Environmental Health Sciences

The goal of the Department of Environmental Health Sciences is to promote human health through a healthy environment. The research and educational activities of the Department's faculty and students range from studying the impact of biological, chemical, and physical hazards on human health to understanding how human activities impact the environment. Our graduates are highly trained scientists and professionals capable of identifying and measuring agents of environmental concern; evaluating the health, environmental, and all other impacts of such agents; developing means for their effective management; and evaluating alternative policies directed at improving and protecting environments. This training is accomplished through several degree programs which offer specialized study in selected academic areas of environmental health sciences such as air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, and water quality. Graduates of the department have pursued careers in both the private and public sectors as researchers, educators, managers, policymakers, and practitioners.

The department offers MS and PhD degrees in Environmental Health Sciences and, through the School of Public Health, the MPH and DrPH degrees with a specialization in environmental health sciences. In addition, a unique doctoral degree (Doctor of Environmental Science and Engineering—D.Env.) is offered by the interdepartmental Environmental Science and Engineering Program which is administered through the department. The Molecular Toxicology interdepartmental doctoral program is also jointly administered by the Environmental Health Sciences Department.

CONTACT INFORMATION

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Los Angeles, CA 90095-1772

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DEGREES OFFERED

Master of Public Health (MPH)
Master of Science in Environmental Health Sciences (MS)
Doctor of Public Health (DrPH)
Doctor of Philosophy in Environmental Health Sciences (PhD)
Doctor of Environmental Science and Engineering (DEnv)
Doctor of Philosophy in Molecular Toxicology (PhD)

■ MASTER OF PUBLIC HEALTH (M.P.H)

The MPH is a schoolwide professional degree in the field of public health. Environmental health sciences 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. The MPH program in Industrial Hygiene is fully accredited by the Applied Science Accreditation Commission of ABET (ABET/ASAC).

◆ *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.

FACULTY

Chair
Hilary A. Godwin, PhD

Professors
Richard F. Ambrose, PhD
Michael D. Collins, PhD
Jared M. Diamond, PhD
Curtis D. Eckhert, PhD
John R. Froines, PhD
Jon Fukuto, PhD
Hilary A. Godwin, PhD
William C. Hinds, ScD
Shane S. Que Hee, PhD
Beate R. Ritz, MD, PhD
Linda Rosenstock, MD, MPH, *Dean*
Robert H. Schiestl, PhD
Irwin H. Suffet, PhD
Arthur M. Winer, PhD
Zuo-Feng Zhang, MD, PhD

Professor Emeriti
Arthur K. Cho, PhD
Climis A. Davos, PhD
Robert A. Mah, PhD

Associate Professors
Wendie Robbins, PhD, MSN.
Jane L. Valentine, PhD

Assistant Professors
Nola J. Kennedy, PhD *(In Residence)*

Adjunct Associate Professor
Linwood H. Pendleton, PhD

Adjunct Assistant Professor
Pablo Cicero-Fernandez, DEnv

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.

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 and Quantitative: 700.

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, and one course in physical sciences.

Applicants whose undergraduate or graduate work in the biological, physical, mathematical, and social sciences does not constitute adequate preparation 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 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.

◆ *Specific Specialization Requirements*

Students specializing in environmental health sciences should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Coursework should include one year of general chemistry (including quantitative analysis) and two quarters or one semester of organic chemistry and/or biochemistry, mathematics through calculus, one year of biological sciences, and one year of physics. Substitutions for these requirements are considered for applicants with an otherwise superior academic background.

Department of Environmental Health Sciences Faculty

◆ *Course Requirements*

A minimum of 62 units are required to complete the degree. The units are divided among required School core courses (16 units), required departmental courses (34-38 units) and electives (12 units minimum).

The required School core courses include Biostatistics 100A or 110A, Community Health Sciences 100, Epidemiology 100, and Health Services 100. Each core course may be waived if students have taken a similar university-level course elsewhere and can pass a waiver examination.

The required departmental courses include Biostatistics 100B, Environmental Health Sciences 200A, 200B, 201, 240, 400, 401 (or 410A and 410B), and M411 (to be taken once a year for two years). Departmental required courses can be waived if students have taken a similar university-level course elsewhere and/or can pass a waiver examination. In addition, at least 12 units of elective courses are also required.

Students may choose to focus on one of the following areas: air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, and water quality. Students are encouraged to consult with their faculty advisor to design a program of study that best prepares them for their intended careers.

Students must be in residence at least one year as a graduate student. Normally two years (six academic quarters) are needed to complete the coursework required for the degree. Students must complete a minimum of 11 full courses (44 units), at least six 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. No more than 18 full (4 unit) courses may be required for the degree.

Only courses in which students have received a C- or better may be applied towards the requirements for a master's degree. Courses that are graded S/U (Satisfactory/Unsatisfactory) may not be applied towards the degree requirements. Students must maintain a grade point average of 3.0 (B) or better in all courses required or elected during their 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. Most students complete this requirement during the summer after their first year of studies. It is also possible to do the fieldwork during the academic year rather than the summer.

Environmental health sciences student Khadeeja Abdullah receives the Dean's Outstanding Student Award from Dean Linda Rosenstock and Professor William Hinds.

◆ *Time to Degree*

The normal time to degree from initial enrollment to graduation is six to seven quarters. 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 ENVIRONMENTAL HEALTH SCIENCES

The MS in Environmental Health Sciences is a research-oriented degree that includes the preparation of a thesis or comprehensive examination and a major written report. Academic areas of specialization include air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, and water quality. The MS program in industrial hygiene is fully accredited by the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET/ASAC).

◆ *Admission Requirements*

The department requires the following:

1. A bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least one year of chemistry (including organic chemistry or biochemistry), physics, biology, and mathematics through calculus.
2. A junior/senior grade-point average of at least 3.0.
3. Satisfactory performance (verbal and quantitative) on the Graduate Record Examination (GRE). There is not a minimum combined score requirement. As a guideline, the average scores for those offered admission to the school over the past three years are Verbal: 517 and Quantitative: 640.
4. A score of at least 580 (paper and pencil test) or 237 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination for international students whose undergraduate degree is

from an institution whose primary language of instruction is not English.

◆ *Course Requirements*

A minimum of 68 units is required to complete the degree, depending on the area of specialization. Students may choose to specialize in one of the following areas: air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, or water quality.

Mandatory core courses include Biostatistics 100A, 100B, Epidemiology 100, Environmental Health Sciences 200A, 200B, 201, 240, 410A, M411 (to be taken once a year for two years), and either 598 (for thesis plan) or 596 (for comprehensive examination/report plan). In addition, at least 18 units of elective courses should be selected from the student's area of specialization. Departmental required courses may be waived if students have taken a similar university-level course elsewhere and/or can pass a waiver examination.

Students must be in residence at least one year as a graduate student. Normally two years (six academic quarters) are needed to complete the coursework required for the degree. Students must complete a minimum of 10 full courses (40 units), at least five of which must be graduate courses in the 200 or 500 series. Students must also take additional courses as required by their area of specialization. Only one 596 course (4 units) and one 598 course (4 units) may be applied toward the total course requirement; 4 units of either course may be applied toward the minimum graduate course requirement. Environmental Health Science 597 may not be applied toward the degree requirements. No more than 18 full (4 unit) courses may be required for the degree.

Only courses in which students have received a grade of C- or better may be applied towards the requirements for a master's degree. Courses that are graded S/U (Satisfactory/Unsatisfactory) may not be applied towards the degree requirements. Students must maintain a grade point average of 3.0 (B) or above in all courses required or elected during their graduate residence at the University of California.

◆ *Thesis Plan*

If the thesis option is approved, a thesis committee of three faculty members is established. The committee approves the thesis prospectus before students file for advancement to candidacy. An externally peer-reviewed publication (such as a journal article or book chapter), completed while a student, may be submitted as the thesis with appropriate format modification.

◆ *Comprehensive Examination/Report Plan*

If the comprehensive examination/report option is approved, students must pass a comprehensive examination on the major area of study. The examination is prepared by a committee of at least three faculty members. If the examination is failed, students may be reexamined once. In addition, students must complete a research activity (Environmental Health Sciences 596) of at least 8 units and prepare an in-depth written report on the activity. Students also have the option of submitting an externally peer-reviewed publication (such as a journal article or book chapter), completed while a student, in lieu of the master's report. Both must be approved by the advisor and one other faculty member.

◆ *Time to Degree*

The normal time to degree from initial enrollment to graduation is six to seven quarters.

■ DOCTOR OF PUBLIC HEALTH (DrPH)

The Doctor of Public Health (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. Environmental health sciences 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, **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.

Professor Hilary Godwin's molecular studies have shown how exposure to lead can produce cognitive defects in children.

◆ *Course Requirements*

Students may choose to focus on one of the following areas: air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, and water quality. A minimum of six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments/programs other than Environmental Health Sciences is required.

The department also requires additional courses in the major field as recommended by the advisor and guidance committee and courses in a minor field outside the department.

◆ *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.

◆ *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 ENVIRONMENTAL HEALTH SCIENCES

The PhD in Environmental Health Sciences is an advanced research degree that emphasizes depth of knowledge and research skills. The dissertation must demonstrate ability for independent scholarly investigation. Students may focus on such areas of specialization as: air quality; environmental biology; environmental chemistry; environmental management/environmental policy; industrial hygiene; risk assessment; toxicology; or water quality. Interdisciplinary research is encouraged. There is no foreign language requirement for the PhD.

◆ *Admission Requirements*

The department requires:

1. A bachelor's degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least one year of chemistry (including organic chemistry or biochemistry), physics, biology, and mathematics through calculus.
2. A junior/senior grade-point average of at least 3.0.
3. A master's degree in a related field with a grade-point average of at least 3.5 for graduate studies.
4. Satisfactory performance on the Graduate Record Examination (GRE) for the verbal, quantitative, and analytical sections.
5. A score of at least 580 (paper and pencil test) or 237 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination for international students whose undergraduate degree is from an institution whose primary language of instruction is not English.
6. Approval by a majority of the faculty, an academic advisor, and the department chair.

◆ *Course Requirements*

Students select a course of study upon consultation with their guidance committee. The following courses are required: Environmental Health Sciences 100 or 200A-200B; Environmental Health Sciences M411 (required once a year for the first two years); Environmental Science and Engineering 410A (Fall quarter, second year); one full (4 units or more) 100 or 200 level course in Epidemiology; and the appropriate Environmental Health Sciences 296 course for each quarter in residence. Proficiency in biostatistics/statistics is also required. Each specific letter grade required course can be waived if the equivalent has been successfully taken previously with a grade of B or better.

◆ *Qualifying Examinations*

Before advancement to candidacy, students must complete the courses required for the PhD degree. Students must also pass a written examination in the area of specialization and the University Oral Qualifying Examination. Normally no more than one reexamination is allowed.

A doctoral committee, consisting of at least four faculty members who hold professorial appointments at UCLA, is nominated when students are ready to take the University Oral Qualifying Examination. At least two of the faculty must be tenured. Three of the four must hold appointments in Environmental Health Sciences; one must be an outside member who holds an appointment in another department at UCLA.

After passing the University Oral Qualifying Examination, students may be advanced to candidacy and commence work on a dissertation in the principal field of study. The doctoral committee supervises the progress toward completion of the dissertation.

◆ *Final Oral Examination*

A final oral examination is required of all candidates.

◆ *Time to Degree*

The normal time from initial enrollment to advancement to candidacy is six to nine quarters (two to three calendar years); from advancement to candidacy to filing of dissertation, the normal time is six to nine quarters (two to three calendar years).