

Department of  
Environmental Health  
Sciences

**Handbook for  
Graduate Students**

Arnold School of Public Health  
University of South Carolina

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# **Section One: Overview**

The environmental health sciences examine the interactions between humans and their environment. Human activities impact on environmental quality and environmental factors, and, in turn, are principal determinants of human health. Exploration of these complex interactions involves numerous elements of pure and applied sciences, e.g., biology, chemistry, engineering, public health, and medicine.

Faculty members, staff and students of the Department of Environmental Health Sciences have expertise in a broad range of disciplines necessary to the solution of problems in environmental health sciences. This expertise includes air pollution, analytical chemistry, aquatic and mammalian toxicology, aquatic ecology, marine ecotoxicology, biochemistry, chemical engineering, ecosystem modeling, risk and impact assessment, exposure analysis, environmental engineering, environmental law, environmental physiology, environmental planning, hazardous materials management, bioremediation/phytoremediation, health physics, industrial hygiene, occupational epidemiology, noise pollution and hearing conservation, occupational health, terrestrial and landscape ecology, remote sensing and GIS, water and wastewater treatment, and wetlands ecology.

The mission of the Department of Environmental Health Sciences (ENHS) is founded on the philosophy that healthy environments enhance the health and well-being of individuals and the communities in which they live. Thus the goals of the department are to:

- develop improved methods for assessing the health and quality of the environment
- promote a clearer understanding of the relationships between humans and their natural, home, and work environments
- provide society with means of managing hazardous substances, preventing environmental degradation, and controlling occupational hazards
- protect the natural resources upon which life depends
- provide scientifically sound information for policymakers to encourage social awareness of and societal actions toward sustaining a healthy relationship with the environment.

The Department of Environmental Health Sciences offers the following degrees: Master of Public Health (M.P.H.), Master of Science in Public Health (M.S.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Three program tracks are available to students in the M.P.H. and M.S.P.H. programs: environmental quality, industrial hygiene, and hazardous materials management. A common level of core training is completed prior to undertaking advanced study and research.

The purpose of this booklet is to provide general information as related to the graduate programs and the rights and responsibilities of students enrolled in the Department of Environmental Health Sciences. Expanded and additional information as related to graduate studies in Environmental Health Sciences and at the University of South Carolina is available from the departmental Graduate Director, Graduate School and Graduate Studies Bulletin (discussed below). This document does not supersede information and requirements released by the Graduate School or printed in the Graduate Bulletin.

## **Section Two: Academic Standards**

## **Academic Standards**

### **1. Graduate Studies Bulletin**

It is the right and responsibility of every graduate student in the Department of Environmental Health Sciences to be familiar with a current copy of the Graduate Studies Bulletin. The first part of this document contains general information concerning The University of South Carolina and The Graduate School. The Graduate Studies Bulletin also includes a complete section of information specific to the Arnold School of Public Health; graduate degrees offered by the Department of Environmental Sciences; and a description of graduate courses.

### **2. Academic Suspension Policy ("3.00 Rule")**

Graduate degree-seeking students whose cumulative grade point average drops below 3.00 (**B**) will be placed on academic probation and allowed one calendar year in which to raise the grade point average to at least 3.00. In the case of conversion of grades of incomplete that cause a cumulative GPA to drop below 3.00, a degree-seeking student will be placed on academic probation at the end of the semester in which the grade is posted. Students whose cumulative GPA falls below the required minimum of 3.00 by receiving a grade for a course in which they received an Incomplete will, instead of a one-year probationary period, be granted only one major semester of probation dating from the semester in which the grade is received by the registrar in which to raise their cumulative GPA to 3.00 or above. Students who do not reach a cumulative 3.00 grade point average during the probationary period will not be permitted to enroll for further graduate course work as a degree or non-degree student.

### **3. Grade Point Averages**

The student must maintain a GPA of at least 3.0 on a 4.0 scale on all courses attempted for graduate credit. The student must also maintain a GPA of at least 3.0 on a 4.0 scale on all courses numbered 700 or above.

### **4. "I" (Incomplete) to "F"**

An "I" is a temporary mark that may be assigned at a professor's discretion to allow an additional specified amount of time to finish course requirements following illness, accident or unusual hardship. A grade of "I" is automatically converted to a grade of "F" after one (1) year. In the event of an "Incomplete" grade, the student must make arrangements with the course professor to finalize completion of the course.

### **5. Program of Study**

The Program of Study lists all courses that a student must complete as a part of the degree to which he/she has been admitted. The program of study must be endorsed by the student, the student's advisor and the graduate director in accordance with the graduate curriculum for the Department of

Environmental Health Sciences. The approved program of study should be submitted no later than the student's second semester of study to the Graduate School for review and approval by the Graduate Dean.

All courses in a program of study leading to the M.P.H, M.S.P.H. and M.S. degree must be completed within a 6 year period from the date of admission to graduation. Courses not completed within this period must be retaken.

All courses in a program of study leading to the Ph.D. degree must be completed within an 8 year period from date of admission to graduation. Courses not completed within this period must be retaken.

## **6. Transfer Credits**

At the approval of the Graduate School and the Department of Environmental Health Sciences a limited number of earned graduate-level credit hours can be used as Transfer Credits toward earning a graduate degree. The following provisions apply:

- The courses must be documented by an official transcript mailed to the Graduate School by the awarding institution.
- The transcript must clearly indicate that graduate credit was awarded or specifically verified by the institution's Registrar or Graduate Dean.
- The courses must be judged appropriate by the student's academic committee and listed on a program of study approved by the Graduate School.
- Courses with grades lower than "B" are not transferrable.
- There is no revalidation mechanism for courses completed at another institution.

## **7. Facilities and Resources**

Students who are involved in research projects associated with degree programs are required to be formally enrolled during the period that they are actively engaged in the project. Collection of data, laboratory analysis of data, computer analysis of data, manuscript review (with faculty) and revisions are examples of active engagement. The minimal enrollment is 1 credit. The student would normally be enrolled in ENHS 798, ENHS 799, or ENHS 899, but enrollment in any course within the ENHS department or another university department will satisfy the requirement. This requirement is not meant to place undue burden upon students, but simply to reflect the involvement of the University's resources in the process. Students who enroll for research hours in a given semester must execute the work in the same semester.

## **8. Application for Graduation**

Graduation Applications must be turned into the Student Services Coordinator at the Arnold School of Public Health no later than 15 days after the beginning of the semester in which a student plans to graduate.

## 9. Student Assistance Program for Behavioral or Academic Problems

Faculty, staff and other students may notice behavior that appears unethical or unprofessional in a student enrolled in the program. In addition, a student may experience academic problems with selected course content. Independent observations of isolated events may not be sufficient to draw attention to a larger potential problem. For this reason, collective observations may assist in the identification of a significant problem and indicate a need for external assistance.

Faculty and staff of the department have established policies and procedures for assisting students who are exhibiting behavioral or academic problems. The objectives of this program are:

- The early identification of students exhibiting behavioral and/or academic problems that will be detrimental to their progression in the academic program or outside work experiences.
- The development of a remedial plan of action designed to assist a student in managing and addressing behavioral or academic problems.

The following procedures should be followed by faculty, staff or students who observe behavioral or academic problems on the part of a student enrolled in the environmental health sciences program:

- (1) An individual who observes unusual behavior or poor academic performance (physical signs, emotional signs, or social interactions) should complete the Behavioral Report or Academic Problems Form. This form can be obtained from the departmental office.
- (2) The completed form should be returned to the departmental office. The confidentiality of the respondent will be assured.
- (3) Upon receipt of a completed form the Director of the Program will schedule an interview with each respondent.
- (4) The Director of the Program will maintain a confidential file of all submitted forms. In evaluating the nature of an individual student's problem, the Director will evaluate the number of forms submitted for a student, the nature of the problem and any additional information obtained from the respondent interview.
- (5) The Director of the Program will inform the student of the reported problem and will meet with the student.
- (6) The Director of the Program will synthesize all relevant information and submit a report to the faculty and solicit input regarding the appropriate steps for providing assistance to the involved student.
- (7) The Director of the Program will prepare a final report and define the steps to be taken to resolve the problem. A meeting will be held with the involved student to summarize the report and provide an opportunity for assistance. Both the student and Director will sign the report. The report will be placed in the student's file and destroyed upon completion of the remedial steps.
- (8) Students may also be referred to additional support agencies on campus including the Counseling and Human Development Center (Student Health Services) for professional and personal problems and Educational Support Services (Office of Student Development) for problems related to academic skills.

- (9) The Director of the Program will establish regularly scheduled meetings with the student to monitor progress and provide the faculty with relevant information regarding the student's progress.

## **10. Counseling and Human Development Center**

The Counseling and Human Development Center (CHDC) is the primary counseling center on campus. Part of Student Health Services, it is committed to the educational, personal, social and emotional development of every student. The CHDC provides a wide variety of confidential services to students through a staff of counseling psychologists, a psychiatrist, a social worker, counselors and supervised interns.

The major emphases of the CHDC are providing: individual and group counseling, marital and relationship counseling, crisis intervention, psychological assessment, biofeedback training, outreach programming, and consultation. Brief psychiatric intervention is also available when necessary. The CHDC strives to provide services that are oriented toward prevention, remediation and developmental growth. Limited services (up to 12 visits per year) are available at no cost to University students who have paid the University Activity Fee. All visits beyond 12 will be on a fee-for-service basis. Non-fee paying students are eligible to use the Center on a fee-for-service basis. The CHDC can also provide referrals to other professionals and organizations in the Columbia area. The Counseling and Human Development Center is fully accredited by the International Association of Counseling Services Inc., and adheres to the high standards associated with the profession. All client contacts are treated professionally and confidentially. The internship program is fully approved by the American Psychological Association. The Counseling Center is located on the seventh floor of the Byrnes Building or they can be reached at 803.777.5223.

## **11. Academic Assistance**

The Academic Skills Program offers a wide variety of services designed to help students improve their reading and study skills. Students who are having difficulty with classes as well as students who are more successful may benefit from consultation with or participation in the Academic Skills Program.

Services include individual skills counseling; study skills presentations; computer-assisted instruction; programs focusing on time management, speed reading and comprehension, test taking skills and test anxiety reduction, note-taking and listening, vocabulary development, memory improvement, and textbook mastery. Academic assessment, learning-style assessment, and preparation for standardized admissions tests for graduate and professional schools are also available. For more information or to make an appointment call 803.777.6573.

## **12. Financial Aid**

Information regarding financial aid may be obtained from the Office of Student Financial Aid and Scholarships at 803.777.8134 or by e-mail.

## **Section Three: Health and Safety**

## **1. Policy on Bloodborne Pathogens**

Students enrolled in the Department of Environmental Health Sciences should be particularly aware of the potential contamination from infectious agents in the health care environment. “Standard Precautions” was mandated into standards on December 6, 1991 by the Occupational Safety and Health Administration in response to increasing public concern over possible transmission of the Acquired Immune Deficiency Syndrome (AIDS) virus and Hepatitis B virus. This standard states that any person who might potentially come in contact with bodily (human and animal) fluids should be educated in infection control and should treat all bodily fluids as though they were potentially infected.

“Standard Precautions” is the international term used by the medical industry to describe the set of measures introduced to allow medical staff to safely handle material that may carry blood or body fluids.

## **2. Precautions for the Transmission of HIV and HBV**

Basic training for students and faculty in the safe handling of bodily fluids and blood in conjunction with the following blood and bodily fluid precautions can prevent the transmission of blood borne agents.

1. All patients/participants, their blood and other bodily fluids will be considered to be infectious at all times.
2. Whether or not the patient/participant is known to be infected with HIV, HBV, the student/faculty will:
  1. Wash hands thoroughly with soap and water before and immediately after contact with patients, their blood, urine, or other bodily fluid.
  2. Wear gloves when handling patient’s or participant’s blood, bodily fluids, and/or items soiled with these fluids.
  3. Wear gown, mask and eye coverings when performing procedures where aerosolization or splattering is likely to occur.
  4. Consider sharp items (needles, pipette tips, scalpel blades etc.) as being potentially infective and handle with extreme care to prevent accidental injury.
  5. Dispose of sharp items in puncture-resistant containers immediately after use.
  6. Do not recap, purposefully bend, or otherwise manipulate by hand needles that are to be disposed.
  7. Minimize the need for emergency mouth to mouth resuscitation by using pocket masks, bag valve masks or other ventilation devices.
  8. Clean up spills of blood or bodily fluids immediately with a disinfectant, and clean work areas with a disinfectant after work is completed.
  9. If a cut or abrasion is present, cover these with a waterproof dressing.

3. If an incident occurs, please follow the following instructions:
  - a. Wash the exposed or injured area with soap and warm water for 10-15 minutes
  - b. Inform the lab manager or supervisor, if present
  - c. Incident occurs during normal hours (8AM to 4PM), report to the Richland Family Practice located on the first floor at 3209 Colonial Drive, Palmetto Richland Memorial Hospital Campus. Call 434-2479 or 434-6116
  - d. If incident occurs after normal working hours or on weekends and holidays, report to Emergency Department at Palmetto Richland Memorial Hospital
  - e. A USC incident report will need to be completed once treatment is initiated
  - f. If you need immediate assistance, call Campus Police at 7-9111 (24 hours a day, 7 days per week).

## **Graduate Student Requirements**

### **1. Hepatitis B Vaccination Series**

All students (Graduate Assistant, Graduate Students, DPT students) are highly recommended to complete the Hepatitis B vaccination series, show medical documentation of immunity or have a physician's letter showing inability to take the vaccination before beginning any lab, clinic, thesis, project, or course work. This is because many of our students are potentially exposed in the course of their research. The vaccination series is available through private physicians, the health department or the Thomson Student Health Center at USC for a fee. No student will be allowed to begin working with biohazardous material until documentation of vaccination is provided to the Department. If a routine booster dose of Hepatitis B vaccine is recommended at a future date, such booster doses shall be required at the student's expense. Those students that choose to decline the Hepatitis B vaccination must sign a waiver form to be kept on file in place of the immunization record. Any student *employed* by the Department of Environmental Health Sciences is eligible to receive the vaccination free of charge and should contact the Department Safety Manager for further information.

### **2. Laboratory Safety Training**

All students working in research laboratories must complete a laboratory safety course, offered by USC Environmental Health and Safety Unit (EHS). The computer-based course, designed to cover safe practices in a laboratory setting, is offered on the EHS website and is accessible via any home computer with Internet access.

It is the responsibility of the student to complete this course prior to enrollment and annually thereafter. Student's registration is subject to cancellation until this requirement is completed, since Environmental health Sciences coursework involves laboratory activities.

## **Section Four: Graduate Assistants**

## **Required of Graduate Assistants**

### **1. Professionalism/Standards**

Graduate Assistants (GA) and Graduate Research Assistants (GRA) are fully admitted graduate students who are paid employees of the University of South Carolina. As such they are expected to perform their assigned duties in a timely, effective and responsible manner. GAs and GRAs play key roles in the Department of Environmental Health Sciences and the manner in which they perform their duties reflects importantly on the Department's reputation with students, clients, research subjects and other members of the University community.

Graduate assistants are typically appointed to 0.5 full time equivalent (FTE) positions and, accordingly, are assigned to work 20 hours per week throughout the semester. However, in some cases appointments are made at lower fractions of an FTE. Starting and finishing dates for work assignments are designated on a semester-to-semester basis and may vary with the nature of the specific assignment.

### **2. Lab Safety Training Course**

The Department of Environmental Health Sciences requires all graduate students who are teaching or conducting research in the performance or biochemistry labs to attend a laboratory safety training course. An instructor led class provides the safety information and is required by OSHA for all personnel who will work in a laboratory setting. Training of personnel and proper handling of lab hazards can prevent accidents in the lab environment. This one-hour, in-class course is offered at various times throughout the semester. Students should contact the safety manager to schedule training course. See course dates on the EHS website.

### **3. Placement/Assignment**

GA and GRA work assignments, if available, are made on a semester-to-semester basis. These assignments are made by the Department Chair with input from the faculty. In making the assignments the following issues are considered:

- the needs of the Department
- interests of the graduate assistant
- competencies and background of the graduate assistant.

While consideration is always given to the graduate assistant's preferences, the needs of the Department must take precedence.

### **4. University Workshop for Teaching Assistants**

GAs who are assigned to serve as instructors in laboratory sections or other courses are required by the University to complete a workshop for teaching assistants. This workshop is typically held prior to the start of the Fall semester. Those graduate assistants who are required to complete this workshop will be notified by the Graduate Director.

## **5. Office Hours**

It is both a University and Department requirement that GAs with teaching responsibilities post and adhere to regular office hours. This should be a minimum of three hours per week. The purpose is to facilitate communication between students and their teaching assistant.

Work assignments and work hours for GRAs are dependent on the nature of the research project and may not adhere to a traditional Monday to Friday work hours.

## **6. Enrollment Requirement**

Graduate assistants are required to be registered as full time students during any semester in which they are appointed to an assistantship. Therefore, the minimum amount of credits a student must take in the Fall and Spring is six credits and the maximum is twelve credits. During summer sessions the minimum registration level is one graduate credit hour.

## **7. Appointment Dates; University Holidays vs. Assistantship Responsibilities**

In general, graduate assistantship duties start on the date designated by the Department Chair at the beginning of each semester and extend through the end of the final exam period for the semester. Typically graduate assistants are not required to work during University holiday periods. However, in some special cases graduate assistants may be required to work during holiday periods. University Holidays are different from class holidays (i.e., Fall/Spring Break, Election Day). Graduate assistants will be notified of any special requirements at the time of assignment. In some cases additional compensation will be awarded to graduate assistants for work during holiday periods. Communicate with your faculty supervisor to determine dates you are expected to work in fulfillment of your responsibility as an employee.

## **8. External Employment**

Graduate assistants who are appointed at the 0.5 FTE level (20 hours per week) are expected to not be employed outside of the Department. This guideline applies to any activity that involves a continuing commitment to an outside employer for which compensation is made. This guideline does not apply to occasional, isolated activities (e.g., presentations, consultations, etc.).

## **9. Seminar Attendance**

The Department of Environmental Health Sciences sponsors a seminar series each semester. Speakers are Departmental faculty and students who present current research data, as well as visitors who are nationally and internationally recognized researchers. The date, time, location, speaker, and topic of these seminars will be posted. Graduate students are strongly encouraged to participate in these seminars.

## **10. Problems**

Graduate assistants experiencing difficulties with an assigned work responsibility should bring such difficulties to the attention of the faculty supervisor as soon as possible. If the faculty supervisor is unable to resolve the difficulty, the graduate assistant should bring the problem to the attention of the Graduate Director or Department Chair. Such difficulties should not be allowed to continue for a prolonged period before bringing them to the attention of the faculty supervisor and/or Department administration.

## **Section Five: Programs of Study**

The Department of Environmental Health Sciences offers the following degrees: Master of Public Health (M.P.H.), Master of Science in Public Health (M.S.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.).

### **Master's Degrees**

#### **Master of Public Health (M.P.H.)**

The M.P.H. degree is oriented toward development of a broad background in public health and preparation for professional practice. The M.P.H. degree requires 42 credit hours of study and is practice-oriented. M.P.H. students complete a supervised internship (practicum) in lieu of a thesis.

#### **Master of Science in Public Health (M.S.P.H.)**

The M.S.P.H. degree requires 41 credit hours of study and involves a more individualized program of study that emphasizes the scientific basis of public health and problem-solving research in the environmental health sciences. M.S.P.H. students complete a thesis that provides in-depth study of the scientific basis of their selected area of concentration and development of specialized research skills. Individuals pursuing the M.S.P.H. program are encouraged to complete one or more internships as a cooperative venture with industry and/or government.

Three program tracks are available to students in the M.P.H. and M.S.P.H. programs: environmental quality, industrial hygiene, and hazardous materials management.

#### **Environmental Quality**

Students pursuing work in the environmental quality track gain expertise in scientific approaches to the recognition, evaluation, and management of threats to environmental quality and the health of human populations. Students have the option of pursuing advanced study and research in environmental assessment and planning, environmental toxicology, ecosystems analysis and modeling, air quality monitoring and modeling, and environmental microbiology and trophic studies.

#### **Industrial Hygiene**

Students pursuing study in this area gain expertise in the recognition, evaluation, and control of health hazards in the work environment. Graduates of the industrial hygiene program typically are employed in industry, consulting firms, government agencies, and other institutions (e.g., hospitals). Research specialization in industrial hygiene may include: sampling and calibration methods (especially diffusive samplers), exposure assessment, theory and evaluation of chemical protective clothing, application of computational fluid dynamics, air cleaning methods and devices, exposure assessment, risk assessment, and ergonomics.

#### **Hazardous Materials Management**

Study in the hazardous materials management program track provides experiences that develop knowledge and skills needed to function in the management of hazardous substances. This includes: basic knowledge necessary to identify, handle, transport, treat, and dispose of hazardous chemical substances in compliance with existing laws and regulations. Students following this track find employment opportunities with federal, state, and local governments, private industry, and consulting

firms. Options for advanced study and research in this track include: environmental and human health protection; use and disposal of hazardous materials; microbial and phytoremediation of hazardous materials; impact of hazardous materials on biological systems; migration, fate, and transformation of hazardous materials in the environment; site safety; and multimedia exposure assessment.

### **Master of Science (M.S.)**

The M.S. degree is an academic research degree which may be tailored to individual interests and job market needs. The M.S. degree requires a minimum of 36 graduate hours and combines real-world problem solving and research skills with other technical, health, and related skills to prepare effective environmental health researchers for the public and private sectors. Students complete a research thesis.

### **Program Track Requirements**

#### **Environmental Quality (18 hours)**

Students (M.S.P.H., M.P.H.) pursuing study in the environmental quality program track must complete degree requirements above and the following required departmental courses.

- ENHS 760 Fundamentals of Air Pollution (3 hours)
- ENHS 765 Applied Research in the Environmental Health Sciences (3 hours)
- ENHS 766 Applied Aquatic Sciences (3 hours)
- ENHS 775 Resource Management and Environmental Impact Assessment (3 hours)
- ENHS 787 Analytical Concepts for Environmental Health Sciences (3 hours)
- BIOS 757 Intermediate Biometrics (3 hours)

#### **Industrial Hygiene: M.P.H. Degree Track Requirements (18 hours)**

Students pursuing study in the industrial hygiene program track must complete the degree requirements above and the following required departmental courses.

- ENHS 762 Fundamentals of Industrial Hygiene (3 hours)
- ENHS 764 Industrial Hygiene Evaluation (3 hours)
- ENHS 765 Applied Research in the Environmental Health Sciences (3 hours)
- ENHS 768 Industrial Ventilation and Hazard Control (3 hours)
- ENHS 771 Applied Industrial Toxicology (3 hours)
- ENHS 787 Analytical Concepts for Environmental Health Sciences (3 hours)

#### **Industrial Hygiene: M.S.P.H. Degree Track Requirements (21 hours)**

Students pursuing study in the industrial hygiene research program track must complete the degree requirement above and the following required courses.

- BIOS 757 Intermediate Biometrics (3 hours)
- ENHS 762 Fundamentals of Industrial Hygiene (3 hours)
- ENHS 764 Industrial Hygiene Evaluation (3 hours)
- ENHS 765 Applied Research in the Environmental Health Sciences (3 hours)
- ENHS 768 Industrial Ventilation and Hazard Control (3 hours)
- ENHS 771 Applied Industrial Toxicology (3 hours)
- ENHS 787 Analytical Concepts for Environmental Health Sciences (3 hours)

### **Hazardous Materials Management (21 hours)**

Students pursuing study in the hazardous materials management program track must complete the degree requirements above and the following required departmental courses.

- ENHS 762 Fundamentals of Industrial Hygiene (3 hours)
- ENHS 765 Applied Research in the Environmental Health Sciences (3 hours)
- ENHS 766 Applied Aquatic Sciences (3 hours)
- ENHS 774 Risk Assessment and Interactions of Environmental Toxicants (3 hours)
- ENHS 787 Analytical Concepts for Environmental Health Sciences (3 hours)
- ENHS 788 Concepts of Hazardous Materials Management I (3 hours)
- ENHS 789 Concepts of Hazardous Materials Management II (3 hours)

### **Master's Program Procedures and Requirements**

#### **Assignment of Academic Advisor**

Students entering the graduate program in Environmental Health Sciences will be initially advised (first semester) by the Graduate Director of the Department. During this time the student's interests will be discussed and an academic advisor will be assigned.

The student is to meet with their advisor prior to the start of each semester. The academic advisor and student are responsible for completing a program of study by the end of the second semester. The advisor and the student should review the student's academic performance and ensure that appropriate progress is being made to completion of the program of study. If academic problems arise the advisor will be directly involved in the resolution of the problem. Students may use the academic advisor to express concerns over the program or their future.

### **Program Requirements for Environmental Health Sciences Degrees**

#### **Master of Public Health (M.P.H.) (42 hours)**

- ENHS 660 Concepts of Environmental Health Science (3 hours)
- BIOS 700 Introduction to Biostatistics (3 hours)
- EPID 700 Introduction to Epidemiology (3 hours) or EPID 701 Concepts and Methods of Epidemiology (3 hours)
- HPRE 700 Public Health Education Concepts (3 hours)
- HSPM 700 Approaches and Concepts for Public Health Administration (3 hours)
- Required Departmental Major and Cognate Courses (21 hours)
- ENHS 798 Public Health Practice (Internship, 6 hours)

#### **Master of Science in Public Health (M.S.P.H.) (41 hours)**

- ENHS 660 Concepts of Environmental Health Science (3 hours)
- BIOS 700 Introduction to Biostatistics (3 hours)
- EPID 700 Introduction to Epidemiology (3 hours) or EPID 701 Concepts and Methods of Epidemiology (3 hours)
- Required Departmental Major and Cognate Courses (26 hours)
- ENHS 799 Thesis Preparation (6 hours)

## **Master of Science (M.S.) (36 hours)**

Departmental courses (18 hours)

Quantitative and technical skills (12 hours)

ENHS 799 Thesis Preparation (6 hours)

## **Guidelines for Thesis Preparation and Defense**

### **Thesis**

The Master's thesis must be original research designed to answer specific questions and to synthesize new quantitative information contributing to the understanding and solution of public health problems.

### **Thesis Proposal**

Before initiating major thesis work the student, with the help of the academic advisor, will select a thesis chairman from the departmental faculty whose interests and expertise complement the student's research interests. The student and the thesis chair will select two (2) other members to serve on his thesis committee, one of whom must be a member of the Graduate Faculty of the University. The thesis will be carefully defined through consultation with the committee. The student will prepare a written thesis proposal outlining:

- the general problem to be addressed with adequate literature support
- the specific objectives of the study and how accomplishing these objectives will contribute relevant new knowledge to the field
- the methods for accomplishing the objectives
- the time, equipment, money and other resources required.

The appropriations of the proposal will be reviewed by the committee and at least one meeting of the entire committee with the student will take place for proposal acceptance before major thesis work begins. It is the student's responsibility to arrange this meeting. The approved title and proposal (on "Form for Registering Thesis Subject") will be filed at this time with the Chair of the Department and the Director of Graduate Studies.

### **Thesis Research**

The major portion of the thesis work itself (field, laboratory, literature analysis) will be conducted by the student in close collaboration with the student's thesis committee (especially the thesis chair). Any changes in the former plan, as set forth by the proposal, must be agreed upon by the committee. Except under unusual circumstances, the student will be registered for thesis work at the time of graduation.

### **Thesis Defense and Comprehensive Examination**

At the completion of the thesis work, and at least fifteen days before graduation, the student will present an informative seminar on the results of his/her thesis research. The student is responsible for arranging and announcing the seminar which will be open to all interested parties (students, faculty, agencies, etc.). There are two equally important purposes for the seminars:

1. To transmit information which has culminated from a concentrated body of work on an original research project. Thus, the presentation will be of considerable interest to colleagues and should be concise, well organized, and supported by well-planned visual aids
2. To serve as an important learning process for the student and executing an informative presentation and in responding to the discussion and criticism of fellow students and faculty

The open seminar will be followed by a critical review of the thesis by the student's thesis committee with suggestions for improvement, publication, etc. This review session will be followed by the formal acceptance or rejection of the student's thesis as partial fulfillment of the Master's degree.

### **Time Schedule**

Thesis title and proposal must be approved by the Department Graduate Director and filed with the Graduate School by the Graduate Director at least one semester before graduation.

A complete first draft of the thesis must be submitted to the thesis chair at least 60 days before the end of the semester of graduation.

### **Graduate School Guidelines and Deadlines**

Guidelines concerning regulations for Master's theses are available from the Graduate School. It is the student's responsibility to obtain current guidelines concerning application for graduation and acceptable Master's thesis format.

As with guidelines, deadlines for submitting theses and applications for graduation are subject to change. While these deadlines are posted in the Departmental Office, it is the student's responsibility to be aware of these deadlines.

## **Doctor of Philosophy (Ph.D.)**

The doctoral degree requires a minimum of 60 graduate credit hours, including 12-30 hours of dissertation preparation (899), beyond the baccalaureate degree or a minimum of 30 graduate hours, including 12-30 hours of dissertation preparation (899), beyond the Master's degree. A student may use no more than 30 hours combined of thesis preparation (799) and dissertation preparation (899) on the doctoral program of study. Doctoral degree students must complete at least half of the hours on the Program of Study ([D-POS](#)) in courses numbered 700 or higher. A dissertation of original research is required for most doctoral programs. A period of residency, a foreign language or research methods proficiency, a comprehensive examination, and a dissertation defense and examination are also required. The specific curriculum for the doctoral degree varies with the discipline and some programs require additional credit hours. Students enrolled in a doctoral program have eight years from the first term of enrollment in which to complete the degree. Students must be enrolled for at least 1 credit during the term of graduation.

## **Doctor of Philosophy Degree Program**

The PhD program in Environmental Health Sciences is designed to prepare students for research careers in the environmental health sciences; graduates are trained for entry into positions in universities, colleges, research institutes and research-oriented settings. Areas of research emphasis correspond to those of the departmental faculty.

## **Doctoral Program Procedures and Requirements**

Five main stages in the completion of the requirements for a doctoral program can be identified and need to be accomplished in the following logical sequence:

### **Selecting an Academic Advisor and Committee**

Students entering the graduate program in Environmental Health Sciences will be initially advised (first semester) by the Graduate Student Director of the Department. During this time the student's interests will be discussed and an academic advisor will be assigned.

The student is to meet with their advisor prior to the start of each semester. The academic advisor and student are responsible for completing a program of study by the end of the second semester. The advisor and the student should review the student's academic performance and ensure that appropriate progress is being made to completion of the program of study. If academic problems arise the advisor will be directly involved in the resolution of the problem. Students may use the academic advisor to express concerns over the program or their future.

Before initiating major dissertation work the student, with the help of the academic advisor, will select a dissertation chair from the major department whose interests and expertise complement the student's research interests. The student and the thesis chair will select (three or more) other members to serve on his/her thesis committee, one of whom must be a member of the Graduate

Faculty of the University. The dissertation will be carefully defined through consultation with the committee. The student will prepare a written thesis proposal outlining:

- the general problem to be addressed with adequate literature support
- the specific objectives of the study and how accomplishing these objectives will contribute relevant new knowledge to the field
- the methods for accomplishing the objectives
- the time, equipment, money and other resources required.

The appropriations of the proposal will be reviewed by the committee and at least one meeting of the entire committee with the student will take place for proposal acceptance before major dissertation work begins. It is the student's responsibility to arrange this meeting. The approved title and proposal (on "Form for Registering Dissertation Subject") will be filed at this time with the Chair of the Department and the Director of Graduate Studies.

### **Program of Study**

The Program Advisory Committee includes 3 members in the Department of Environmental Health Sciences and 1 outside member. This committee provides curriculum advisement and designates specific course requirements on the students. This committee should be appointed no later than the date of the students admission to candidacy.

The candidate's set of required courses is not established except by the full approval of the Program of Study Committee. The Qualifying Examination, discussed below, cannot be scheduled until all of the courses listed on the Program of Study are completed or are in progress. The Program of Study (GS 51) lists *all* courses that must be completed as a part of the degree program. The Program of Study must be endorsed by the student, the major advisor, the Graduate Director, and the Graduate Dean. Admission to candidacy and approval of the doctoral advisory committee by the Graduate Dean must *precede* the submission of the Program of Study to the Graduate School.

The Program of Study represents a contract between the University, the Department and the student and once approved, it is binding unless all parties agree to its adjustment. Any adjustments to the program of study must be completed in writing and approved by all parties concerned.

### **Residency Requirement**

Doctoral students in the Department of Environmental Health Sciences must enroll in an approved Program of Study for at least 3 academic years. One calendar year (August - May) must be spent on the Columbia Campus as a full time student.

### **Qualifying Examination**

The candidate must satisfactorily pass a Qualifying Examination in the fields of study which he/she is pursuing. The Qualifying Examination must include both written and oral components. The

Qualifying Examination content should reflect the student's curriculum as represented by the Program of Study. The degree must be completed within five years of the Qualifying Examination. The Qualifying Examination Committee includes 3 members with 1 member outside the Department of Environmental Health Sciences. This committee administers the oral and written part of the Qualifying Examination. The membership of the Qualifying Examination Committee must be approved by the Graduate Dean prior to the examination. In general, the Program Advisory Committee will serve as the nucleus of the Qualifying Examination Committee.

### **Dissertation Defense**

Students enrolled in a doctoral degree program in the Department of Environmental Health Sciences are required to submit an approved dissertation to satisfy part of the requirements for the degree. The dissertation is the ultimate requirement of the doctoral program and becomes a permanent record of the student's independent research or creative effort. No later than five years after passing the Qualifying Examination, the student must present a dissertation that has been approved by the student's Program Advisory Committee.