B.S. in Environmental Health Science

**Description**
The Environmental Health Science major is a rigorous, science-based, applied curriculum that prepares students for careers in environmental fields. The degree can also be used as a step to an advanced degree in many fields including environmental health, industrial hygiene, toxicology, public health, epidemiology, ecology, and environmental engineering, and will satisfy entrance requirements for professional degree programs such as medicine, veterinary medicine, dentistry, optometry, and pharmacy. Students who successfully complete the program of study receive the Bachelor of Science in Environmental Health (B.S.E.H.) degree. The degree program is nationally accredited and is the only undergraduate Environmental Health Science degree in Georgia. Environmental health scientists are in demand by private industries, consulting firms, governmental agencies, and institutions. A wide range of opportunities for employment exist in corporate environmental and occupational health departments, public health agencies, solid and hazardous waste management, general sanitation engineering, and pollution control. Environmental health scientists are employed in programs of water and air pollution control, industrial hygiene, occupational health and safety, and a variety of other activities by a significant number of agencies and commercial concerns.

**Competencies**
Upon completion of the BSEH degree students will:

1. Exhibit a strong foundation in the natural and physical sciences, at a minimum to include biology, organic chemistry, physics, microbiology, and human physiology.

2. Use strong computer, communication, and presentation skills, so to effectively analyze and communicate environmental and public health data to the public and their peers through written and oral communication methods.

3. Demonstrate skill in the core environmental health areas of toxicology, epidemiology, and biostatistics, so that they are able to collect, analyze, and interpret environmental and occupational data.

4. Employ in-depth knowledge in a minimum of four prescribed technical areas in environmental health: air quality, water quality, environmental epidemiology, global environmental health, environmental microbiology, food protection, hazardous waste management, industrial hygiene, soils, and water quality.

5. Demonstrate basic understanding of environmental economics and health management, environmental law, and public policy development, risk assessment, and risk communication.

6. Apply practical experience and problem-solving skills gained through participation in an internship which provided hands-on experience with instrumentation and field equipment, collect environmental health data, and participate actively in data reduction and interpretation.
### Prerequisites/ Requirements for Admission

For first-year applicants, the state-mandated College Prep Curriculum (CPC) requires that incoming students have a minimum of 16 courses in specific academic areas:

- 4 English courses
- 4 mathematics courses
- 4 science courses*
- 3 social science courses
- 2 language courses in the same language

Academic electives: UGA suggests that students pursue the most rigorous curriculum appropriate to their ability levels, as grades in academic courses and curriculum difficulty are the two most important factors in first-year admission decisions.

For first-year admission, the University of Georgia requires that an applicant submit an official score report for either the ACT or the SAT I. Currently, we recommend (but do not require) students to submit SAT II scores. Scores must be submitted electronically by the respective testing agency.

### Requirements

<table>
<thead>
<tr>
<th>Foundation Courses or Major Requirements (36-37 credits)</th>
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<tbody>
<tr>
<td>EHSC 3060</td>
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<tr>
<td>EPID 4070</td>
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<tr>
<td>ENVM (EHSC) 4250/6250</td>
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<td>BIOS 2010</td>
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<td>CHEM 2212</td>
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<td>CHEM 2212L</td>
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<td>EHSC 3910</td>
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<tr>
<td>EHSC 4080/6080</td>
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<td>EHSC 4150/6150</td>
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<td>EHSC 4490/6490</td>
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<td>EHSC 4910</td>
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<td>MIBO 3500</td>
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<tr>
<td>PBHL 3100</td>
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<tr>
<td>PHYS 1112</td>
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<tr>
<td>PHYS 1112L</td>
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### Integration of Core Requirements

PBHL 3100 is an integrative PH course, meant to introduce students to the core areas of the field. The course incorporates group activities, breakout sessions, as well as traditional examinations.

All undergraduate students are required to take an introduction to epidemiology course so that they may be introduced to basic research methods and statistical terms as they relate to the field.

All students are required to complete an internship (practicum) the field before graduating.
<table>
<thead>
<tr>
<th>Assessment of Competency</th>
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<tbody>
<tr>
<td>The following methods will be used to assess the effectiveness of the EHSC undergraduate degree program in achieving these learning outcomes.</td>
</tr>
<tr>
<td>a. Internship: Students are required to complete an internship at a government agency, private industry or environmental consulting firm. Employers of students who participate in internships complete an evaluation of the intern. Students evaluate the internship experience and the services of the EHSC internship office.</td>
</tr>
<tr>
<td>b. Exam scores: Student mastery of environmental health principles will be reflected in scores on exams for required and major elective courses.</td>
</tr>
<tr>
<td>c. Oral presentation: Students demonstrate oral communication skills by preparing and giving a presentation on a topic related to environmental health science. Presentations must employ presentation software and be accompanied by a well-written abstract or term paper and bibliography of scientific sources.</td>
</tr>
<tr>
<td>d. Term paper or other significant writing assignment: Students demonstrate written communication skills by preparing a term paper or significant written report on a topic related to environmental health science. All writing assignments must include at a minimum the following elements: literature review, analysis or discussion section and a bibliography of valid scientific sources.</td>
</tr>
<tr>
<td>e. Exit survey: During their final semester, upcoming graduates complete an anonymous, written exit survey evaluating their perceptions of the effectiveness of the EHSC major and UGA in preparing them for careers in environmental health science and related fields or for further study at graduate or professional schools.</td>
</tr>
<tr>
<td>f. Alumni survey: Graduates are surveyed during the third year after graduation on the effectiveness of the EHSC major in preparing them for careers in environmental health science and related fields or for further study at graduate or professional schools.</td>
</tr>
<tr>
<td>g. Employer survey: Employers of EHSC graduates are surveyed during the third year after graduation to assess the graduate’s preparation and skills in environmental health science.</td>
</tr>
</tbody>
</table>
B.S. in Health Promotion and Behavior

**Description**

Health promotion is a behavioral social science that draws from the biological, environmental, psychological, physical and medical sciences to promote health and prevent disease, disability and premature death through education-driven voluntary behavior change activities.

Health promotion is the development of individual, group, institutional, community and systemic strategies to improve health knowledge, attitudes, skills and behavior.

The purpose of health promotion is to positively influence the health behavior of individuals and communities as well as the living and working conditions that influence their health.

**Career Opportunities**

Students majoring in Health Promotion and Behavior are prepared to work in a variety of settings. Such settings may include:

- Corporate or worksite health promotion
- Clinical/ healthcare settings
- College/ university health promotion
- Community agencies
- Governmental agencies/ Public health

Certified Health Education Specialist (CHES) credentialing is available from the National Commission for Health Education Credentialing, Inc. (NCHEC).

**Competencies**

Upon completion of the BSHP degree students will:

1. Explain the role of theory in planning health promotion programs.
2. Design evidence-based health promotion programs for individuals and communities that include needs assessment, program design and implementation, budget, and evaluation components.
3. Identify health promotion resources relevant to intervention planning and implementation.
4. Describe appropriate methodological strategies to evaluate health promotion programs.
5. Describe behavioral, cultural, community and social factors associated with health and health disparity.
6. Develop a professional philosophy and discuss ethical principles of health promotion.
7. Describe the importance of community engagement, coalition building, and community organizing strategies to health promotion.

**Prerequisites/Requirements for Admission**

Standards for admission to the College of Public Health as an intended major are the same as
those for those admitted to the University.

The following grade point average (GPA) will apply:

- All external transfer students must have a minimum overall GPA of at least 2.7 for acceptance to the major of Health Promotion.
- All transfers within the University must have a minimum overall GPA of at least 2.7 for acceptance to the major of Health Promotion.
- All students who are intended in the major of Health Promotion must have a minimum 2.7 overall GPA in order to apply to the major. Admission requirements may be reviewed on the UGA bulletin.

Criteria for admission to high demand major:

- Completion of General Education Areas I-VI
- Completed Essay
- Overall grade point average (GPA) minimum of 2.7
- GPA in General Education Area I (foundation skills) minimum of 2.7
- GPA in General Education Area II (sciences) minimum of 2.7
- GPA in General Education Area VI (courses related to program of study) minimum of 2.7 and no grade less than C (2.0). The area VI requirements are:
  - HPRB 1710 Health and Wellness
  - CBIO 2200/L Anatomy and Physiology I
  - CBIO 2210/L Anatomy and Physiology II
  - BIOS 2010 Biostatistics for Public Health Sciences
  - COMM 1100 Introduction to Public Speaking

<table>
<thead>
<tr>
<th>Requirements (xx credits)</th>
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<tbody>
<tr>
<td><strong>BSHP – Health Promotion Area of Emphasis</strong></td>
</tr>
<tr>
<td>HPRB 3850 Chronic Disease Prevention</td>
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<tr>
<td>HPRB 3020 Foundations of Health Promotion Professional Practice</td>
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<tr>
<td>HPRB 3700 Community Health</td>
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<tr>
<td>HPRB 4400 Health Promotion Program Development</td>
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<tr>
<td>HPRB 3460 Practicum in HPRB</td>
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<tr>
<td>HPRH 5560 Field Experience</td>
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<tr>
<td>Students are also required to take these courses from other CPH departments:</td>
</tr>
<tr>
<td>PBHL 3100 Introduction to Public Health</td>
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<tr>
<td>EHSC 3060 Introduction to Environmental Health</td>
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<tr>
<td>EPID 4070 Fundamentals of Epidemiology</td>
</tr>
<tr>
<td>BIOS 3000 Intermediate Biostatistics for Public Health Sciences</td>
</tr>
<tr>
<td>HPAM 3600 Introduction to Health Policy</td>
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</tbody>
</table>

| **BSHP – Health Services Area of Emphasis** |
| HPRB 3850 Chronic Disease Prevention |
| HPRB 3020 Foundations of Health Promotion Professional Practice |
| HPRB 3700 Community Health |
HPRB 4400 Health Promotion Program Development
HPRB 3470 Practicum in HPRB
Students are also required to take these courses from other CPH departments:
PBHL 3100 Introduction to Public Health
EHSC 3060 Introduction to Environmental Health
EPID 4070 Fundamentals of Epidemiology
BIOS 3000 Intermediate Biostatistics for Public Health Sciences
HPAM 3600 Introduction to Health Policy

Assessment of competency

The following methods will be used to assess the effectiveness of the HPB undergraduate degree program in achieving the learning outcomes.

1. Students complete a needs assessment project, including cultural and community factors leading to health disparities, and present their findings as a course requirement.

2. Student mastery of health promotion theories and skills will be reflected in scores on exams for required and major elective courses.

3. Students are evaluated by site supervisors in community and worksite-based field experiences at the end of each practicum or internship. Service learning is also included in several courses with site supervisor feedback.

4. Health promotion plans are developed by students as a final product for the internship. Internships provide hands-on program planning and implementation.
## Master of Public Health in Biostatistics

**Description**

The biostatistics concentration focuses on biostatistical methods and their application to public health problems. Training focuses on data quality control, presentation and interpretation of statistical results, statistical computing, design of public health surveys, experiments, and clinical trials, and statistical modeling of public health and biomedical data. Students will work with the consulting service and interact with investigators in the biomedical sciences. Students with quantitative backgrounds (computer science, mathematics or statistics) are preferred for this concentration. Electives may be chosen from the College of Public Health and from across the UGA campus. The program also requires an internship.

**Competencies**

1. Use an understanding of public health research, practice and ethics to inform biostatistical practice.
2. Collaborate in the design of public health surveys and biomedical experiments.
3. Describe concepts of probability, random variation, and commonly used probability distributions.
4. Carry out and communicate exploratory data analyses including the production of tabular summaries, graphical displays and descriptive statistics.
5. Select the appropriate statistical procedure for statistical analysis based on study objectives, study design, and the types of variables involved.
6. Apply common statistical procedures including simple and multiple regression, analysis of variance, analysis of contingency tables, nonparametric methods, logistic regression, and survival analysis using at least one statistical software package.
7. Demonstrate knowledge of assumptions underlying common statistical procedures, apply appropriate diagnostic methods, and understand the consequences of violations of model assumptions.
8. Communicate orally and in writing descriptions of common statistical procedures, results of statistical analyses, and conclusions from such analyses.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/or health sciences and public health experience is preferred.
### M.P.H. Core Course Requirements (15 hours)

- BIOS 7010 Introduction to Biostatistics I
- EHSC 7010 Foundations of Environmental Health
- EPID 7010 Introduction to Epidemiology I
- HPAM 7010 Introduction to Health Policy and Management
- HPRB 7010 Social and Behavioral Foundations

### BIOS Concentration Core Requirements (15 hours)

- BIOS 7020 Introduction to Biostatistics II
- EPID 7020 Introduction to Epidemiology II
- STAT 6510 Mathematical Statistics I

Choose two out of the three courses below:

- BIOS 6380 Survival Analysis
- BIOS 8110 Categorical Data Analysis
- BIOS 8220 Clinical Trials

### Electives: 5 hours minimum

The following is a sample of suggested electives for an MPH concentration in Biostatistics:

- BIOS 7400 Research Data Management and Computing
- BIOS 8100 Case Studies in Nonlinear Biostatistics
- BIOS 8110 Categorical Data Analysis
- BIOS 8120 Applied Nonparametric Biostatistical Methods
- STAT 6230 Applied Regression Analysis
- STAT 6240 Sampling and Survey Methods
- STAT 6290 Nonparametric Methods
- STAT 6520 Mathematical Statistics II
- STAT 6630 Statistical Methods in Bioinformatics I
- STAT 6640 Statistical Methods in Bioinformatics II

### Other Required Courses

- **College of Public Health Seminar (PBHL 8200, 1 hr):** Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.
- **Culminating Experience (PBHL 7800, 3 hrs):** The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.
- **Internship (PBHL 7560, 6 hours):** The internship requires 300 clock hours in an appropriate public health setting. Students choose the site for their internship, with the assistance of the academic advisor and Internship Coordinator.
### Assessment of competency

The mastery of knowledge and skills is accessed through exams, course projects, course papers and reports, and the culminating experience. The understanding and integration of content is examined within the respective course. Mastery of the skills necessary for practice is assessed in course projects and the internship. Many courses have a class project that requires the student to synthesize and apply the concepts to a real world problem. The internship is designed to provide an experience that integrates this knowledge and skills into practice.

All students are advised by faculty. Students will meet at least once a semester with the faculty member to discuss goals and progress through their program. Students also frequently meet with other faculty on an ad hoc basis to examine their goals, discuss mutual interests, get additional feedback on progress, and discuss job opportunities after graduation.

Course evaluations, exit and alumni surveys are conducted to garner feedback from students about their perception of their level of competence – do they have the knowledge and skills necessary to function effectively in their internship and job. College faculty and staff talk regularly with our community preceptors and partners to receive input on the ability of our students and graduates to perform in the field.
Master of Public Health in Disaster Management

**Description**
Disaster management is a growing field, with programs appearing in many major Universities across the country, with many appearing in Colleges of Public Health. Employment opportunities are likewise growing in municipal, state, federal, and private institutions, which recognize the value of graduate certificates as a validation of expertise. Improvement in training for disaster management has the potential to improve health outcomes and reduce property loss for a great number of persons in the U.S. and around the world. Thousands of people and billions of dollars of property are impacted by disasters worldwide each year.

**Competencies**
Upon completion of the Disaster Management MPH degree students will:
1. Explain methods of insuring community health and safety preparedness.
2. Demonstrate proficiency in the use of an all-hazards framework for disaster planning and mitigation.
3. Apply strategies for sharing information with internal and external partners.
4. Apply principles of crisis and risk communication.
5. Identify the roles and relationships among federal, tribal, state, and local governments and non-governmental organizations.
6. Describe psychosocial consequences likely to be experienced by public health workers and community members.
7. Demonstrate proficiency in the use of triage systems in a disaster or public health emergency.
8. Demonstrate proficiency in the provision of health system surge capacity for the management of mass casualties in a disaster or public health emergency.
9. Demonstrate proficiency in the management of mass fatalities in a disaster or public health emergency.
10. Demonstrate proficiency in the initiation, deployment, and coordination of national, regional, state, local and institutional incident command and emergency operations systems.
11. Analyze the ethical challenges faced by public health workers and public health organizations.

**Prerequisites/ Requirements for Admission**
Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test
of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/or 
health sciences and public health experience is preferred.

<table>
<thead>
<tr>
<th>Requirements (45 credits)</th>
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<tbody>
<tr>
<td>M.P.H. Core Course Requirements (15 credits)</td>
</tr>
<tr>
<td>BIOS 7010 Introduction to Biostatistics I</td>
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<tr>
<td>EHSC 7010 Foundations of Environmental Health</td>
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<td>EPI D 7010 Introduction to Epidemiology I</td>
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<tr>
<td>HPAM 7010 Introduction to Health Policy and Management</td>
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<td>HPRB 7010 Social and Behavioral Foundations</td>
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| Disaster Management Core Courses (12 credits) |
| DMAN 7800 Introduction to Disaster Management (Disaster Management I) |
| DMAN 7860 Disaster Management for Health Professionals (Disaster Management II) |
| DMAN 8200 Public Health Crises and Disaster Management (Disaster Management III) |
| DMAN 8400 Crisis Communications and Decision Support (Disaster Management IV) |

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<tr>
<th>Electives (Minimum of 9 credits)</th>
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<tr>
<td>DMAN 8900 Special Topics in Disaster Management</td>
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<tr>
<td>DMAN 8910 Problems in Disaster Management</td>
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<tr>
<td>HPAM 8500 Comparative Global Health</td>
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<td>HPAM 7400 Public Health Law</td>
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<td>HPAM 8400 Policy and Economic Analysis in Public Health</td>
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<td>HPAM 8550 Comparative Global - Nation</td>
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<td>HPAM 8820 Global Health Policy</td>
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<tr>
<td>HPAM 8700: Management of Public Health Organizations</td>
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<td>HPAM 8800: Leadership in Public Health</td>
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<td>HPRB/SPCM 6610: Health Communication</td>
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<td>HPRB 7040: Program Evaluation in Health Promotion and Health Education</td>
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<td>EPI D 7700 Public Health Ethics</td>
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<tr>
<td>EPI D 8515/8515L: Modeling Infectious Diseases</td>
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<tr>
<td>EPI D 8610 Principles and Practices in Global Epidemiology</td>
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<tr>
<td>INTL 8280 Nationalism and Ethnic Conflict</td>
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<tr>
<td>INTL 8290 Strategic Intelligence</td>
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<tr>
<td>INTL 8200: Special Topics in International Relations</td>
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<td>INTL 8210: International Organizations</td>
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<td>INTL 8230: International Conflict</td>
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<tr>
<td>GEOG 6370 Geographic Information Science</td>
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<td>JRMC 7355: Health and Medical Journalism</td>
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<tr>
<td>JRMC 7356: Advanced Health and Medical Journalism</td>
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<tr>
<td>JRMC/SPCM 7611: Health Advocacy in a Multicultural Society</td>
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<tr>
<td>JRMC/SPCM 7612: Medical Interviewing and Information Dissemination</td>
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<tr>
<td>JRMC 8160: Special Topics in Public Relations (usually Media and Public Health)</td>
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<tr>
<td>JRMC/SPCM/PBHL 8165: Public Health Communication</td>
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<tr>
<td>JRMC 8170: Risk Communication</td>
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<tr>
<td>PADP 7360: Managing Government Performance</td>
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<tr>
<td>PADP 7500: Local Government Management</td>
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</tbody>
</table>
- PADP 7540: Productivity Improvement in Local Government
- PADP 7900: Managing Volunteers in the Public and Nonprofit Sectors
- PBHL 8100: Current Topics in Public Health
- PBHL/SPCM/JRMC 8165: Public Health Communication
- PBHL/MIBO/IDHIS/PHSI 8260: Global Perspectives on Tropical and Emerging Infectious Diseases (1 hour)
- POLS 9200: Intelligence and National Security
- SPCM 6310: Communication Strategies in Government
- SPCM/HPRB 6610: Health Communication
- SPCM/JRMC 7611: Health Advocacy in a Multicultural Society
- SPCM/JRMC 7612: Medical Interviewing and Information Dissemination
- SPCM 8610: Seminar in Health Communication
- SPCM/PBHL/JRMC 8165: Public Health Communication

Other Required Courses
- **College of Public Health Seminar (PBHL 8200, 1 credit)**: Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.
- **Culminating Experience (PBHL 7800, 3 credits)**: The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.
- **Internship (PBHL 7560, 6 credits)**: The internship requires 300 clock hours in an appropriate public health setting. Students choose the site for their internship, with the assistance of the academic advisor and Internship Coordinator.

**Assessment of competency**
The mastery of theories, concepts, skills and knowledge in disaster management are examined through exercises, certification completion via state and federal modules, course examinations, group projects, class presentation, and class discussions. Many courses include a service-learning component where students work together in groups with an external public health organization on a project that will benefit the organization. The product of that project is turned over to the organization for their use. The internship, which is supervised by the faculty member, is designed to provide an experience that integrates knowledge and skills into practice.

Students are advised by faculty and meet with them on a regular basis to discuss class progress and issues, advancement through the program of study, and issues related to internships and graduation. The faculty advisor also directs the student’s capstone experience along with a second faculty member. Students frequently meet with other faculty as well to discuss issues relevant to their areas of interest and the field in general.

Exit and alumni surveys are used to examine students (and graduates) perceptions of their training – did they develop the skills and knowledge necessary to perform in the field upon graduation. Feedback is discussed in faculty meetings and incorporated into program as needed.
Master of Public Health in Environmental Health Science

**Description**

The mission of the Environmental Health Science Department is to conduct innovative research to improve human health, wellbeing, and quality of natural and working environments, and to provide exemplary education and training for future Environmental Health professionals.

**Competencies**

1. Understand the basic mechanism by which environmental and occupational pollutants impact health.
2. Understand the basic sciences deemed most relevant for the study of environmental and occupational health.
3. Be able to collect, analyze and interpret environmental and occupational data.
4. Demonstrate the ability to implement an occupational or environmental health investigation or project and clearly report on the result.
5. Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety.
6. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.
7. Specify current environmental risk assessment methods.
8. Describe relevant factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
9. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.
10. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
11. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/or health sciences and public health experience is preferred.

Applicants to the EHS concentration must also have successfully completed undergraduate courses in Biology, Microbiology, Chemistry and Organic Chemistry.
# Requirements (45 credits)

## M.P.H. Core Course Requirements (15 hours)
- BIOS 7010 Introduction to Biostatistics I
- EHSC 7010 Foundations of Environmental Health
- EPI 7010 Introduction to Epidemiology I
- HPAM 7010 Introduction to Health Policy and Management
- HPRB 7010 Social and Behavioral Foundations

## EHS Concentration Core Requirements (12 hours)
(pick one class from 4 of the 5 areas = 12 hours)
- **Air Quality**
  - EHSC 6080 Environmental Air Quality
- **Water Quality**
  - EHSC 6610 Water Pollution
  - EHSC 8410 Oceans and Human Health
- **Toxicology**
  - EHSC 6490 Environmental Toxicology
  - PHRM 6910 Introductory Toxicology
- **Risk Assessment**
  - EHSC 8510/L Environmental Risk Assessment and Communication
  - EHSC 8540/L Microbial Quantitative Risk Assessment
- **Environmental Microbiology**
  - EHSC 6310/L Environmental Microbiology
  - EHSC 8310 Advanced Topics in Aquatic Microbiology, Health & Environment

*Courses listed above in the EHS Core section may be used as electives if not taken as part of the 12 hour requirement.*

## List of elective courses for a concentration in Environmental Health Science: (minimum 8 hours)
- EHSC 6090 Emerging Technologies: Biotechnology
- EHSC 6150 Solid and Hazardous Waste Management
- EHSC 6400 Environmental Issues in the Developing World
- EHSC 6700 Genetic Applications in Environmental Health Science
- EHSC 8110 Fundamentals of Chemical or Microbial Risk Assessment
- EHSC 8210 Cancer Etiology and Prevention
- EHSC 8250 Biomarkers: Public Health, Clinical and Environmental Tox Applications
- EHSC 8400 Environmental & Occupational Diseases
- EHSC 8550 Developmental and Reproductive Toxicology
- EHSC 8630/L Quantitative Ecological Toxicology
- EHSC 8800 Special Problems in Environmental Health
- DMAN 7350 Disaster Management for Public Health Professionals
- EPID 8070 Environmental and Occupational Epidemiology
- HPAM 7400 Public Health Law

*Other courses may be accepted as EHS electives with prior written approval from academic advisor.*
Other Required Courses:
College of Public Health Seminar (PBHL 8200, 1 hr): Students in the MPH program are required to take this seminar course one time during their program of study. The course will incorporate guest speakers representing all areas of public health.

Culminating Experience (PBHL 7800, 3 hrs): The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.

Internship (PBHL 7560, 6 hours): The internship requires 300 clock hours in an appropriate public health setting. Students choose the site for their internship, with the assistance of the Academic Advisor and Internship Coordinator.

Assessment of competency
The mastery of knowledge and skills is accessed through exams, course projects, course papers and reports, and the culminating experience. The understanding and integration of content is examined within the respective course. Mastery of the skills necessary for practice is assessed in course projects and the internship. Many courses have a class project that requires the student to synthesize and apply the concepts to a real world problem. The internship is designed to provide an experience that integrates this knowledge and skills into practice.

All students are advised by faculty. Students will meet at least once a semester with the faculty member to discuss goals and progress through their program. Students also frequently meet with other faculty on an ad hoc basis to examine their goals, discuss mutual interests, get additional feedback on progress, and discuss job opportunities after graduation.

Course evaluations, exit and alumni surveys are conducted to garner feedback from students about their perception of their level of competence – do they have the knowledge and skills necessary to function effectively in their internship and job. College faculty and staff talk regularly with our community preceptors and partners to receive input on the ability of our students and graduates to perform in the field.
Master of Public Health in Epidemiology

**Description**

The epidemiology concentration offers students a broad training in general epidemiology, including required courses in biostatistics and field epidemiology. Areas of informal concentration and particular expertise include infectious disease epidemiology and cancer epidemiology. Other areas of faculty expertise include molecular epidemiology, geographic information systems, and clinical epidemiology. Students will learn how to design, conduct and analyze clinical investigations and research studies in public health. Electives may be chosen from the College of Public Health and from across the UGA campus, and students may choose to obtain certificates in Global Health or Disaster Management. The program also requires an internship and a capstone project.

**Competencies**

Upon completion of the EPID MPH degree students will:

1. Demonstrate a working knowledge of current and emerging major public health issues related to communicable and non-communicable disease.
2. Apply the basic terminology and definitions of epidemiology in oral presentations and written reports.
3. Critically review and summarize epidemiologic literature.
4. Access and utilize epidemiologic data available at the state, national and international level.
5. Demonstrate the understanding of basic epidemiologic study designs, the effects of bias and confounding, and surveillance methods for infectious and non-infectious diseases.
6. Be able to draw appropriate inference from epidemiologic data.
7. Be sensitive to social, cultural and ethnic differences that may influence the conduct and execution of epidemiologic studies.
8. Understand basic legal and ethical principles pertaining to collection, maintenance and dissemination of epidemiologic data.
9. Possess knowledge of the development of epidemiology and the historical contributions of the discipline to public health.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years.

Students with strong life science and/or quantitative backgrounds (pre-med studies, microbiology, molecular biology, and genetics) are preferred for this concentration.
### Requirements (45 credits)

#### MPH Core Courses (15 credits)
- BIOS 7010  
  Introduction to Biostatistics I
- EHSC 7010  
  Foundations of Environmental Health
- EPI D 7010  
  Introduction to Epidemiology I
- HPAM 7010  
  Introduction to Health Policy and Management
- HPRB 7010  
  Social and Behavioral Foundations

#### EPI D Concentration Core Courses (11 credits)
- EPI D 7020  
  Introduction to Epidemiology II
- BIOS 7020  
  Introduction to Biostatistics II
- EPI D 7100  
  Current Topics in Epidemiology (1 credit hour x2)
- EPI D 7410  
  Field Epidemiology and Surveillance

#### Electives (Minimum 9 credits)
- EPI D 7040  
  Nutritional Epidemiology
- EPI D 8010  
  Cohort Study Design, Implementation, and Analysis
- EPI D 8020  
  Case Control Design, Implementation, and Analysis
- EPI D 8040  
  Clinical Trials Designs, Implementation and Analysis
- EPI D 8050  
  Integrating Research Designs
- EPI D 8070  
  Environmental and Occupational Epidemiology
- EPI D 8100  
  Clinical Epidemiology
- EPI D 8120  
  Screening and Prevention
- EPI D 8130  
  Systematic Reviews and Meta-Analysis
- EPI D 8200  
  Molecular Epidemiology
- EPI D 8250  
  Biomarkers: Public Health, Clinical, and Env. Tox Apps
- EPI D 8300  
  Epidemiology of Aging
- EPI D 8400  
  Chronic Disease Epidemiology
- EPI D 8410  
  Cancer Epidemiology
- EPI D 8500  
  Infectious Disease Epidemiology
- EPI D 8515  
  Modeling Infectious Diseases
- EPI D 8520  
  Food Safety Epidemiology
- EPI D 8550  
  HIV Epidemic: A Global Perspective
- EPI D 8610  
  Applied Epidemiology in Global Health
- BIOS 6380  
  Survival Analysis
- BIOS 7400  
  Research Data Management and Computing
- BIOS 8110  
  Categorical Data Analysis
- BIOS 8220  
  Clinical Trials

#### Other Required Courses:

**Seminar in Public Health (PBHL 8200, 1 credit):** Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.

**Internship (PBHL 7560, 6 credits):** Requires 300 clock hours in an appropriate Public Health setting. Students choose the site or their internship with the assistance of the Academic Advisor.
and Internship coordinator.

**Culminating Experience (PBHL 7800, 3 credits):** The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.

<table>
<thead>
<tr>
<th><strong>Assessment of competency</strong></th>
</tr>
</thead>
<tbody>
<tr>
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All students are advised by faculty. Students will meet at least once a semester with the faculty member to discuss goals and progress through their program. Students also frequently meet with other faculty on an ad hoc basis to examine their goals, discuss mutual interests, get additional feedback on progress, and discuss job opportunities after graduation.

Course evaluations, exit and alumni surveys are conducted to garner feedback from students about their perception of their level of competence – do they have the knowledge and skills necessary to function effectively in their internship and job. College faculty and staff talk regularly with our community preceptors and partners to receive input on the ability of our students and graduates to perform in the field.
# Master of Public Health in Gerontology

## Description
Gerontology is the study of aging and older adults. Long life is a direct result of public health. The science of gerontology has evolved as longevity has improved. Researchers in this field are diverse. Our students are trained in basic science, social science and statistics. Our graduates work in public and private sector jobs. With these tools, we create the solutions needed by our society. The Institute of Gerontology at the University of Georgia is the hub for coordinating and conducting the University's education, research, and outreach services associated with the study of aging and older adults. Through its 30-plus member university-wide Faculty of Gerontology, the Institute collaborates with educators and researchers statewide, regionally, nationally, and internationally.

## Competencies
Upon completion of the Gerontology MPH degree students will:

1. Apply the basic terminology and definitions of gerontology in oral presentations and written reports.
2. Appraise public health problems in terms of magnitude, person, time, and place.
3. Identify basic theories, concepts and models from a range of social and behavioral disciplines that are used in public health research and practice.
4. Describe the cultural, social, and behavioral determinants of aging.
5. Utilizes appropriate methods for interacting sensitively, effectively, and professionally with persons from diverse cultural, socioeconomic, educational, racial, ethnic and professional backgrounds, and persons of all ages and lifestyle preferences.
6. Assess evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.
7. Explain how professional ethics and practices relate to equity and accountability in diverse community settings.

## Prerequisites/ Requirements for Admission
Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/ or health sciences and public health experience is preferred.
## Requirements (45 credits)

### M.P.H. Core Course Requirements (15 credits)
- BIOS 7010 Introduction to Biostatistics I
- EHSC 7010 Foundations of Environmental Health
- EPID 7010 Introduction to Epidemiology I
- HPAM 7010 Introduction to Health Policy and Management
- HPRB 7010 Social and Behavioral Foundations

### Gerontology Core Courses (12 credits)
- GRNT 6000 Perspectives in Aging
- GRNT 8200 Public Health and Aging OR GRNT/EPID 8300 Epidemiology of Aging
- GRNT 6700 Psychology of Aging
- GRNT 6650 Aging in Society

### Gerontology Related Selectives (Minimum of 8 credits)
- GRNT 7266 Death, Dying, and Bereavement
- GRNT/EPID 8400 Epidemiology of Chronic Disease
- HPAM 8400 Policy and Economic Analysis in Public Health
- HPAM 8700 Management of Public Health Organizations
- HPRB 7470 Program Evaluation in Health Promotion
- FDNS 6560 Nutrition, Health, and Aging
- FDNS 8530-8550 Nutrition and Disease Processes I, II
- KINS 6320 Exercise and Aging
- SOWK 6142 Social Work With Older Adults

### Other Required Courses:
- **College of Public Health Seminar (PBHL 8200, 1 credit):** Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.
- **Culminating Experience (PBHL 7800, 3 credits):** The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.
- **Internship (PBHL 7560, 6 credits):** The internship requires 300 clock hours in an appropriate public health setting. Students choose the site for their internship, with the assistance of the academic advisor and Internship Coordinator.

### Assessment of competency
The mastery of theories, concepts, skills and knowledge in topics related to aging in public health are examined through course examinations, group projects, class presentation, and class discussions. Many courses include a service-learning component where students work together in groups with an external public health organization on a project that will benefit the organization. The product of that project is turned over to the organization for their use. Many students will continue to work with that organization after the completion of the project. The
Internship, which is supervised by the faculty member, is designed to provide an experience that integrates knowledge and skills into practice.

Students are advised by faculty and meet with them on a regular basis to discuss class progress and issues, advancement through the program of study, and issues related to internships and graduation. The faculty advisor also directs the student’s capstone experience along with a second faculty member. Students frequently meet with other faculty as well to discuss issues relevant to their areas of interest and the field in general.

Exit and alumni surveys are used to examine students (and graduates) perceptions of their training – did they develop the skills and knowledge necessary to perform in the field upon graduation. Feedback is discussed in faculty meetings and incorporated into program as needed.
### Description

The MPH concentration in Health Policy and Management is an interdisciplinary course of study with a focus either in health systems management or health policy. A health management focus emphasizes finance, accounting and personnel management. A health policy focus emphasizes policy analysis, implementation and evaluation. Graduates will typically work in healthcare organizations such as hospitals, clinics, HMOs, insurance companies, and biotech and pharmaceutical companies.

### Competencies

1. Formulate the policy process for improving the health status of populations.
2. Assess evidence-based principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives.
3. Demonstrate leadership and communication skills for building partnerships.
4. **Health Policy Track**
   a. Appraise Public Health problems in terms of magnitude, person, time, and place.
   b. Apply the core functions of assessment, policy development, and assurance in the analysis of public health problems and their solutions.
   c. Analyze the effects of political, social, and economic policies on public health systems at the local, state, national, and international levels.
   d. Assess evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.
5. **Health Management Track**
   a. Describe the legal and ethical basis for public health and health services.
   b. Explain methods of ensuring community health and safety preparedness.
   c. Apply principles of strategic planning and marketing to public health.
   d. Apply quality and performance improvement concepts to address organizational performance issues.
   e. Apply “systems thinking” for resolving organizational problems.

### Prerequisites/Requirements for Admission

**Preferred Background:**

A background in business, management, political science and/or health sciences and public health experience is preferred for applicants to the HPAM concentration. The department is now offering focus areas within the concentration in either health policy or health management.

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are
considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/or health sciences and public health experience is preferred.

## Requirements (45 credits)

The M.P.H. degree requires a minimum of 45 semester hours of course credit, including successful completion of the following: 36 hours of coursework, an internship (6 hours), & passing a final culminating experience known as the capstone (3 hours). Students may choose either the Policy Track or the Management Track. All students are required to take 15 hours of core classes, regardless of the track they choose. In addition to the core requirements, students must complete 12 hours of course requisites, depending on the chosen track. Students must also choose a minimum of 8 hours of electives, again, depending on the track. The curriculum comprises the following areas and courses:

### MPH Core Requirement Courses: 15 hours

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOS 7010</td>
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<td>HPRB 7010</td>
<td>Social and Behavioral Foundations</td>
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### Health Policy or Health Management Core Courses: 12 hours

**Policy**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>HPAM 8400</td>
<td>Policy and Economic Analysis in Public Health</td>
</tr>
<tr>
<td>HPAM 8450</td>
<td>Policy Evaluation</td>
</tr>
<tr>
<td>HPAM 8600</td>
<td>Health Economics</td>
</tr>
</tbody>
</table>

And choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPAM 7400</td>
<td>Public Health Law</td>
</tr>
<tr>
<td>EPI 7700</td>
<td>Public Health Ethics</td>
</tr>
</tbody>
</table>

**Management**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HPAM 8650</td>
<td>Healthcare Finance</td>
</tr>
<tr>
<td>HPAM 8700</td>
<td>Management of Public Health Organizations</td>
</tr>
<tr>
<td>HPAM 8800</td>
<td>Foundations of Leadership</td>
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<tr>
<td>HPAM 8890</td>
<td>Strategic Management</td>
</tr>
</tbody>
</table>

### Electives: minimum 8 hours

**Policy**

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<tr>
<td>HPAM 7400</td>
<td>Public Health Law or EPI 7700 Public Health Ethics</td>
</tr>
<tr>
<td>HPAM 8300</td>
<td>Research Methods</td>
</tr>
<tr>
<td>HPAM 8500</td>
<td>Comparative Global Health</td>
</tr>
</tbody>
</table>
HPAM 8550  Comparative Global - Nation
HPAM 8820 Global Health Policy
HPAM 8850 Cost Effectiv. Analysis in Health and Medicine
HPAM 8101S Advanced Service-Learning
HPAM 8650  Healthcare Finance
HPAM 8700  Intro to Management of Public Health Orgs
HPAM 8800  Foundations of Leadership
HPAM 8890  Strategic Management
HPAM 8920  Healthcare Consulting Management
DMAN XXXX  Disaster Management Certificate Series
GRNT XXXX Gerontology Certificate Series
Global Health Certificate Series

Management
- HPAM 8101S  Advanced Service-Learning
- HPAM 8300 Research Methods
- HPAM 8500 Comparative Global Health
- HPAM 8600  Health Economics
- HPAM 8750 Quality Improvement in Health
- HPAM 8920  Healthcare Consulting Management
- HPAM 7400  Public Health Law
- HPAM 8400  Policy and Economic Analysis in Public Health
- HPAM 8450  Policy Evaluation
- HPAM 8550  Comparative Global - Nation
- HPAM 8820 Global Health Policy
- HPAM 8850 Cost Effectiv. Analysis in Health and Medicine
- EPID 7700  Public Health Ethics
- DMAN XXXX  Disaster Management Certificate Series
- GRNT XXXX Gerontology Certificate Series
- Global Health Certificate Series

Other Required Courses:
- **Seminar in Public Health (PBHL 8200, 1 credit):** Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.
- **Internship (PBHL 7560, 6 hours):** Requires 300 clock hours in an appropriate Public Health setting. Students choose the site or their internship with the assistance of the Academic Advisor and Internship coordinator.
- **Culminating Experience (PBHL 7800, 3 hrs):** The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.

**Assessment of competency**
Acquisition and mastery of knowledge and skills is assessed through course examinations, class presentations, course papers and reports on public health issues related to students interests, and group projects. The understanding and integration of content is examined within the respective
course. Mastery of the skills necessary for practice is assessed in course projects and the internship. Many courses have a class project that requires the student to synthesize and apply the concepts to a real world problem. The internship is designed to provide an experience that integrates this knowledge and skills into practice.

Students meet with their faculty advisor on a regular basis during which they discuss progress in their program, opportunities in the field, and any problems or issues in their coursework that may arise. As part of the MPH program, graduates complete an exit survey and an alumni survey to which will garner feedback on their level of preparation for practice in the field.
Master of Public Health in Health Promotion and Behavior

**Description**

The Department of Health Promotion and Behavior, through its teaching, research, and service initiatives, generates knowledge about the social and behavioral determinants of health and applies that knowledge to the design, delivery and evaluation of disease prevention and health promotion programs.

**Competencies**

Upon completion of the HPRB MPH degree students will:

1. Use theory of behavior and social change to inform the planning and evaluation of health interventions.
2. Apply evidence-based approaches to identify effective individual, community, and policy level health promotion programs.
3. Design and implement effective individual, community, and policy level health promotion programs.
4. Assess the health needs of a community.
5. Utilize appropriate research design, data collection strategies, quantitative and qualitative methods to evaluate health promotion programs.
6. Describe the cultural, social, and behavioral determinants of health and health disparities.
7. Develop and adapt approaches to health promotion issues that take into account cultural differences.
8. Identify strategies for developing partnerships, community organizing, and coalition building to address health promotion issues.
9. Integrate ethical considerations and values in all aspects of public health practice.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Applications are considered in their entirety before making admission decisions. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting, and 300 from the new GRE format. GRE Scores must be within the last five years. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). A background in the social, behavioral, and/ or health sciences and public health experience is preferred.

**Requirements (45 credits)**

**MPH Core Courses (15 credits)**

<table>
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<tr>
<th>Course Code</th>
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EHSC 7010  Foundations of Environmental Health
EPID 7010  Introduction to Epidemiology I
HPAM 7010  Introduction to Health Policy and Management
HPRB 7010  Social and Behavioral Foundations

**HPRB Concentration Core Courses (15 credits)**

- HPRB 7270  Resource Development & Program Implementation
- HPRB 7370  Social Marketing of Health: Theory and Process
- HPRB 7470  Program Evaluation in Health Promotion and Education
- HPRB 7500  Community Health
- HPRB 7920  Health Behavior and Theory

**Electives (Minimum 5 credits)**

- HPRB 7069  Human Sexuality in Public Health
- HPRB 7160  Special Topics in Health Promotion and Behavior
- HPRB 7200  Women in Health and Illness
- HPRB 7220  Substance Abuse Prevention in Public Health
- HPRB 7400  Worksite Health Promotion
- HPRB 7470  Program Evaluation in Health Promotion and Education
- HPRB 7700  Analysis and Prevention of Injury and Violence
- HPRB 6450  Occupational Safety
- HPAM 8400  Health and Economic Policy Analysis
- GRNT 6000  Seminar in Aging
- GRNT 6650  Aging & Society

**Other Required Courses:**

**Seminar in Public Health (PBHL 8200, 1 credit):** Students in the MPH program are required to take this seminar course once during their program of study. The course will incorporate guest speakers representing all areas of public health.

**Internship (PBHL 7560, 6 credits):** Requires 300 clock hours in an appropriate Public Health setting. Students choose the site or their internship with the assistance of the Academic Advisor and Internship coordinator.

**Culminating Experience (PBHL 7800, 3 credits):** The culminating experience is a capstone paper completed under the direction of a faculty advisor in the final semester of the program.

**Assessment of competency**

The mastery of theories, concepts, skills and knowledge in Health Promotion are examined through course examinations, group projects, class presentation, and class discussions. Many courses include a service-learning component where students work together in groups with an external public health organization on a project that will benefit the organization. The product of that project is turned over to the organization for their use. Many students will continue to work with that organization after the completion of the project. The internship, which is supervised by the faculty member, is designed to provide an experience that integrates knowledge and skills into practice.
Students are advised by faculty and meet with them on a regular basis to discuss class progress and issues, advancement through the program of study, and issues related to internships and graduation. The faculty advisor also directs the student’s capstone experience along with a second faculty member. Students frequently meet with other faculty as well to discuss issues relevant to their areas of interest and the field in general.

Exit and alumni surveys are used to examine students (and graduates) perceptions of their training – did they develop the skills and knowledge necessary to perform in the field upon graduation. Feedback is discussed in faculty meetings and incorporated into program as needed.
Biostatistics M.S.

Description

Motivated by the unique ethical challenges posed by working with human subjects and by the complexity of human, biological and public health systems, biostatistical research involves the development of new and innovative statistical methods for analyzing biomedical and public health data. Biostatisticians can design efficient public health surveys, clinical trials, and biomedical experiments that minimize the number of subjects exposed to inferior treatments, and maximize the amount of information obtained from the study subjects while securing the privacy of sensitive human-subjects data. Biostatisticians seek to develop new and innovative statistical methods for efficient analysis of the resulting data, yielding scientifically-defensible conclusions regarding the impact of risk factors and medical therapies on disease, quality life and health of human populations.

The primary objective of the M.S. program in biostatistics is to train students in the application and evaluation of core biostatistical methods for application in public health and biomedicine. Student completing the program are trained in core biostatistical methods, design of experiments and public health surveys, statistical computing, biostatistical consulting, probability, and mathematical statistics.

Competencies

The Department of Epidemiology and Biostatistics embraces competency-based education as set forth by the Association of Schools of Public Health. Students receiving a M.S. in Biostatistics should meet the following competencies:

1. Demonstrate a command of core biostatistical techniques, including their computation, theoretical underpinnings, and their application in public health and biomedicine.
2. Consult with investigators in public health and biomedicine on the design of clinical trials, case-control studies, public health surveys, and other experimental and observational studies.
3. Conduct research critically evaluating extant and new statistical methods using appropriate computational tools.
4. Communicate effectively with investigators in public health and biomedical research.
5. Demonstrate and practice ethical research as it pertains to data management, analysis, and interpretation.
6. Critically review the statistical content of the public health and biomedical literature.

Prerequisites/ Requirements for Admission

Applicants may have training in any discipline including but not limited to mathematics, public health, the biological or physical sciences, psychology, sociology, business, statistics or biostatistics. While a degree in mathematics or the statistical sciences is not required, applicants should have taken courses in differential, integral and multivariate calculus. A course in linear algebra is also encouraged.
Applicants are evaluated based on GPA (undergraduate and/or graduate), GRE scores, official transcripts, statement of purpose, three letters of recommendation, and a departmental application. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL).

### Requirements (36 credits)

| Core Requirements in Biostatistics and Statistics (20 credits) |
|------------------|----------------------------------------------------------|
| BIOS 7400        | Research Data Management and Computing                   |
| BIOS 8010        | Regression and ANOVA (3)                                 |
| BIOS 8020        | Linear and Generalized Linear Models (3)                 |
| BIOS 8200        | Biostatistical Consulting I (2)                          |
| STAT 6810        | Probability Distributions (3)                            |
| STAT 6820        | Statistical Inference (3)                                |
| STAT 8060        | Computing Techniques in Statistics I (3)                 |

| Required Core Courses in Epidemiology and Public Health (7 credits) |
|----------------------|---------------------------------------------------------------|
| EPI D 7010           | Introduction to Epidemiology I (3)                            |
| PBHL 8200            | Seminar in Public Health (1)                                 |

In addition, students must take one of the following public health courses:

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EHSC 7010</td>
<td>Fundamentals of Environmental Health Science (3)</td>
</tr>
<tr>
<td>HPAM 7010</td>
<td>Introduction to Health Policy and Management (3)</td>
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<tr>
<td>HPRB 7010</td>
<td>Social and Behavioral Foundations in Public Health (3)</td>
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</table>

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<thead>
<tr>
<th>Electives (6 credits)</th>
<th>Examples of common elective options</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 8210</td>
<td>Computational Methods in Bioinformatics (3)</td>
</tr>
<tr>
<td>BINF 8211</td>
<td>Advanced Methods for Biological Data Analysis (3)</td>
</tr>
<tr>
<td>BINF 8940</td>
<td>Applied Genome Analysis (3)</td>
</tr>
<tr>
<td>BIOS 6380</td>
<td>Survival Analysis (3)</td>
</tr>
<tr>
<td>BIOS 8100</td>
<td>Case Studies in Nonlinear Biostatistics (3)</td>
</tr>
<tr>
<td>BIOS 8110</td>
<td>Categorical Data Analysis (3)</td>
</tr>
<tr>
<td>BIOS 8120</td>
<td>Applied Nonparametric Biostatistical Methods (3)</td>
</tr>
<tr>
<td>BIOS 8130</td>
<td>Multivariate Design (3)</td>
</tr>
<tr>
<td>BIOS 8150</td>
<td>Spatial Epidemiology (3)</td>
</tr>
<tr>
<td>BIOS 8220</td>
<td>Clinical Trials (3)</td>
</tr>
<tr>
<td>EPI D 7020</td>
<td>Introduction to Epidemiology II (3)</td>
</tr>
<tr>
<td>EPI D 8010</td>
<td>Cohort Study Design, Implementation and Analysis (3)</td>
</tr>
<tr>
<td>EPI D 8020</td>
<td>Case Control Design, Implementation and Analysis (3)</td>
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<tr>
<td>EPI D 8250</td>
<td>Biomarkers (3)</td>
</tr>
<tr>
<td>STAT 8040</td>
<td>Environmental Statistics (3)</td>
</tr>
<tr>
<td>STAT 8070</td>
<td>Computing Techniques in Statistics II (3)</td>
</tr>
<tr>
<td>STAT 8090</td>
<td>Statistical Analysis of Genetic Data (3)</td>
</tr>
</tbody>
</table>
STAT 8240  Sampling and Related Topics (3)
STAT 8260  Theory of Linear Models (3)
STAT 8270  Spatial Statistics (3)
STAT 8280  Time Series Analysis (3)
STAT 8290  Advances in Experimental Designs (3)
STAT 8330  Advanced Applications and Computing (3)
STAT 8350  Bayesian Data Analysis (3)

Other Requirements (3 credits)
BIOS 7300  Masters Thesis (3)

Assessment of Competency

Students will demonstrate that they have achieved the program competencies as follows:

1. Demonstrate a command of core biostatistical techniques, including their computation, theoretical underpinnings, and their application in public health and biomedicine.

   Students are exposed to core biostatistical techniques in the BIOS 8010-8020 course sequence. In these courses, students will not only be exposed to computation methods, but also the statistical theory that underlies those methods. Students are also expected to be able to identify appropriate methods of statistical analysis for application to public health and biomedical data. This competency will be evaluated in the qualifying examination.

2. Consult with investigators in public health and biomedicine on the design of clinical trials, case-control studies, public health surveys, and other experimental and observational studies.

   The design of public health surveys, biomedical experiments and clinical trials will also be considered in the BIOS 8010-8020 course sequence. Students will demonstrate their design skills in Bios 8200 Biostatistical Consulting.

3. Conduct research critically evaluating extant and new statistical methods using appropriate computational tools.

   The theoretical core course sequences STAT 6810-6820 will provide students with the necessary theoretical background to conduct biostatistical research at the master’s level. The ability to carry out biostatistical research will be demonstrated in their thesis.
4. **Communicate effectively with investigators in public health and biomedical research.**

Students taking BIOS 8200 Biostatistical Consulting will be assigned consulting projects with public health and biomedical researchers. To achieve a passing grade in this course, they expected to communicate effectively in their written and oral project reports.

5. **Demonstrate and practice ethical research as it pertains to data management, analysis, and interpretation.**

The ethical practice of biostatistics is considered in BIOS 8200 Biostatistical Consulting. Students are expected to engage in ethical practice in their consulting programs, and the engage in ethical research in their dissertations.

6. **Critically review the statistical content of the public health and biomedical literature.**

A critical review of the biostatistical literature in the student’s research area is expected in their thesis.
Environmental Health Science M.S.

**Description**

The M.S. program in Environmental Health Science is a professional degree, in which individuals have the opportunity to specialize in environmental protection, industrial hygiene, or public health and may be completed as a terminal degree or as a preparatory step toward a Ph.D. degree. Courses in environmental air and water quality, risk assessment, industrial hygiene, toxicology, waste management, environmental epidemiology, and statistics provide in-depth training for employment in commercial concerns, government agencies and academic institutions. Research resources include facilities equipped to handle a wide range of chemical, molecular and genomic studies, toxicological bioassays, air or water quality assessments, microbiological and environmental issues. Graduate programs in environmental health science emphasize the chemical, microbiological, physical, risk assessment, and policy aspects of environmental and occupational exposures and effects.

**Competencies**

Upon completion of the MSEH degree students will:

1. Exhibit a strong foundation in the natural and physical sciences.
2. Use strong computer, communication and presentation skills, so to effectively analyze and communicate environmental health data to the public and their peers through written and oral communication methods.
3. Demonstrate skills in core areas of public and environmental health principles, epidemiology and biostatistics.
4. Employ in-depth knowledge in a minimum of four technical areas in environmental health.
5. Conduct original research in environmental health science, involving data collection, analysis and interpretation.
6. Successfully defend an MS thesis which involves completion of the thesis research project, presenting the project in a public forum, and publishing the results of project in an MS thesis (minimum requirement) and peer-reviewed scientific journals.

**Prerequisites/ Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL).
### Requirements (32 credits)

#### Required Courses (21 credits)
- BCMB 6000 (or higher) General Biochemistry and Molecular Biology (3)
- EHSC 6010 Proseminar in Environmental Health (1)
- EPID 7010 (or higher) Introduction to Epidemiology (3)
- BIOS 7010 Introductory Biostatistics I (3)
- BIOS 7020 Introductory Biostatistics II (3)
- EHSC 8150 Environmental Health Science Seminar (1)
- PBHL 8200 Seminar in Public Health (1)
- EHSC 7000 Master’s Research (3)
- EHSC 7300 Master’s Thesis (3)

#### Electives
Choose at least 4 classes
- EHSC 6060 Ecotoxicology (3)
- EHSC 6080 Environmental Air Quality (3)
- EHSC 6100 Industrial Hygiene (3)
- EHSC 6150 Solid and Hazardous Waste Management (3)
- EHSC 6310 Environmental Microbiology (3)
- EHSC 6490 Environmental Toxicology (3)
- EHSC 6610 Water Pollution and Human Health (3)
- EHSC 7060 Fundamentals of Environmental Health Science (3)
- EHSC 8100 Current Topics in Environmental Health Science (2)
- EHSC 8120 Roles and Responsibilities of Environmental Policy Makers (2)
- EHSC 8220 Predictive Toxicology Using Mathematical Models (4)
- EHSC 8510 Environmental Risk Assessment and Communication (3)
- EHSC 8610 Aquatic Toxicology (3)
- EHSC 8630 Quantitative Ecological Toxicology (4)
- EHSC 8800 Special Problems in Environmental Health Science (1-3)
- EHSC 8930 Chemical Toxicology (3)

### Assessment of Competency

**Assessment Activity #1: Proposal Presentation**
Students are required to present a thesis proposal that will introduce their planned master’s thesis research. This will be met by satisfactory completion of the course EHSC 6010.

**Assessment Activity #2: Thesis Research Presentation**
Students are required to present their master’s thesis research project in a one-hour public seminar. The seminar will demonstrate their understanding of EHS concepts, and their research and analytical skills gained through the thesis research. This requirement is met by satisfactory completion of the course EHSC 8150.

**Assessment Activity #3: Final Oral Examination**
Each student will participate in a final oral examination where they will demonstrate their knowledge in EHS and research methodologies by answering questions related to core EHS principles and their thesis. The student’s MS Committee will preside over this examination, and any UGA faculty may participate in this exam. This requirement is met by a satisfactory performance determined by a majority vote of the student’s MS Committee.
**Assessment Activity #4: Exit Survey**
Student satisfaction and perceptions are important data sources for improvement of the MSEH program, its goals, activities, and evaluations. Upon degree completion, students complete a survey about their experience in the program. See the survey in Appendix II.

**Assessment Activity #5: Course Evaluations**
All courses are required to be evaluated, and the course evaluations are routed to the Department Chair. For an example of the course evaluation questions asked, see Appendix III.

**Assessment Activity #6: Advisor Evaluation**
Each student chooses a faculty advisor and is not permitted to register for courses until a meeting has occurred between the student and faculty advisor each term. Faculty advisors are expected to counsel the student about foundational degree requirements, inquire about the student’s development of skills and participation in professional development activities beyond required courses, and assist the student in identifying course-related and other opportunities for professional growth. These meetings are critical to assisting the student in expanding his/her résumés and professional portfolios. A review of advisors, by students, is completed each year. A copy of the advisor form is found in Appendix IV.

**Assessment Activity #7: Annual Graduate Student Evaluation**
Advisors are required to evaluate each student’s progress towards earning an MSEH degree. This evaluation is Part 1 of the annual graduate student evaluation form. An example of the annual graduate student evaluation is attached as Appendix V.

**Assessment Activity #8: Annual Graduate Assistantship Evaluations**
Graduate assistantships permit the most comprehensive development of field-related knowledge and professional skills. Graduate assistants are assigned to faculty members based on the availability of research and grants to support student work. Faculty members evaluate each graduate assistant’s performance of their duties. This evaluation form is Part 2 of the Annual graduate student evaluation in Appendix V.

**Assessment Activity #9: Database Analyses: Alumni and Alumni Feedback**
The EHS Department will maintain a database of alumni, their initial and subsequent employment, and professional accomplishments. By tracking alumni, the Graduate Faculty can overview job placement of graduates and understand the professional skills needed in the positions to which our students migrate. Alumni are surveyed in five-year cycles. A copy of the survey is found in Appendix VI.
Toxicology M.S.

**Description**

The Interdisciplinary Toxicology Program at the University of Georgia is comprised of graduate students, faculty, staff, scientists, and post-doctoral fellows from several departments within the University. The program is committed to a high quality graduate education and excellence in research, and both faculty and graduate students have received national recognition for their endeavors. Our goal is to provide strong interdisciplinary graduate training, research and service programs in toxicology. This is accomplished by encouraging cooperation and sharing of resources and faculty in different colleges, such as Agricultural and Environmental Sciences, Ecology, Pharmacy, Public Health, and Veterinary Medicine. A coordinating committee from among these colleges directs the program.

**Competencies**

Upon completion of any of the interdisciplinary graduate degree programs in Toxicology, students should be able to:

1. Demonstrate working knowledge and comprehension of toxicological principles, including, but not limited to, dose-response, mechanisms of action, toxicokinetics, target organ toxicity, environmental fate and transport of chemicals and chemical induced-toxicity and cancer.
2. Employ strong critical thinking skills in analyzing and interpreting toxicological data.
3. Apply problem-solving skills to synthesize, evaluate and tests hypotheses; and
4. Evaluate and critique both current and emerging areas of toxicology research, emerging technologies and issues in toxicology.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). It is recommended that an applicant for an MS degree should have a GPA of 3.0.

**Requirements (30 credits)**

**MS Core Courses (9 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHRM 6910</td>
<td>Introduction to Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>BCMB 6000</td>
<td>Biochemistry &amp; Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 7010</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
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</table>

**Electives (6 credits)**

<table>
<thead>
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</thead>
<tbody>
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<td>EHSC 6600</td>
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</tr>
<tr>
<td>EHSC 8630/L</td>
<td>Quantitative Ecotoxicology</td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>EHSC 8610</td>
<td>Aquatic Toxicology</td>
<td>(3)</td>
</tr>
<tr>
<td>EHSC 8450</td>
<td>Genome Technologies</td>
<td>(3)</td>
</tr>
<tr>
<td>FANR 6750</td>
<td>Experimental Design</td>
<td>(3)</td>
</tr>
<tr>
<td>EHSC 8110</td>
<td>Chemical and Microbial Risk Assessment</td>
<td>(3)</td>
</tr>
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<td>EHSC 8250</td>
<td>Biomarkers</td>
<td>(3)</td>
</tr>
<tr>
<td>PHRM 8260</td>
<td>Pharmacokinetics</td>
<td>(4)</td>
</tr>
<tr>
<td>PHRM 8270</td>
<td>Contemporary Concepts in Pharmacokinetics</td>
<td>(3)</td>
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<tr>
<td>VPHY 8010</td>
<td>Mammalian Cell Physiology</td>
<td>(3)</td>
</tr>
<tr>
<td>EHSC 8550</td>
<td>Developmental &amp; Reproductive Toxicology</td>
<td>(3)</td>
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<tr>
<td>PHRM 8940</td>
<td>Organ Systems</td>
<td>(4)</td>
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<td>EHSC 8400</td>
<td>Occupational &amp; Environmental Diseases</td>
<td>(3)</td>
</tr>
<tr>
<td>VPAT 8020</td>
<td>Cell Pathology</td>
<td>(4)</td>
</tr>
<tr>
<td>EHSC 8210</td>
<td>Cancer Etiology and Prevention</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Integration of Core Requirements**

**Assessment of competency**
### Doctor of Public Health (DrPH)

#### Description

The doctor of public health program is designed to be an advanced professional degree congruent with the Institute of Medicine’s (IOM) recommendations for linkages of academic and field experiences in public health. The program’s competency-based curriculum will prepare public health professionals to address complex public health problems through mastery of multiple skills. Distinct from the College’s Ph.D. program, which focuses on the preparation of researchers, the DrPH’s interdisciplinary program will provide students with generalist training in public health. Components of the program will include the acquisition of core as well as specialized knowledge through coursework, interdisciplinary seminars, special studies and the development of a doctoral dissertation relevant to the practice of public health. This interdisciplinary approach distinguishes the DrPH curriculum from other doctoral programs in the College that follow specific academic models. The DrPH program provides comprehensive public health training and draws on a variety of academic disciplines to educate mid- to senior-level professionals in public health.

#### Competencies

Upon completion of the DrPH program, students will have the ability to:

**ADVOCACY:** The ability to influence decision-making regarding policies and practices that advance public health using scientific knowledge, analysis, communication, and consensus building

- A2. Influence health policy and program decision-making based on scientific evidence, stakeholder input, and public opinion data.
- A4. Analyze the impact of legislation, judicial opinions, regulations, and policies on population health
- A5. Establish goals, timelines, funding alternatives, and strategies for influencing policy initiatives.
- A6. Design action plans for building public and political support for programs and policies.

**COMMUNICATION:** The ability to assess and use communication strategies across diverse audiences to inform and influence individual, organization, community, and policy actions.

- B1. Discuss the inter-relationships between health communication and marketing.
- B2. Explain communication program proposals and evaluations to lay, professional, and policy audiences.
- B3. Employ evidence-based communication program models for disseminating research and evaluation outcomes.
- B4. Guide an organization in setting communication goals, objectives, and priorities.
- B5. Create information and persuasive communications.
- B6. Integrate health literacy concepts in all communication and marketing initiatives.
- B7. Develop formative and outcome evaluation plans for communication and marketing effects.
B8. Prepare dissemination plans for communication programs and evaluations.

COMMUNICATION/CULTURAL ORIENTATION: The ability to communicate and interact with people across diverse communities and cultures for development of programs, policies, and research.
C1. Develop collaborative partnerships with communities, policy makers, and other relevant groups.
C2. Engage communities in creating evidence-based, culturally competent programs.
C3. Conduct community-based participatory intervention and research projects.
C4. Design action plans for enhancing community and population-based health.
C5. Assess cultural, environmental, and social justice influences on the health of communities.
C6. Implement culturally and linguistically appropriate programs, services, and research.

CRITICAL ANALYSIS: The ability to synthesize and apply evidence-based research and theory from a broad range of disciplines and health-related data sources to advance programs, policies, and systems promoting population health.
D1. Apply theoretical and evidence-based perspectives from multiple disciplines in the design and implementation of programs, policies, and systems.
D2. Interpret quantitative and qualitative data following current scientific standards.
D3. Design needs and resource assessments for communities and populations.
D4. Develop health surveillance systems to monitor population health, health equity, and public health services.
D5. Synthesize information from multiple sources for research and practice.
D6. Evaluate the performance and impact of health programs, policies, and systems.
D7. Weigh risks, benefits, and unintended consequences of research and practice.

LEADERSHIP: The ability to create and communicate a shared vision for a positive future; inspire trust and motivate others; and use evidence-based strategies to enhance essential public health services.
E1. Communicate an organization’s mission, shared vision, and values to stakeholders.
E2. Develop teams for implementing health initiatives.
E3. Collaborate with diverse groups.
E4. Influence others to achieve high standards of performance and accountability.
E5. Organizational decision-making and planning based on internal and external environmental research.
E7. Create a shared vision.
E8. Develop capacity-building strategies at the individual, organizational, and community level.
E9. Demonstrate a commitment to personal and professional values.

MANAGEMENT: The ability to provide fiscally responsible strategic and operational guidance within both public and private health organizations for achieving individual and community health and wellness.
F1. Implement strategic planning process.
F2. Apply principles of human resource management.
F3. Use informatics principles in the design and implementation of information systems.
F4. Align policies and procedures with regulatory and statutory requirements.
F5. Deploy quality improvement methods.
F6. Organize the work environment with defined lines of responsibility, authority, communication, and governance.
F7. Develop financial and business plans for health programs and services.
F8. Establish a network of relationships, including internal and external collaborators.
F9. Evaluate organizational performance in relation to strategic and defined goals.

PROFESSIONALISM AND ETHICS: The ability to identify and analyze an ethical issue; balance the claims of personal liberty with the responsibility to protect and improve the health of the population; and act on the ethical concepts of social justice and human rights in public health research and practice.

G1. Manage potential conflicts of interests encountered by practitioners, researchers, and organizations.
G2. Differentiate among the administrative, legal, ethical, and quality assurance dimensions of research and practice.
G3. Design strategies for resolving ethical concerns in research, law, and regulations.
G4. Develop tools that protect the privacy of individuals and communities involved in health programs, policies, and research.
G5. Prepare criteria for which the protection of the public welfare may transcend the right to individual autonomy.
G6. Assess ethical considerations in developing communications and promotional initiatives.
G7. Demonstrate cultural sensitivity in ethical discourse and analysis.

Prerequisites/Requirements for Admission
Applicants to the program must have a master’s degree. Applicants must also have 3 years of public health work experience post graduate degree. If an applicant does not have a MPH/MSPH degree, he/she is required to have completed five public health core classes at the master’s level (MPH core) before taking the advanced DrPH core series. Hours earned for prerequisite coursework will not be applied to the DrPH degree requirements.

Requirements (58 credits)

DrPH Core Requirements (18 credits)
BIOS 7020 Introductory Biostatistics II
EHSC 8110 Fundamentals of Chemical and Microbial Risk Assessment
EPID 7020 Introduction to Epidemiology II
HPAM 8400 Policy and Economic Analysis in Public Health
HPRB 8410 Human Ecology of Health and Illness
PBHL 8100 DrPH Seminar

DrPH Methods Requirements (12 credits)
Methods courses should be selected in the context of research and career plans in consultation with the student’s advisor. Courses listed are suggestions; additional courses may be used to fulfill this requirement.

Selective Course Options (12 credits)
Selectives are course options relevant to the student’s academic and career plans, and are to be
approved by the student’s advisor. Selectives may also include additional methods courses.

**Public Health Residency (3-6 credits; 150-300 contact hours)**
Field work within a public health agency.

**Comprehensive Doctoral Examinations**
Taken after all coursework has been completed. Successful completion of written and oral comprehensive exams results in admission to candidacy for the DrPH degree.

**Doctoral Dissertation (9000, 9300, 10 credits)**
The DrPH dissertation will require applied research or theory-to-practice application research project.

**DrPH Methodology Course Options**
- BIOS 8100  Case Studies in Nonlinear Biostatistics
- BIOS 8110  Categorical Data Analysis
- BIOS 8220  Clinical Trials
- PHRM 8310  Discrete Choice Experiments in Health
- PHRM 8670  Pharmacoeconomics and Health Care Technology Assessment
- ERSH 8350  Multivariate Methods in Education
- ERSH 8360  Categorical Data Analysis in Education
- ERSH 8610  Educational Measurement Theory
- ERSH 8620  Item Response Theory
- ERSH 8750  Exploratory and Confirmatory Factor Analysis
- ERSH 8760  Structure Equation Modeling
- ERSH 9210  Quantitative design in education
- ERSH 9800  Issues in Qualitative and Quantitative Research
- QUAL 8400  Qualitative Research in Education
- QUAL 8410  Qualitative Data Collection
- QUAL 8420  Qualitative Data Analysis in Education
- PADP 7110  Research Methods in Public Administration
- PADP 7160  Survey Research Methods
- PADP 8140  Advanced Topics in Statistical Modeling
- PADP 8850  Quantitative Analysis for Public Decision-Making
- SOCI 8630  Empirical Model-Building in Social Research
- STAT 8200  Design of Experiments for Research Workers
- STAT 8250  Multivariate Methods

**DrPH Selective Course Options**
- EHSC 8100  Current Topics in Environmental Health Science
- EHSC 8220/L  Predictive Toxicology Using Mathematical Models
- EHSC 8310  Advanced Topics in Aquatic Microbiology, Health and the Environment
- EHSC 8510/L  Environmental Risk Assessment and Communication
- EHSC 8550  Developmental and Reproductive Toxicology
- EHSC 8610  Aquatic Toxicology
- EHSC 8630/L  Quantitative Ecological Toxicology
Assessment of competency

Assessment methods will be implemented according to the following plan.

Department faculty monitor student enrollment to make sure that the student is enrolling in the courses needed to accomplish the program objectives.

Departmental graduate faculty review their progress toward completion of their degree and vote as to whether they are making sufficient progress toward that end. This is conducted each year in the spring for all doctoral students. Students determined not to be making sufficient progress toward completion of their degree, in conjunction with their major professor and graduate coordinator, develop a specific plan of action for the next year. This plan of action is examined the next year to determine the student’s progress.

All doctoral students must successfully complete a written examination before taking the oral examination. The exam takes place at the end of their program of study. The exam is administered by the major professor and four other faculty and encompasses everything studied during their course of study. Four of five faculty must vote for passing in order for the student to pass the exam. If the student does not pass the exam, they are allowed to take a second exam after consulting with faculty.

All students must successfully complete an oral examination before graduating. The exam takes place at the end of their program of study. The exam is administered by the student program of study committee and encompasses everything studied during their course of study. If the student does not pass the exam, they are allowed to take a second exam after consulting with faculty.

All students are required to defend their research study (dissertation) in an oral presentation. The oral presentation will be conducted at the completion of the research. If the student does not pass the oral defense, they are allowed to try a second time after consulting with faculty.

After students have completed the requirements of their degree, they will be asked to complete an exit questionnaire designed to collect feedback about the graduate program. Responses to the questionnaire will be anonymous. The questionnaires will be mailed to students at their last known address. Responses will be forwarded to the graduate program assistant and placed in Departmental graduate program files.

One year after their graduation, alumni will be mailed another questionnaire designed to gather information about how well they feel our program prepared them for practice in their chosen field. The
questionnaires will be mailed to students at their last known address. Responses will be forwarded to the graduate program assistant and placed in Departmental graduate program files.
## Biostatistics Ph.D.

### Description

Motivated by the unique ethical challenges posed by working with human subjects and by the complexity of human, biological and public health systems, biostatistical research involves the development of new and innovative statistical methods for analyzing biomedical and public health data. Biostatisticians can design efficient public health surveys, clinical trials, and biomedical experiments that minimize the number of subjects exposed to inferior treatments, and maximize the amount of information obtained from the study subjects while securing the privacy of sensitive human-subjects data. Biostatisticians seek to develop new and innovative statistical methods for efficient analysis of the resulting data, yielding scientifically-defensible conclusions regarding the impact of risk factors and medical therapies on disease, quality life and health of human populations.

The primary objective of the Ph.D. program in biostatistics is to provide students with the foundations to develop new and innovative biostatistical methods for applications in public health and biomedicine. Student completing the program are trained in core biostatistical methods, design of experiments and public health surveys, recent developments in biostatistical research, statistical computing, biostatistical consulting, probability, and mathematical statistics.

### Competencies

The Department of Epidemiology and Biostatistics embraces competency-based education as set forth by the Association of Schools of Public Health. Students receiving a Ph.D. in Biostatistics should meet the following competencies:

1. Demonstrate a command of core biostatistical techniques, including their computation, theoretical underpinnings, and their application in public health and biomedicine.
2. Work independently as a collaborator with public health and biomedical researchers to design clinical trials, case-control studies, public health surveys, and other experimental and observational studies.
3. Conduct and publish original research on the theory and application of biostatistics aimed at developing new and innovative methods for analysis of public health and biomedical data.
4. Communicate effectively with investigators in public health and biomedical research.
5. Teach biostatistics to undergraduate students in public health, biomedicine, and related fields.
6. Demonstrate and practice ethical research as it pertains to data management, analysis, and interpretation.
7. Critically review the statistical literature, and the statistical content of the public health and biomedical literature.
**Prerequisites/ Requirements for Admission**

Applicants may have training in any discipline including but not limited to mathematics, public health, the biological or physical sciences, psychology, sociology, business, statistics or biostatistics. While a degree in mathematics or the statistical sciences is not required, applicants should have taken courses in differential, integral and multivariate calculus. A course in linear algebra is also encouraged.

Applicants are evaluated based on GPA (undergraduate and/or graduate), GRE scores, official transcripts, statement of purpose, three letters of recommendation, and a departmental application. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL).

**Requirements (71 credits)**

<table>
<thead>
<tr>
<th>Core Requirements in Biostatistics and Statistics (33 credits)</th>
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<tbody>
<tr>
<td>BIOS 8010 Regression and ANOVA (3)</td>
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<td>BIOS 8020 Linear and Generalized Linear Models (3)</td>
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<td>BIOS 8030 Longitudinal Data Analysis (3)</td>
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<td>BIOS 8040 Advanced Biostatistical Methods (3)</td>
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<td>BIOS 8310 Advanced Inference in Biostatistics (3)</td>
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<td>BIOS 8320 Asymptotic Inference in Biostatistics (3)</td>
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<td>BIOS 8200 Biostatistical Consulting I (2)</td>
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<td>BIOS 8210 Biostatistical Consulting II (2)</td>
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<td>BIOS 8920 Biostatistics Seminar (2)</td>
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<td>STAT 6810 Probability Distributions (3)</td>
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<td>STAT 6820 Statistical Inference (3)</td>
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<td>STAT 8060 Computing Techniques in Statistics I (3)</td>
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</table>

**Required Core Courses in Epidemiology and Public Health (8 credits)**

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<th>Required Core Courses in Epidemiology and Public Health (8 credits)</th>
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<tbody>
<tr>
<td>EPID 7010 Introduction to Epidemiology I (3)</td>
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<tr>
<td>PBHL 8200 Seminar in Public Health (2)</td>
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</table>

In addition, students must take one of the following public health courses:

| EHSC 7010 Fundamentals of Environmental Health Science (3)        |
| HPAM 7010 Introduction to Health Policy and Management (3)        |
| HPRB 7010 Social and Behavioral Foundations in Public Health (3)  |

**Electives (12 credits)** Examples of common elective options

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<tr>
<th>Electives (12 credits) Examples of common elective options</th>
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<tbody>
<tr>
<td>BINF 8210 Computational Methods in Bioinformatics (3)</td>
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<tr>
<td>BINF 8211 Advanced Methods for Biological Data Analysis (3)</td>
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<tr>
<td>BINF 8940 Applied Genome Analysis (3)</td>
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<td>BIOS 6380 Survival Analysis (3)</td>
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<tr>
<td>BIOS 7400 Research Data Management and Computing (3)</td>
</tr>
<tr>
<td>BIOS 8100 Case Studies in Nonlinear Biostatistics (3)</td>
</tr>
<tr>
<td>Course Code</td>
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<tr>
<td>BIOS 8110</td>
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<tr>
<td>BIOS 8120</td>
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<tr>
<td>BIOS 8130</td>
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<td>BIOS 8150</td>
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<td>BIOS 8220</td>
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<tr>
<td>EPID 8010</td>
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<td>EPID 8020</td>
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<td>EPID 8250</td>
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<td>STAT 8040</td>
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<td>STAT 8070</td>
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<td>STAT 8170</td>
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<td>STAT 8180</td>
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<td>STAT 8240</td>
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<td>STAT 8260</td>
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<td>STAT 8270</td>
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<td>STAT 8280</td>
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<td>STAT 8290</td>
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<td>STAT 8300</td>
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<td>STAT 8650</td>
</tr>
<tr>
<td>STAT 8700</td>
</tr>
<tr>
<td>STAT 8730</td>
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**Other Requirements (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 9000</td>
<td>Doctoral Research</td>
<td>(15)</td>
</tr>
<tr>
<td>BIOS 9300</td>
<td>Doctoral Dissertation</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Assessment of Competency**

Students will demonstrate that they have achieved the program competencies as follows:

1. *Demonstrate a command of core biostatistical techniques, including their computation, theoretical underpinnings, and their application in public health and biomedicine.*

Students are exposed to core biostatistical techniques in the BIOS 8010-8040 course sequence. In these courses, students will not only be exposed to computation methods, but also the statistical theory that underlies those methods. Students are also expected to be able to identify appropriate methods of statistical analysis for application to public health and biomedical data.
This competency will be evaluated in the written and oral comprehensive examinations.

2. **Work independently as a collaborator with public health and biomedical researchers to design clinical trials, case-control studies, public health surveys, and other experimental and observational studies.**

The design of public health surveys, biomedical experiments and clinical trials will also be considered in the BIOS 8010-8040 course sequence. Students will demonstrate their design skills in Bios 8200 Biostatistical Consulting.

3. **Conduct and publish original research on the theory and application of biostatistics aimed at developing new and innovative methods for analysis of public health and biomedical data.**

The theoretical core course sequences STAT 6810-6820, and BIOS 8310-8320 will provide students the necessary theoretical background to develop new and innovative biostatistical methods and demonstrate their efficacy. Students will demonstrate their competency in statistical theory in the written and oral comprehensive examinations. Their ability to develop new and innovative methods will be demonstrated in their dissertation. A dissertation is deemed satisfactory if, in the opinion of the student’s advisory committee, the material is of publishable quality.

4. **Communicate effectively with investigators in public health and biomedical research.**

Students taking BIOS 8200 Biostatistical Consulting will be assigned consulting projects with public health and biomedical researchers. To achieve a passing grade in this course, they expected to communicate effectively in their written and oral project reports.

5. **Teach biostatistics to undergraduate students in public health, biomedicine, and related fields.**

Students are expected to complete 1 semester of teaching practicum before completing their degree.

6. **Demonstrate and practice ethical research as it pertains to data management, analysis, and interpretation.**

The ethical practice of biostatistics is considered in BIOS 8200-8210 Biostatistical Consulting. Students are expected to engage in ethical practice in their consulting programs, and the engage in ethical research in their dissertations.

7. **Critically review the statistical literature, and the statistical content of the public health and biomedical literature.**

A critical review of the biostatistical literature in the student’s research area is expected in their prospectus, and in their dissertation.
Ph.D. in Environmental Health Science

**Description**

The PhD degree in environmental health is offered with the opportunity to specialize in environmental protection, industrial hygiene, or public health. The Department of Environmental Health Science at the University of Georgia currently offers the only PhD program in environmental health in the State University System of Georgia. Environmental health is a critical component of good public health implementation and policy and there is a critical need for workforce development in environmental health service and research, as identified by the WHO, CDC, and National Academies of Science. In addition to the national need for training in environmental health, in Georgia, we face a high proportion of environmental exposure issues related to chemicals, occupational hazards and food and waterborne pathogens in addition to a growing population vulnerable to such exposures (i.e., rural, elderly and those of low socioeconomic status). Doctoral level scientists specifically trained in understanding and solving these issues are critical to improving public health and solving emerging problems.

**Competencies**

Upon completion of the PhD in Environmental Health, students will be able to:

1. Exhibit a strong foundation in the core disciplines of environmental health science, including air quality, food and water quality, environmental exposure, toxicology and risk assessment.
2. Follow and promote good ethical practices in the conduct of research.
3. Apply biostatistical approaches and evaluate epidemiological studies as they pertain to environmental health research beyond the introductory level.
4. Evaluate and critique emerging areas of research in environmental health science and their application to the larger public health discipline.
5. Demonstrate in-depth knowledge in at least one area of specialization within the framework on environmental health science.
6. Formulate new scientific knowledge in the field of environmental health science and effectively communicate results and their significance through publications, discussions and presentations.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. Students seeking admission to the PhD program directly from a bachelor’s degree will be expected to show a high level of achievement in their undergraduate degree to indicate capacity for adequate performance in PhD level curriculum and research. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL).

Students admitted to the PhD program should have earned a degree (bachelor’s or master’s) from
an accredited program in Environmental Health or any equivalent science degree (Biology, Chemistry, Microbiology, etc.).

The admissions committee of the Dept. of Environmental Health Science will review all applications and make recommendations to the full faculty. For an applicant to be accepted to the program following favorable departmental review, one member of the faculty will need to sponsor the applicant as the academic and research advisor.

### Requirements (30 credits)

#### Core Required Courses (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHSC 8020</td>
<td>Advanced Topics in Environmental Health Science I</td>
</tr>
<tr>
<td>EHSC 8030</td>
<td>Advanced Topics in Environmental Health Science II</td>
</tr>
<tr>
<td>GRSC 8550</td>
<td>Responsible Conduct of Research</td>
</tr>
<tr>
<td>EHSC 8050</td>
<td>Proseminar in Environmental Health</td>
</tr>
<tr>
<td>EHSC 8030</td>
<td>Graduate Seminar in Env. Hlth. Res. (3 semesters are required)</td>
</tr>
<tr>
<td>BIOS/STAT 8XXX</td>
<td>Biostatistics (advanced course)</td>
</tr>
<tr>
<td>EPID 8XXX</td>
<td>Epidemiology (advanced course)</td>
</tr>
<tr>
<td>EHSC 9300</td>
<td>Dissertation</td>
</tr>
<tr>
<td>EHSC 8150</td>
<td>Environmental Health Seminar [Exit Seminar]</td>
</tr>
</tbody>
</table>

#### Electives (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>EHSC 6090</td>
<td>Emerging Technologies: Bioremediation</td>
</tr>
<tr>
<td>EHSC 6100</td>
<td>Industrial Hygiene</td>
</tr>
<tr>
<td>EHSC 6150</td>
<td>Solid and Hazardous Waste Management</td>
</tr>
<tr>
<td>EHSC 6310</td>
<td>Environmental Microbiology</td>
</tr>
<tr>
<td>EHSC 6350</td>
<td>Environmental Chemistry</td>
</tr>
<tr>
<td>EHSC 6400</td>
<td>Environmental Issues in the Developing World</td>
</tr>
<tr>
<td>EHSC 6610</td>
<td>Water Pollution and Human Health</td>
</tr>
<tr>
<td>EHSC 6490</td>
<td>Environmental Toxicology</td>
</tr>
<tr>
<td>EHSC 6700</td>
<td>Genetic Applications in Environmental Health Science</td>
</tr>
<tr>
<td>EHSC 6710</td>
<td>Environmental Biotechnology</td>
</tr>
<tr>
<td>EHSC 6800</td>
<td>Environmental Air Quality</td>
</tr>
<tr>
<td>EHSC 6910</td>
<td>Introductory Toxicology</td>
</tr>
<tr>
<td>EHSC 7010</td>
<td>Fundamentals of Environmental Health Science</td>
</tr>
<tr>
<td>EHSC 8100</td>
<td>Current Topics in Environmental Health Science</td>
</tr>
<tr>
<td>EHSC 8110</td>
<td>Fundamentals of Chemical and Microbial Risk Assessment</td>
</tr>
<tr>
<td>EHSC 8120</td>
<td>Roles and Responsibilities of Environmental Policy Makers</td>
</tr>
<tr>
<td>EHSC 8150</td>
<td>Environmental Health Seminar</td>
</tr>
<tr>
<td>EHSC 8210</td>
<td>Cancer Etiology and Prevention</td>
</tr>
<tr>
<td>EHSC 8220</td>
<td>Predictive Toxicology using Predictive Models</td>
</tr>
<tr>
<td>EHSC 8250</td>
<td>Biomarkers: Public Hlth, Clin. &amp; Environmental Toxicology</td>
</tr>
</tbody>
</table>

Applications

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>EHSC 8310</td>
<td>Advanced Topics in Aquatic Microbiology, Health and the Environment</td>
</tr>
<tr>
<td>EHSC 8410</td>
<td>Oceans and Human Health</td>
</tr>
<tr>
<td>EHSC 8440</td>
<td>Occupational and Environmental Diseases</td>
</tr>
</tbody>
</table>
Assessment of Competency

Students matriculating in the PhD program in Environmental Health Science will be evaluated annually for their progress toward degree milestones, research productivity and attainment of learning outcomes (competencies). Annual evaluation will be completed by both the student (self-evaluation) and the student’s committee using a standard assessment survey used within the College of Public Health, and tailored to our specific program. The Graduate Coordinator will maintain all evaluation records. The Department of Environmental Health Science will also work with the College of Public Health’s Associate Dean for Academic Affairs to develop instruments to track alumni and their career paths. The adopted assessment protocols will ensure that current students are making adequate forward progress for their degree, that all EHS PhD graduates are meeting our expected learning outcomes and competencies and that we have a mechanism in place to evaluate the quality of our graduates by tracking their career paths.
Epidemiology Ph.D.

<table>
<thead>
<tr>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>The Department of Epidemiology and Biostatistics trains public health professionals and researchers in the use of epidemiological principles and biostatistical methods and conducts innovative research to address existing and emerging public health issues.</td>
</tr>
<tr>
<td>We are a community of scholars dedicated to integrating epidemiological and biostatistical research, teaching, and service by collaborating with one another and colleagues in other disciplines, students, and community partners. We are committed to examining and evaluating our actions as we express our commitment to the larger population we serve, who look to us for technical expertise and advocacy, and who support us in conducting our work.</td>
</tr>
<tr>
<td>In all of our work, we strive to express the values we hold to be at the heart of our professional commitment including: honesty, compassion, quality, impact, diversity, and social justice and we strive to balance and to act as role models for one another, our students and colleagues, and to the community at large.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Department of Epidemiology and Biostatistics embraces the discipline-specific core competencies and cross-cutting/interdisciplinary competencies set forth by the Association of Schools of Public Health (Version 2.3, August 2006). Overall competencies for the Ph.D. in Epidemiology are based on the workshop summary on doctoral education in epidemiology sponsored by the American College of Epidemiology and the Association of Schools of Public Health held in Baltimore, MD, December 9-11, 2002.</td>
</tr>
<tr>
<td>For Epidemiology there are 12 Core Competencies:</td>
</tr>
<tr>
<td>1. Identify key sources of data for epidemiologic purposes</td>
</tr>
<tr>
<td>2. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of epidemiologic data</td>
</tr>
<tr>
<td>3. Calculate epidemiologic measures and draw appropriate inferences from epidemiologic data</td>
</tr>
<tr>
<td>4. Communicate epidemiologic information to professional and lay audiences</td>
</tr>
<tr>
<td>5. Be proficient in the practical management of studies, including data management</td>
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<tr>
<td>6. Evaluate the strengths and limitations of epidemiologic reports.</td>
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<tr>
<td>7. Design valid observational studies to answer epidemiological questions</td>
</tr>
<tr>
<td>8. Design valid intervention studies to answer epidemiological questions</td>
</tr>
<tr>
<td>9. Understand causality as it applies to epidemiology</td>
</tr>
<tr>
<td>10. Understand the history of the discipline and how it provides a context for current research and practice</td>
</tr>
</tbody>
</table>
11. Choose the correct study design to answer epidemiologic questions.

12. Prepare a successful proposal for funding.

In addition to these core competencies in Epidemiology, there is a set of interdisciplinary and cross-cutting competencies that form the basis for the doctoral level training. These interdisciplinary competencies are: Communications and Informatics; Diversity and Culture; Leadership; Public Health Biology; Professionalism; Program Planning; Systems Thinking. Students are expected to become proficient in the following areas: descriptive epidemiology, biology (a human physiology equivalent with competence in the dissertation disease topic), basic knowledge of the leading public health problems and the history of the discipline, problem conceptualization, study design, data collection and monitoring, data management, data analysis, interpretation, communication, ethics, a substantive area of original research and project management.

**Prerequisites/ Requirements for Admission**

All students entering the program must have taken courses at the undergraduate or graduate level in mathematics (including calculus) plus one or more courses in biology, biomedical sciences, or social sciences.

For students already holding an MPH degree, or a related degree (e.g., M.S. Epidemiology, M.S. Biostatistics, M.S.P.H.), the student must show proficiency in the content and material offered in the following basic courses as taught in the College of Public Health: Introduction to Epidemiology (EPID 7010), Epidemiologic Methods (EPID 7020), Introduction to Biostatistics (BIOS 7010), Linear Regression Analysis (BIOS 7020), and at least one other course in Epidemiology (e.g., chronic disease epidemiology, infectious disease epidemiology, environmental epidemiology). The student must complete these courses with a grade of B or higher, as indicated on their official transcript. The faculty advisor will decide whether courses taken at other institutions are equivalent to waive the pre-requisite requirement. If a student has not completed these pre-requisite courses, the student will be required to take them and must include them as part of the Plan of Study.

For students admitted with only a Bachelor’s degree a more detailed and lengthy course of study including the basic courses above must be completed as noted below. For students without an MPH degree, with a Master’s or doctoral degree in a discipline other than Public Health or Epidemiology, or for students admitted from programs other than an accredited College of Public Health (or accredited MPH program), or for applicants with master’s level training more than five years prior to matriculation, a placement examination will be required at the time of entry into the program to assess the need for remidal coursework in the core courses in Epidemiology. These refresher course requirements will be taken as soon as possible during the student’s program and will not be applied after the Plan of Study is developed. These courses will not count toward the Ph.D. degree but are taken in addition to the required hours for the degree. The departmental faculty also may require other extra courses on a case-by-case basis.

**Requirements (55 credits)**

**Core Requirements (30 credits)**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td>EPID 8010</td>
<td>Cohort Study Design, Implementation, and Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
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</tr>
<tr>
<td>EPID 8020</td>
<td>Case Control Designs, Implementation, and Analysis (3)</td>
<td></td>
</tr>
<tr>
<td>EPID 7100</td>
<td>Seminar in Epidemiology (3 semesters) (3)</td>
<td></td>
</tr>
<tr>
<td>EPID 8030</td>
<td>Teaching Practicum (3)</td>
<td></td>
</tr>
<tr>
<td>EPID 8040</td>
<td>Clinical Trial Designs, Implementation, and Analysis (3)</td>
<td></td>
</tr>
<tr>
<td>EPID 8050</td>
<td>Integrating Research Designs (3)</td>
<td></td>
</tr>
<tr>
<td>EPID 7700</td>
<td>Biomedical Ethics and Research Integrity in Epidemiology (3) or similar course offered at the University</td>
<td></td>
</tr>
<tr>
<td>BIOS 8220</td>
<td>Statistical Analysis of Clinical Trials (3)</td>
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</tr>
<tr>
<td>BIOS 6380</td>
<td>Survey Analysis (3)</td>
<td></td>
</tr>
<tr>
<td>BIOS 8110</td>
<td>Categorical Data Analysis (3)</td>
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</table>

**Electives (12 credits)** Examples of common elective options

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EPID 8070</td>
<td>Environmental and Occupation Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8080</td>
<td>GIS and Geospatial Applications in Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8100</td>
<td>Clinical Epidemiology and Evidence-Based Practice (3)</td>
</tr>
<tr>
<td>EPID 8130</td>
<td>Meta-analysis and Systematic Reviews (3)</td>
</tr>
<tr>
<td>EPID 8120</td>
<td>Screening and Prevention (3)</td>
</tr>
<tr>
<td>EPID 8200</td>
<td>Molecular Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8250</td>
<td>Biomarkers: Public Health, Clinical, and Environmental Applications (3)</td>
</tr>
<tr>
<td>EPID 8300</td>
<td>Epidemiology of Ageing (3)</td>
</tr>
<tr>
<td>EPID 8400</td>
<td>Chronic Disease Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8410</td>
<td>Cancer Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8500</td>
<td>Infectious Disease Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8515</td>
<td>Modeling of Infectious Diseases (3)</td>
</tr>
<tr>
<td>EPID 8520</td>
<td>Food Safety Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8550</td>
<td>HIV and AIDS: A Issues and Perspectives (3)</td>
</tr>
<tr>
<td>EPID 8540</td>
<td>Microbial Quantitative Risk Assessment (3)</td>
</tr>
<tr>
<td>EPID 8540L</td>
<td>Microbial Quantitative Risk Assessment Laboratory (1)</td>
</tr>
<tr>
<td>EPID 8559</td>
<td>HIV Epidemic: A Global Perspective (3)</td>
</tr>
<tr>
<td>EPID 8600</td>
<td>Social Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8610</td>
<td>Global Health (3)</td>
</tr>
<tr>
<td>EPID 8900</td>
<td>Selected Topics in Epidemiology (3)</td>
</tr>
<tr>
<td>EPID 8910</td>
<td>Special Problems in Epidemiology</td>
</tr>
<tr>
<td>EPID 9005</td>
<td>Graduate Student Seminar</td>
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</table>

**Other Requirements (13 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPID 9000</td>
<td>Doctoral Research (10)</td>
</tr>
<tr>
<td>EPID 9300</td>
<td>Doctoral Dissertation (3)</td>
</tr>
</tbody>
</table>

**Assessment of Competency**

The quality of the Ph.D. Epidemiology program will be assessed on a continual basis by faculty, students and alumni, the College, and accrediting bodies. Records for program review will be kept by the Department Head.

**Faculty Assessments**

The faculty in the Department of Epidemiology and Biostatistics will be the group with the most...
direct and frequent evaluation of the program. The faculty will review performance measures relating to student admission, performance once in the program, quality and appropriateness of the curriculum offered. The Director of Admissions in the department will monitor and report to the faculty about the number of applicants per year, the number (percent) accepted, the quality of accepted candidates as measured by the grade point average (GPA) and other standardized test scores. Student assessment will be performed by the academic advisors. The curriculum committee and Epidemiology faculty will review the course offerings on an annual basis to be sure that they meet the changing needs for knowledge and information in the field.

In terms of outcomes, the program will enumerate the number of graduates per year and cumulatively. It will also monitor degree completion, the time to degree completion for each student and in aggregate. One way to evaluate the quality of a program is to determine positions obtained after graduation. To this end, we will maintain relevant written materials and develop a database of Ph.D. graduates from our program that includes date and year of graduation, degree completion, attrition, dissertation topic, position(s) obtained during the first 10 years after graduation, and any awards or prizes.

Another aspect of evaluation will include scientific contributions to the field of Epidemiology. During a student’s training, we will track the number of scientific manuscripts, presentations at local, national and international meetings. After graduation, we will track scientific contributions through publications with annual web databases searches (e.g., using PubMed).

Student and Alumni Assessments will form a critical part of the evaluation of the overall program. Student assessments will comprise two different evaluations. After each course, students are required to complete and submit anonymously course evaluations. These course evaluations are collated and submitted to the faculty member(s), departmental chair, and the administrative office of the College. At annual performance reviews, the head of department reviews the student evaluations with the faculty members and provides feedback for improving teaching performance the next year. In addition, faculty may use the open ended responses by students to gauge their performance and identify areas for improvement. Students will also be given the opportunity to assess the program upon graduation to determine whether the learning objectives of the program have been met. These exit surveys will identify perceived strengths and weaknesses of the faculty, courses, research opportunities, mentoring, teaching, and career advice and direction.

Alumni Survey
Often the full breadth and depth of an education cannot be fully appreciated until after students enter the workforce when they can evaluate how well their education in the department prepared them. To this end, a survey will be sent to recent graduates (within one year of graduation) and to alumni after three years. The survey of recent graduates will focus on the transition from student to professional life and how well the program prepared the student. The three-year survey will assess whether the program provided the necessary skills to be successful in the workforce. The results of these surveys will be collated and reported to the department head and faculty.
## Ph.D. in Health Promotion and Behavior

### Description

The primary objective of this program is to prepare researchers and leaders in the field by fostering research and development in Health Promotion and Behavior. The program of study is interdisciplinary, recognizing that the sophisticated study of health behavior requires theories, information, and expertise from multiple fields. In addition to the core courses in Health Promotion and Behavior, Ph.D. students choose one of the following cognates:

- Health Communication
- Behavioral Foundations
- Instructional Design

The Department of Health Promotion and Behavior, through research, teaching, and service, prepares professionals in process-related competencies in health promotion programming that are based on a comprehensive knowledge and understanding of the determinants of health. Health promotion efforts are directed at influencing or facilitating health-related behavior, advocating public health policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services.

### Competencies

The Ph.D. degree program in Health Promotion and Behavior prepares its graduates for research, academic, and other leadership positions in health behavior and other related areas of public health.

1. Analyze and interpret research results and epidemiological data to identify research questions, knowledge gaps, and methodological shortcomings that if addressed, hold potential for advancing our understanding of important public health problems.

2. Use appropriate theories of behavior and social change to design and execute research that addresses important empirical questions related to health behavior and disease and injury prevention.

3. Utilize appropriate research designs, data collection strategies, and quantitative and qualitative analytic methods to conduct research on health behavior and disease and injury prevention.

4. Make use of appropriate scholarly communication channels to share research results, disseminate evidence-based strategies and approaches, and otherwise share in the critical exchange of ideas and solutions pertinent to health behavior and disease and injury prevention.

5. Effectively participate and contribute with other public health researchers and professionals as part of collaborative or cross-disciplinary research and problem-solving teams.
6. Integrate principles of good ethical practice and cultural sensitivity in all aspects of research, teaching, and professional practice.

<table>
<thead>
<tr>
<th>Prerequisites/ Requirements for Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>The primary objective of this program is to prepare researchers and leaders in the field by fostering research and development in Health Promotion and Behavior. Programs of study are interdisciplinary, recognizing that the sophisticated study of health behavior requires theories, information, and expertise from many fields. In addition to the core courses in Health Promotion and Behavior, candidates for the Ph.D. are required to complete one of the following cognates: Health Communication, Behavioral Foundations, and Instructional Design.</td>
</tr>
<tr>
<td>Applications are considered in their entirety before making admission decisions. Before enrolling in the Ph.D. program, students must have a master’s degree from an accredited institution. In general, the following minimum admissions criteria are recommended: A minimum grade point average of 3.0 on a 4.0 scale. Minimum GRE scores of 1000 (combined verbal and quantitative) for previous GRE reporting. GRE Scores must be within the last five years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Requirements</th>
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<tr>
<td><strong>Master Level Competencies: (12 credits)</strong></td>
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<tr>
<td>HPRB 7070 Program Planning in Health Promotion and Disease Prevention (3)</td>
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<td>EPID 7010 Introduction to Epidemiology (3)</td>
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<td>HPRB 7920 Health Behavior (3)</td>
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<td>HPRB 7470 Program Evaluation in Health Promotion and Health Education (3)</td>
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| **Basic Research Competencies: (6 credits)** |
| BIOS 7010 Introductory Biostatistics I (3) |
| BIOS 7020 Introductory Biostatistics II (3) |
| OR |
| ERSH 8310 Applied Analysis of Variance (3) |
| ERSH 8320 Applied Correlation and Regression (3) |

All doctoral students will take the doctoral level Health Promotion core courses, cognate courses, advance research methods, research seminar, and doctoral dissertation.

| **Health Promotion Requirements: (12 credits)** |
| HPRB 8410 Human Ecology of Health and Illness (3) |
| HPRB 8420 Theory and Research in Health Promotion (3) |
| HPRB 8430 Intervention and Evaluation in Health Promotion (3) |
| HPRB 9630 Critique of the Literature (3) |

| **Cognate Area Requirements: (12-15 credits)** |
| Students will work directly with their major professor to determine the most appropriate classes for their area of interest. |

| **Advanced Research Methods and Research Seminar (minimum 13 credits)** |
| Students select a minimum of three advance research courses in quantitative or qualitative |
research, plus four 1-hour research seminars (one per semester).

**Doctoral Dissertation (3 to 30 credit hours)**  
HPRB 9000                  Doctoral Research  
HPRB 9300                  Doctoral Dissertation  

### Assessment of Competency

Assessment methods will be implemented according to the following plan.

Department faculty monitor student enrollment to make sure that the student is enrolling in the courses needed to accomplish the program objectives.

Departmental graduate faculty review students’ progress toward completion of their degree and vote as to whether they are making sufficient progress toward that end. These categories of assessment are: **Satisfactory, Needs Improvement; and Unsatisfactory**. This review is conducted each year in the spring for all doctoral students. Students determined not to be making sufficient progress toward completion of their degree (Needs Improvement or Unsatisfactory) develop a specific plan in conjunction with their major professor and graduate coordinator, of action for the next year. This plan of action is examined the next year to determine the student’s progress.

All doctoral students must successfully complete a written examination before taking the oral examination. The exam takes place at the end of their program of study. The exam is administered by the major professor and at least three other faculty and encompasses everything studied during their course of study. Four of five faculty must vote for passing in order for the student to pass the exam. If the student does not pass the exam, they are allowed to take a second exam after consulting with faculty.

All students must successfully complete an oral examination before graduating. The exam takes place at the end of their program of study. The exam is administered by the student program of study committee and encompasses everything studied during their course of study. If the student does not pass the exam, they are allowed to take a second exam after consulting with faculty.

All students are required to defend their research study (dissertation) in an oral presentation. The oral presentation will be conducted at the completion of the research. If the student does not pass the oral defense, they are allowed to try a second time after consulting with faculty.

After students have completed the requirements of their degree, they will be asked to complete an exit questionnaire designed to collect feedback about the graduate program. Responses to the questionnaire will be anonymous. The questionnaires will be mailed to students at their last known address. Responses will be forwarded to the graduate program assistant and placed in Departmental graduate program files.

One year after their graduation, alumni will be mailed another questionnaire designed to gather information about how well they feel our program prepared them for practice in their chosen field. The questionnaires will be mailed to students at their last known address. Responses will be forwarded to the graduate program assistant and placed in Departmental graduate program files.
**Ph.D. in Toxicology**

**Description**

The Interdisciplinary Toxicology Program (ITP) at the University of Georgia is comprised of graduate students, faculty, staff, scientists, and post-doctoral fellows from several departments within the University. The program is committed to a high quality graduate education and excellence in research, and both faculty and graduate students have received national recognition for their endeavors. Our goal is to provide strong interdisciplinary graduate training, research and service programs in toxicology. This is accomplished by encouraging cooperation and sharing of resources and faculty in different colleges, such as Agricultural and Environmental Sciences, Ecology, Pharmacy, Public Health, and Veterinary Medicine. A coordinating committee from among these colleges directs the program.

**Competencies**

Upon completion of any of the interdisciplinary PhD program in Toxicology, students should be able to:

1. Demonstrate working knowledge and comprehension of toxicological principles, including, but not limited to, dose-response, mechanisms of action, toxicokinetics, target organ toxicity, environmental fate and transport of chemicals and chemical induced-toxicity and cancer.
2. Employ strong critical thinking skills in analyzing and interpreting toxicological data.
3. Apply problem-solving skills to synthesize, evaluate and tests hypotheses; and
4. Evaluate and critique both current and emerging areas of toxicology research, emerging technologies and issues in toxicology.
5. Formulate scientific knowledge in the field of toxicology by conceiving, synthesizing and conducting original research.
6. Evaluate public/occupational/environmental health hazards risks from exposure to chemicals, pathogens or toxic materials using advanced research methods; and
7. Construct research findings and scientific literature to inform public policy by making public/occupational/environmental health recommendations concerning risks of exposures to chemicals, pathogens or toxic materials.

**Prerequisites/Requirements for Admission**

Applicants will be evaluated based on GRE scores, GPA (undergraduate and/or graduate), official transcripts, statement of interest and three letters of recommendation. International students whose native language is not English must also submit results of the Test of English as a Foreign Language (TOEFL). It is recommended that a PhD applicant who has a MS should have a graduate GPA of 3.5. It is recommended that a PhD applicant with a BS should have a GPA of 3.3. Current ITP MS students who wish to transfer to the PhD program should submit a full application including GRE scores and letters of recommendation to the ITP program office for consideration by the Admissions Committee.

**Requirements (30 credits)**

| Core Courses (9 credits) |
Areas of Emphasis (12 credits)

Students will choose from one of the 2 areas of emphasis. To fulfill the requirement for their chosen area, they must take a minimum of 12 credit hours: 9 credit hours (usually three courses) from the courses listed for that emphasis and at least one additional course from any related area.

**Ecological Toxicology**

- Ecotoxicology - FISH/EHSC 6600
- Quantitative Ecotoxicology - EHSC 8630/L (4 hours)
- Aquatic Toxicology - EHSC 8610 (3 hours)
- Biomarkers - EHSC 8250 (3 hours)
- Comparative Mammalian Physiology (fall) - VPHY 6090 (3 hours)
- Comparative Mammalian Physiology (spring) - VPHY 6010 (3 hours)
- Chemical and Microbial Risk Assessment - EHSC 8110 (3 hours)
- Pharmacokinetics (PK) - PHRM 8260 (4 hours)
- Genome Technologies - EHSC 8450 (3 hours)
- Contemporary Concepts in PK - PHRM 8270 (3 hours)
- Comparative Mammalian Physiology (fall) - VPHY 6090 (3 hours)
- Comparative Mammalian Physiology (spring) - VPHY 6010 (3 hours)

**Mechanistic Toxicology**

- Comparative Mammalian Physiology (fall) - VPHY 6090 (3 hours)
- Comparative Mammalian Physiology (spring) - VPHY 6010 (3 hours)
- Developmental & Reproductive Tox - EHSC 8550 (3 hours)
- Organ Systems - PHRM 8940 (4 hours)
- Occupational & Env Diseases - EHSC 8400 (3 hours)
- Cancer Etiology and Prevention - EHSC 8210 (3 hours)

**General Electives: 6+ hours**

These elective courses should be chosen in conjunction with your faculty mentor and approved by the Advisory Committee of the student.

**Research/Writing: 3 hours**

Departmental Prefix 9300 Dissertation Writing 3 hours

**Assessment of competency**

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