matt Wise receives the Dean's Outstanding Student Award from Dean Linda Rosenstock and Professor Frank Sorvillo.

(not on S/U grading basis). Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California. In addition, students must maintain an average of no less than 3.0 (B) in courses 200A, 200B, 200C, and 220.

A thesis or comprehensive examination must be completed before graduation.

◆ *Thesis Plan*

If the thesis option is approved, a thesis committee of three faculty members is appointed by the dean of the Graduate Division on recommendation of the department. The chair of the committee and at least one other member must hold academic appointments in the Department of Epidemiology. The committee approves the thesis prospectus before students file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

◆ *Comprehensive Examination Plan*

If the comprehensive examination option is approved, a guidance committee of three departmental faculty members is appointed. A comprehensive examination on the major area of study must be passed. If failed, the examination may be repeated once.

In addition, students must complete a research project with an article appropriate for publication.

◆ *Time to Degree*

From graduate admission to award of the degree, normal progress is from three to seven terms. The upper limit for

completion of all requirements is seven quarters of enrollment, including graduate study at a University of California campus prior to admission to the School of Public Health. The maximum time allowed from enrollment to graduation, including leaves of absence, is five years.

■ DOCTOR OF PUBLIC HEALTH (DRPH)

The DrPH is a schoolwide degree and the highest professional degree for the public health generalist. Students are expected to focus on public health practice and to acquire broad knowledge related to professional skills. The dissertation is of an applied, practical, problem-solving nature and must demonstrate ability for independent investigation. Epidemiology is one of the areas of specialization. There is no foreign language requirement; teaching experience is recommended but not required.

◆ *Admission Requirements*

In addition to the University minimum requirements, (see the Graduate Study section in the *UCLA General Catalog*, www.registrar.ucla.edu/catalog), the department requires:

1. Satisfactory performance on the Graduate Record Examination (GRE); the school does not have a minimum combined score requirement; as a guideline, the average GRE scores for those offered admission over the past three years are Verbal: 517 and Quantitative: 640; the averages are generally higher for those admitted into the doctoral program than for those admitted into the master's program.
2. Completion of the MPH or a master's degree in an appropriately related field (if the master's degree is in a field other than public health, applicants must have taken the equivalent of the MPH mandatory core courses or include them in the course of study after admission).
3. At least a 3.0 junior/senior undergraduate grade-point average, at least a 3.5 GPA in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory core courses.
4. A positive recommendation by the department to the School of Public Health.
5. Approval by the subcommittee on Student Affairs and the Associate Dean for Academic Programs.

◆ *Advising*

Within the first three quarters of study, students file Doctoral Form 1, *Petition for Establishment of Three-Member Guidance Committee and Study in Major and Minor Fields for the DrPH*. The guidance committee consists of three members, which must include the advisor in the major field and the advisor in the minor field. On this form, students list the courses to be taken for the minor which must be approved by the advisor, the area head, and the department chair. For more information, see *Advising* under the **General Regulations** section of this announcement.

◆ *Course Requirements*

Candidates must complete a minimum of 50 units beyond the requirements for the MPH degree. Required courses include Epidemiology M204 and either 4 units of statistics beyond Biostatistics 100B or 110B or 4 units in methodology from a list approved by the department. The requirements are equivalent for all students, regardless of a prior doctoral degree. Candidates must take at least five full courses (20 units) of the 50 units within the Department of Epidemiology, and a minimum of six full courses (24 units) in at least two School of Public Health departments other than Epidemiology. At least four of the six non-epidemiology courses must be at the 200 or 400 level. Students must also take three quarters of Epidemiology 292 for a total of 6 units, thereby fulfilling the 50-unit minimum requirement. A field experience is required, selected in consultation with the advisor, for a duration of at least eight months, and is composed of full-time field training at no more than two sites, with at least one being outside the School of Public Health. During the field experience, students enroll in 8 units of Epidemiology 596 each academic-year term. These units are in addition to



the 50-unit minimum requirement. It is recommended that the fieldwork take place after students have passed the written qualifying examination. The chosen field site may be with a government or nongovernment health agency, a private foundation, the military, or with a business in the private sector. The selected site should have public health relevance and offer exposure to creative epidemiologic practices and experiences. The intent is to provide experience in recognizing and describing health problems, determining causative factors, developing intervention or prevention strategies, and evaluating the effect or impact of health programs or policies.

◆ *Screening/Qualifying Examinations*

No screening examination is required. Before advancement to candidacy, students must pass written examinations in the major field prepared and administered by the department faculty. Normally no more than one reexamination after failure is allowed. The doctoral committee is nominated after students have made a tentative decision on a dissertation topic. The doctoral committee administers the University Oral Qualifying Examination after the written examinations have been successfully completed.

◆ *Doctoral Committee*

The doctoral committee consists of at least four faculty members who hold professorial appointments, two of whom must be tenured. Three of the four must hold appointments in the School of Public Health, one must be an outside member who holds no appointment in the School of Public Health, and one of the four must be from the minor field.

The chair of the doctoral committee and one additional member must be from the Epidemiology Department.

◆ *Final Oral Examination*

A final oral examination is required of all candidates.

◆ *Time to Degree*

Normally students are not admitted to the DrPH program until after they have completed a master's degree. If students have not completed a prior master's degree program, this program must be completed. Admission to the doctoral program should take place by the sixth quarter in residence, and the written and oral qualifying examinations should be completed by the tenth quarter in residence. If students have completed a master's degree program, the written and oral examinations should be completed by the sixth quarter in residence. Four quarters are normally taken from completion of the oral qualifying examination to the final

oral defense. The maximum time allowed in the program is 20 enrolled quarters or eight years.

This limitation includes graduate study at a University of California campus prior to admission to the doctoral degree program and leaves of absence. However, the approved normative time-to-degree is 18 quarters (six years). For more information, refer to *Standards and Procedures for Graduate Study at UCLA*.

■ DOCTOR OF PHILOSOPHY (PHD) IN EPIDEMIOLOGY

The PhD in Epidemiology is an advanced research degree that emphasizes depth of knowledge and research skills. The dissertation must demonstrate ability for independent scholarly investigation. There is no foreign language requirement for the PhD; teaching experience is recommended but not required.

◆ Admission Requirements

In addition to the University minimum requirements, (see the Graduate Study section in the *UCLA General Catalog*, www.registrar.ucla.edu/catalog), the department requires (1) satisfactory performance on the Graduate Record Examination (GRE), (2) at least a 3.0 junior/senior undergraduate grade-point average and at least a 3.5 GPA in graduate studies, and (3) approval by the department admissions committee, an academic advisor, and the department chair.

◆ Advising

An academic advisor is assigned to each new student by the department chair. The student and the advisor together agree on a Study List for each academic term; any subsequent alterations must be approved by the advisor before being submitted to the Graduate Division. Courses must be approved by the advisor.

◆ Course Requirements

Students must fulfill the course requirements for the MS degree in Epidemiology with an average of no less than 3.3 (B+) in Epidemiology 200A, 200B, 200C, and 220. Equivalent courses taken at other institutions may be used to fulfill these requirements subject to approval by the department. Continuation in the doctoral program is contingent on satisfying the 3.3 (B+) grade-point requirement. Students must also take course M204 and one additional statistics course beyond the MS requirements, at least three quarters of course 292, and one pathobiology course (4 units). The statistics and

pathobiology courses must be approved by the department. In addition, students must take at least 12 units of graduate-level courses (excluding 500-level courses) outside the department, which must be selected with the approval of the academic advisor. Students with prior postbaccalaureate coursework may petition for substitution of part or all of the 12-unit requirement. Recommendation for the degree is based on the attainments of the candidates rather than on the completion of specific courses.

◆ Qualifying Examinations

Before advancement to candidacy, students must pass the departmental written doctoral examination and the University Oral Qualifying Examination. Normally no more than one reexamination is allowed for the written examination. A doctoral committee is nominated and, if approved, administers the University Oral Qualifying Examination. After completing the course requirements and passing both the written and oral examinations, students may be advanced to candidacy and complete work on a dissertation in the principal field of study.

◆ Final Oral Examination

A final public defense of the dissertation is required.

