Department of Environmental Sciences and Engineering

2024 -2025
Master’s Student Handbook

“The University of North Carolina at Chapel Hill is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, education specialist, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-479-4500 for questions about the accreditation of the University of North Carolina at Chapel Hill.”

The Gillings School is fully accredited by the Council on Education for Public Health (CEPH). CEPH is an independent agency, recognized by the US Department of Education to accredit schools and programs of public health.
Table of Contents

I. Overview .......................................................................................................................... 3
   Departmental Overview ................................................................................................. 4
   Key Personnel .................................................................................................................. 5

II. Department Specific Admissions Policies & Degree Descriptions ............................... 6
    Graduate Degrees .......................................................................................................... 6
    Department Specific Degree Completion Requirements ................................................. 6
    Master of Science (MS) Degree ..................................................................................... 6
    Master of Science in Public Health (MSPH) Degree .................................................... 10
    Master of Public Health (MPH) Degree with a Concentration in Environment, Climate and
    Health ............................................................................................................................ 13
    Master of Science in Environmental Engineering (MSEE) Degree ............................. 15
    Approved Engineering Electives .................................................................................... 19
    Doctor of Philosophy (PhD) Degree .............................................................................. 22
    Bachelor’s-to-Master’s BS/MS, BSPH/MS, BS/MPH, BA/MPH, BSPH/MPH Degrees .... 22
    Dual Master’s Programs with City and Regional Planning (MCRP) ............................ 24
    Master’s Graduate Degree Requirements At-a-Glance ................................................ 25

III. Academic Reminders .................................................................................................... 26
    Transfer Credit .............................................................................................................. 29
    Finishing and Graduation ............................................................................................. 29
    Guidelines for Formatting Theses and Technical Reports .............................................. 30

IV. Other Important Information ......................................................................................... 30
    Courses .......................................................................................................................... 30
    Inter-Institutional Registration .................................................................................... 30
    Faculty Research Interests .......................................................................................... 31
    Declaring a Minor ....................................................................................................... 31
    Waiving School of Public Health Requirements ....................................................... 31
    Residency and Tuition Remission ............................................................................... 31
    Why ESE Graduate Students Need to Gain NC Residency? .................................. 31
    Insurance .................................................................................................................... 32
    How Often Should I Meet with My Faculty Mentor? ............................................... 32
    Policies for Changing Degree Programs and Faculty Mentors .................................. 32
    Room and Audio/Video (AV) and Other Equipment Reservations ............................ 33
    Poster Printing ........................................................................................................... 33
    Defense Timeline and Announcements ....................................................................... 33
    General Information ................................................................................................. 34
I. Overview

Increasingly, the faculty and students of the Department of Environmental Sciences and Engineering (ESE) are responding to, planning for, and working to mitigate new and evolving public health threats. Some of these threats include viruses transported by airborne particles, hazardous agents in contaminated water, antibiotic resistance, air pollution exposures from drought-enabled wildfires, changes in water availability in low-income countries, extreme weather-impacts on the financial health of local water districts and exposures to legacy and emerging contaminants in air and water. These threats often have a disproportionate impact on marginalized communities.

The work to address these threats is uniquely possible at a place like Gillings, where environmental engineering, environmental science and public health are found together, and where health equity is a part of our mission. Addressing surprising new challenges requires a depth of knowledge, but also a willingness to teach and learn from others, to broaden your perspective, to be creative and to work collaboratively across disciplinary boundaries. You will make the most of your education when you seek out and embrace opportunities to do this.

We will need integrated and holistic solutions. If anything, the past decade has shown that stove-piped responses will not deliver the long-term, sustainable results we need. Engineering solutions to household water service provision, for example, must be done within the broader context of a one-health approach to providing a disease-free living environment if we are to meaningfully reduce water-related diseases. As environmental scientists and engineers located within the top public school of public health, ESE is ideally positioned to provide holistic, intersectoral responses to mitigate and prepare for the pressing environmental challenges (e.g., by characterizing susceptible populations, characterizing and prioritizing health risks, examining energy policy options with co-benefits for health, engaging communities to improve resilience, and designing next-generation technologies). Thus, while we celebrate a century of environmental solutions to public health problems, we affirm our commitment to build public health resilience to climate and environmental change.

ESE's history of leadership. Our work today builds on ESE's long tradition of local and global impact. We are the nation's first engineering department in a school of public health. We enrolled our first Sanitary Engineering master's student, Roy Jay Morton, under Thorndike Saville in the fall of 1920, when there was a pronounced need to improve water safety in the towns and cities of North Carolina. During this time there were also stark inequities in water, sanitation and health between white and black neighborhoods. Our public health achievements were notable, and also severely hampered by systemic racism. ESE was a founding department of UNC's School of Public Health (1940) under Herman Baity. The student body and curriculum began a substantial evolution in the 1960s. We began admitting women (e.g., Linda Little) and African American students (e.g., Bill Small, Otto White) and international aid organizations began sending students from several continents to be educated by the department. A 1971 survey estimated that 25 percent of graduates were addressing water and sanitation challenges in international health organizations and foreign governments, including African and Latin American countries. Three of the first four Directors of Environmental Health at the World Health Organization were our alumni. Under the leadership of Dan Okun (1955-1973) and continuing under Russell Christman (1973-1989), ESE became a truly interdisciplinary department, providing a quantitative education in environmental sciences and engineering, with substantial faculty expertise spanning sciences, engineering, management and policy domains in air, water and industrial hygiene. The department's current name was adopted in 1962 and William Glaze (1989-1997) added faculty in the health sciences.
Building the next generation of leaders. Today, ESE has over 2500 practicing alumni. Our graduates take with them an integrated, interdisciplinary, quantitative, mechanistic education that links health risks back to sources. They are engaged in efforts to improve environmental quality locally and globally, including through technological innovation, effective environmental policies, research and community engagement. We have an internationally recognized faculty in air pollution, environmental health sciences, climate change and health, global water policy, infectious disease and microbiology, environmental chemistry, transport, energy and engineering. We are home to UNC’s Water Institute, Center on Financial Risk in Environmental Systems, the Institute for Environmental Health Solutions, and participate in UNC’s strong university-wide environmental and climate change communities. Since its founding, the Gillings School of Global Public Health has been a consistent advocate for health equity locally and globally.

Departmental Overview

The Department of Environmental Sciences and Engineering (ESE) focuses on the interface between people and the environment. Interdisciplinary programs in air quality and atmospheric processes, human exposure and health effects, and sustainable water resources draw from faculty expertise in the physical and life sciences, engineering and policy. Our mission statement is to Promote human and ecological health for all by identifying, understanding, and solving pressing environmental challenges.

We work to:

- **Characterize environments**: We characterize chemical contaminants and infectious agents, their transport and transformation in air, water, soil, humans and workplaces.
- **Elucidate mechanisms**: We use molecular and data science approaches to understanding mechanisms of disease causation.
- **Engineer solutions**: We engineer solutions to mitigate the impacts of climate change on air, water, and health.
- **Translate research**: We translate research to our partners with impact on policies, practice and health and protect vulnerable populations.

This document is intended to provide a quick reference for students in our department.
### Key Personnel

<table>
<thead>
<tr>
<th>Name and Title</th>
<th>Room</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebecca Fry, <em>Distinguished Professor and Chair</em></td>
<td>Rosenau 166A</td>
<td><a href="mailto:ESEChair@unc.edu">ESEChair@unc.edu</a> <a href="mailto:rfy@unc.edu">rfy@unc.edu</a></td>
</tr>
<tr>
<td>Orlando Coronell, <em>Professor and Associate Chair for Academics</em></td>
<td>Rosenau 163B</td>
<td><a href="mailto:coronell@unc.edu">coronell@unc.edu</a></td>
</tr>
<tr>
<td>Barbara Turpin, <em>Professor and Director of Graduate Studies</em></td>
<td>Rosenau 140</td>
<td><a href="mailto:bjturpin@email.unc.edu">bjturpin@email.unc.edu</a></td>
</tr>
<tr>
<td>Courtney Woods, <em>Associate Professor and MPH Concentration Lead for Environmental Health Solutions</em></td>
<td>Rosenau 146</td>
<td><a href="mailto:cgwoods@email.unc.edu">cgwoods@email.unc.edu</a></td>
</tr>
<tr>
<td>Amanda Northcross, <em>Associate Professor and Director of Undergraduate Studies</em></td>
<td>Rosenau 160</td>
<td><a href="mailto:amandaln@email.unc.edu">amandaln@email.unc.edu</a></td>
</tr>
<tr>
<td>Joe Brown, <em>Professor and Director of Engineering Programs</em></td>
<td>Michael Hooker Research Center 0032</td>
<td><a href="mailto:joebrown@unc.edu">joebrown@unc.edu</a></td>
</tr>
<tr>
<td>Jennifer Joyce Moore, <em>Academic Coordinator</em></td>
<td>Rosenau 162B</td>
<td><a href="mailto:ESEStudentServices@unc.edu">ESEStudentServices@unc.edu</a> <a href="mailto:jenjoyce@email.unc.edu">jenjoyce@email.unc.edu</a></td>
</tr>
<tr>
<td>Kira S. Jones, <em>Academic Program Services Coordinator</em></td>
<td>Rosenau 161</td>
<td><a href="mailto:ESEStudentServices@unc.edu">ESEStudentServices@unc.edu</a> <a href="mailto:kirajones@unc.edu">kirajones@unc.edu</a></td>
</tr>
</tbody>
</table>

ESE Student Services is the first point of contact for any questions or concerns. A complete listing of [faculty and staff](#) is available online.
II. Department Specific Admissions Policies & Degree Descriptions

The Gillings School maintains the ESE Degree pages, which outline degree requirements, demographics, admissions information, and more. These degree pages do not supersede information in the Graduate School Handbook, the UNC Catalog, or departmental guidelines. Prospective and current students are encouraged to contact ESE Students Services (ESEStudentServices@unc.edu) directly if they have any questions. For more information, please also see our ESE Current Students page.

Graduate Degrees

Note: At UNC-Chapel Hill, the Graduate School administers graduate degrees and is the official School for graduate students. Its regulations, as set out in the Graduate School handbook, are the final authority on academic matters.

All graduate degrees offered by ESE involve a culminating experience – a thesis (MS), technical report (MSEE, MPH and MSPH), or dissertation (PhD). The culminating experiences provide students an opportunity to synthesize, integrate and apply knowledge and skills learned in coursework and other learning experiences and require students to demonstrate attainment of program competencies.

Upon admission, students are assigned a faculty mentor from the ESE faculty. The ESE Academic Coordinator assists the student in navigating The Graduate School and departmental rules and expectations. The faculty mentor guides them in choosing an appropriate program of coursework and in forming a research committee, when appropriate. Usually, the faculty mentor will serve as the student’s research mentor as well, though a research mentor from other faculty (including adjunct faculty, or faculty in other departments) may be assigned. In this case, both the faculty mentor and research mentor will serve on the student’s doctoral/dissertation committee.

Department Specific Degree Completion Requirements

Master of Science (MS) Degree

The MS degree is intended for incoming students with a strong background in the sciences or engineering and prepares them for advanced education or careers in research, practice or management in the field of environmental sciences and engineering.

Competencies developed by ESE faculty define what students should know and be able to do upon completion of the MS program. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. The following are the degree-specific competencies for the MS in Environmental Sciences and Engineering:

1. Demonstrate a depth of knowledge in one area within environmental sciences and engineering. (This is met by 9 credits of specialized courses.)
2. Explain the results of original research. (This is met within ENVR 601).
3. Review and synthesize a body of research literature. (This is met within ENVR 601).
4. Demonstrate broad exposure to contemporary issues in environmental sciences, environmental health and environmental engineering. (This is met within ENVR 400).
5. Demonstrate proficiency in a research skill. (This is met through a course or hands
on training with signature, e.g., lab training computer modeling)

The above competencies are met via specific courses, trainings, and/or other experiences as indicated in the ESE Competencies Mapping. These courses/trainings/experiences are part of the degree requirements (see next section).

**Degree Requirements**

The requirements for the MS degree are governed by The Graduate School, the Gillings School of Global Public Health, and the Department and include:

- **A minimum of 31 semester hours** of credit, which can include transferred credit
- **Formation of a three-member committee** (Master’s Committee) to guide the student’s study and research
- **ENVR 601**: Epidemiology for Environmental Scientists
- **SPHG 600**: Introduction to Public Health
- **ENVR 400**: Departmental Seminar. Students are required to register for one semester of ENVR 400 and obtain a passing grade.
- **A total of 9 credits of ENVR courses** approved by faculty mentor for depth of knowledge in one area of ESE.
- **Master's Competency (mastery of one research skill)**, this Graduate School milestone is satisfied by course or hands-on training to learn and demonstrate proficiency in one research skill, approved by faculty mentor.
- **A minimum of 24 credits of formal graduate-level course work**, which includes at least 15 credit hours of ENVR courses at the 400 level or above (to be determined by the student and faculty mentor) and excludes ENVR 400, 991, 993
- **A minimum of 3 credits of ENVR 991**: Research in Environmental Sciences and Engineering
- **A minimum of 3 credits of ENVR 993** (Master’s Research and Thesis), which is credit earned for the preparation and defense of a thesis the semester the defense takes place.
- **A Final Oral Examination (also known as the Oral Comprehensive Examination)** that includes a defense of the Master’s Thesis.
- **Residence Credit**. The Graduate School requires a minimum of 30 credit hours of graduate course credit, 21 of which must be taken in residence. Individual program credit hour requirements may be higher and must be satisfied. Master's students are required to complete a minimum program residence credit of two full semesters either by full-time registration or by part-time registration over several semesters.
- **Exit Survey** from the Graduate School, which is sent from survey@qualtrics.unc.edu. This survey must be completed for the milestone to be cleared and the degree certified by the Graduate School.

**Important Note**: The Oral Comprehensive Exam (also known as the Defense of Thesis) satisfies both the following Graduate School Milestones: 1) Thesis/Substitute Defense (Master’s Comprehensive Exam), and 2) Master’s Thesis Approved. The following Paperwork must be completed for these Milestones to be officially cleared by the Graduate School. All Graduate School paperwork must be submitted before students upload their thesis into Proquest.

- **Master’s Comprehensive Exam or Approved Substitute Report Form - PART III: Report of the Final Oral Examination**
• *Master’s Comprehensive Exam or Approved Substitute Report Form* - *PART IV: Report of the Final Thesis*. A student's committee may ask for final edits after the defense is complete before signing off on PART IV.

Students can plan their coursework and track their progress to degree completion using the [MS Course Planning Worksheet](#).

In addition to the degree requirements, students may also present their work at seminars and at national or international meetings and publish in peer-reviewed literature.

**Completing Graduate School Defense Paperwork for the MS**

Please see our detailed help documentation that identifies where ESE graduate students and faculty should complete and sign the defense paperwork required by The Graduate School ([see Figure 1 below](#)). This paperwork must be completed and submitted to the ESE Academic Coordinator ([esestudentservices@unc.edu](mailto:esestudentservices@unc.edu)) before students submit their dissertation to The Graduate School. Students should communicate with their faculty mentor about what other materials they should bring to their defense.
Figure 1: Master’s Comprehensive Exam or Approved Substitute Report (click to access this form via The Graduate School – High Res). This help document can also be found on the ESE Graduate Student Canvas site.

HOW TO COMPLETE THE FORM FOR THE MS

FORM: Master’s Comprehensive Exam or Approved Substitute

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
The Graduate School
MASTER’S COMPREHENSIVE EXAM OR APPROVED SUBSTITUTE

Student’s Name
Department/Curriculum/School:
PEN

PART I: REPORT OF WRITTEN EXAMINATION ☐ or APPROVED SUBSTITUTE ☐
In the absence of a majority of the examining committee, I certify that the above named student:
☐ passed the requirement
☐ failed the requirement
signature of committee chair date

PART II: REPORT OF ORAL EXAMINATION ☐ or APPROVED SUBSTITUTE ☐
In the absence of a majority of the examining committee, I certify that the above named student:
☐ passed the requirement
☐ failed the requirement
signature of committee chair date

PART III: REPORT OF THE FINAL ORAL EXAMINATION (check one)
A majority of the committee for the above named student has judged the thesis defense to be:
☐ acceptable
☐ unacceptable
Committee member signature/date
signature of committee chair date

PART IV: REPORT OF THE FINAL THESIS
A majority of the committee for the above named student has judged the thesis to be:
☐ acceptable
☐ unacceptable
Committee member signature/date
signature of committee chair date

STUDENTS
Complete this top box.
Dept/Curriculum/School: write ESE/MS/Gillings

FACULTY
Complete PART III
Committee chair: Check “successfully passed/failed,” sign & date, initial box certifying registration.

Complete PART IV
Committee chair: Check “acceptable/unacceptable,” sign & date, initial box certifying registration.

ALL committee members: sign, date, and indicate “Pass/Fail.”

This form should be returned the ESE Academic Coordinator, Jennifer Joyce Moore
(esestudentservices@unc.edu), who will then submit the completed paperwork to the Graduate School.
**NOTE: As of Fall 2024, the MSPH Degree is currently paused. Thus, students will not be admitted into this program. **

The MSPH is intended for incoming students with a strong background in the sciences or engineering. The MSPH prepares students for careers in practice, as well as for further studies and careers in advanced education, research or management in the field of public health with an emphasis on environmental health, sciences or engineering. While it is accredited by the Council on Education for Public Health (CEPH) as a professional public health degree, it is focused on both public health practice and coursework, and scientific research at the interface between public health and the environment.

Competencies developed by ESE faculty define what students should know and be able to do upon completion of the MSPH program. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. Following are the degree-specific competencies for the MSPH in Environmental Sciences and Engineering:

1. Gain experience in practice in the fields of environmental sciences, engineering or health practice. *(This is met through a practicum or ENVR 981).*
2. Explain and analyze the mechanisms of environmental contaminants leading to adverse effects on human organ systems. *(This is met within ENVR 430 or ENVR 630).*
3. Engage with interdisciplinary contemporary research across the fields of environmental health and sciences. *(This is met within ENVR400).*
4. Identify and evaluate the relationships between environmental processes, exposure and/or risk assessment. *(This is met within ENVR 500 or ENVR 765).*
5. Develop skills and knowledge needed to conduct research within one area of environmental sciences and engineering. *(This is met through 6 credits of specialized courses).*

The above competencies are met via specific courses, trainings, and/or other experiences (e.g., practicum) as indicated in the ESE Competencies Mapping. Students in the MSPH also develop core public health competencies that are met via departmental and School-wide public health core courses and are fully described in the Gillings Schoolwide Handbook. These courses/trainings/experiences are part of the degree requirements (see next section).

**Degree Requirements**

The requirements for the MSPH are governed by The Graduate School, the Gillings School of Global Public Health, and the Department. These requirements include:

- Public Health core courses *(SPHG 711, SPHG 712, SPHG 713, SPHG 721, SPHG 722)*
- Formation of a three-member committee *(Master’s Committee)* to guide the student’s study and research.
- A minimum of 42 semester credit hours of credit, which can include transferred credit.
- A minimum of 24 credits of formal graduate-level coursework, which includes at least 15 credit hours of ENVR coursework 400 level or above, to be determined by the student and faculty mentor (excludes ENVR 400, 991, 992).
- **ENVR 400**: Departmental Seminar. Students are required to register for one semester of ENVR 400.
• **ENVR 430** (Health Effects of Environmental Agents) or **ENVR 630** (Systems Biology in Environmental Health)
• **ENVR 500** (Environmental Processes Exposure or Risk Assessment) or **ENVR 765** (Space Time Exposure Mapping and Risk Assessment)
• **A total of 6 credits of ENVR courses** approved by faculty mentor to develop skills and knowledge for research.
• Completion of at least 1 credit of **ENVR 981** (Environmental Sciences Practicum) (see below)
• **A minimum of 3 credits of ENVR 991** (Research in Environmental Sciences and Engineering)
• **A minimum of 3 credits of ENVR 992**
• **Master's Technical Report** (master's thesis substitute), earned for the preparation and defense of a technical report
• **A Final Oral Examination** (also known as the Oral Comprehensive Examination) that includes a defense of the technical report.

**Residence Credit.** The Graduate School requires a minimum of 30 credit hours of graduate course credit, 21 of which must be taken in residence. Individual program credit hour requirements may be higher and must be satisfied. Master's students are required to complete a minimum program residence credit of two full semesters either by full-time registration or by part-time registration over several semesters.

**Exit Survey** from the Graduate School, which is sent from survey@qualtrics.unc.edu. This survey must be completed for the milestone to be cleared and the degree certified by the Graduate School.

In addition to the degree requirements, students may also present their work at seminars and at national or international meetings and publish in peer-reviewed literature.

**About the Graduate School Milestones:** Students completing the MSPH must pass an Oral Comprehensive Examination, which includes a defense of a technical report. By submitting the Technical report to the Master's committee and defending it during the Oral Comprehensive Examination students satisfy the following Graduate School Milestones: 1) Final Oral Examination, and 2) Master's Thesis Substitute. The following Paperwork must be completed for these Milestones to be officially cleared by the Graduate School. All Graduate School paperwork must be submitted before students upload their technical report to the Carolina Digital Repository.

- **Master's Comprehensive Exam or Approved Substitute Report Form** - PART III: Report of the Final Oral Examination
- **Report of Approved Substitute for a Master's Thesis Form**

Students can plan their coursework and track their progress to degree completion using the [MSPH Course Planning Worksheet](#).

**Completing Graduate School Defense Paperwork for the MSPH**

Please see our detailed help documentation that identifies where ESE graduate students and faculty should complete and sign the defense paperwork required by The Graduate School (see Figure 2 & 3 below). This paperwork must be completed and submitted to the ESE Academic Coordinator (esestudentservices@unc.edu) before students submit their dissertation to The Graduate School. Students should communicate with their faculty mentor about what other materials they should bring to their
defense.

**Figure 2: Master’s Comprehensive Exam or Approved Substitute Report** (click to access this form via The Graduate School – High Res). Help document can also be found on the ESE Graduate Student Canvas site.

This form should be returned the ESE Academic Coordinator, Jennifer Joyce Moore (esestudentservices@unc.edu), who will then submit the completed paperwork to the Graduate School.
Figure 3: Report of Approved Substitute for a Master’s Thesis Form (click to access this form) via The Graduate School – High Res. Help document can also be found on the ESE Graduate Student Canvas site.

This form should be returned to the ESE Academic Coordinator, Jennifer Joyce Moore (esestudentservices@unc.edu), who will then submit the completed paperwork to the Graduate School.
Master of Public Health (MPH) Degree with a Concentration in Environment, Climate and Health

The Gillings MPH degree is a terminal degree recognized as the standard professional degree in public health. It prepares graduates for careers in practice or management in the field of public health. Each student completes the MPH requirements and the requirements of their concentration. The MPH is accredited by the Council on Education for Public Health (CEPH) as a public health degree.

More information about the MPH in general and other MPH concentrations is provided in the Gillings MPH Handbook. Herein, we only provide information about requirements for the Gillings MPH with a Concentration in Environment, Climate and Health.

Competencies developed by ESE faculty define what students completing a concentration in Environment, Climate and Health (ECH) should know and be able to do beyond the MPH core competencies. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. Following are the concentration-specific competencies for Environment, Climate and Health:

1. Weigh the scientific basis of hazard identification, exposure and health risk assessment to support management of environment, climate and health. *(This competency is assessed within ENVR 500).*
2. Evaluate the causal relationships linking sources of environmental contaminants through processes that affect movement, transformations, exposure pathways, effects and vulnerabilities and use these relationships to inform actions for public health and health equity. *(This competency is assessed within ENVR 430)*
3. Describe, and critically evaluate the rational for and approaches used to measure and model properties of environmental/human systems. *(This is met within 500).*
4. Evaluate effective actions or interventions that improve environmental health outcomes, and be able to compare and assess programs, policies, engineering solutions and/or other approaches to achieve these outcomes. *(This is met within ENVR580).*
5. Examine and critique the ethical and legal dimensions of environment, climate and health-related actions on individuals and communities. *(This is met within ENVR580).*

The above competencies are taught and assessed via specific courses, trainings, and/or experiences as indicated in the ESE Competencies Mapping. Students in the MPH also develop core public health competencies that are met via departmental and School-wide public health core courses and are fully described in the Gillings Schoolwide Handbook. These courses/trainings/experiences are part of the degree requirements (see next section).

Degree Requirements

The requirements for the Gillings MPH are governed by Graduate School requirements, and Gillings School of Global Public Health requirements. Details for the Gillings MPH can be found on the Gillings website. Requirements for students pursuing the Concentration in Environment, Climate and Health can be found here.

Degree requirements include MPH core courses in the School of Public Health, required concentration course work, a written comprehensive exam, a 200-hour practicum in a public health setting, and a culminating experience leading to a high-quality written product (technical report).
Master of Science in Environmental Engineering (MSEE) Degree

The MSEE degree is a terminal degree intended for students interested in careers in environmental engineering practice. Application to this program is open to individuals who have completed undergraduate degrees in engineering or physical/natural sciences. Successful applicants typically will have taken calculus through differential equations, inorganic chemistry, and physics with calculus.* MSEE students must complete at least one course in biological sciences and one course in probability/statistics prior to enrolling or during the graduate program. Note that taking these courses during the program may extend time to graduation. Students who are interested in conducting research in addition to meeting the basic degree requirements should indicate their research interests in their personal statement.

*UNC programs of study that meet these requirements include the BSPH with a minor in Engineering for Environmental Change, Climate, and Health; the BSPH with Environmental Physics Concentration; and the Applied Sciences and Engineering minor.

Competencies developed by ESE faculty define what students should know and be able to do upon completion of the MSEE program. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. Following are the degree-specific competencies for the MSEE in Environmental Sciences and Engineering:

1. Define problems, needs, and objectives for which environmental engineering is relevant. *(This is met within ENVR 992.03).*
2. Evaluate problems quantitatively using measurements or models (statistical, empirical, and/or mechanistic) of engineered systems or impacted natural environments. *(This is met within ENVR 992.03).*
3. Develop and design appropriate solutions which use technologies, facilities, monitoring, controls, or policies to solve environmental engineering problems. *(This is met within ENVR 992.03).*
4. Evaluate the success of environmental engineering designs and assess the uncertainty involved in environmental systems. *(This is met within ENVR 992.03).*
5. Obtain a broad exposure to contemporary issues in environmental sciences, environmental health, and environmental engineering. *(This is met within ENVR 400).*

The above competencies are taught and assessed via specific courses and/or experiences as indicated in the ESE Competencies Mapping. These courses/trainings/experiences are part of the degree requirements (see below).

**Students may elect a professional option** with an anticipated completion in one year. For professional option students, their master’s technical report is an extension of work performed in the capstone *(ENVR 992.03: Global Environmental Crisis Management with master’s technical report).*

**Students may instead choose to pursue a research option** under the guidance of a research mentor. Students on a research option will present and defend their research and document their research in their master’s technical report. They will register for the section of ENVR 992 associated with their research mentor. Students on the research option are anticipated to complete the MSEE degree in two years.

**Degree Requirements (Professional Option MSEE)**
The following requirements must be met for the Professional Option MSEE:

- **A minimum of 31 credits total**, which can include transferred credit.
- Formation of a three-member committee (Master’s Committee). Two members must be from among the environmental engineering faculty. At least one committee member must hold a degree in engineering (see list of engineering faculty). The faculty who teach ENVR 992.003 serve as the Master’s Committee to Professional Option MSEE students.
- **A minimum of 12 credits** of engineering electives selected as described on our course planning worksheet.
- Students who have not already had an undergraduate or graduate course in probability and statistics must take an appropriate course while in the MSEE program. Similarly, students who have not already had an undergraduate or graduate course in the biological sciences must take an appropriate course while in the MSEE program. The acceptability of courses to fulfill these requirements should be decided after consultation with the student’s faculty mentor.
- Students and their faculty mentors should develop a written coursework plan during the first semester of study.
- **A minimum of 24 credits** in formal coursework, 15 credits must be from ENVR (excluding ENVR 400, 991, 992)
- **ENVR 601**: Epidemiology for Environmental Scientists or **EPID 600**: Methods and Measures for Public Health Practice.
- **SPHG 600**: Introduction to Public Health
- **ENVR 400**: Departmental Seminar. Students are required to register for one semester of ENVR 400 and obtain a passing grade.
- **Submit an approved Technical Report** (Master’s thesis substitute) to the Master’s committee. Students submit the technical report while enrolled in ENVR 992.003.
- **Pass the Final Oral Examination** (also known as the Oral Comprehensive Examination) which includes a defense of the student’s technical report.
- **Residence Credit. The Graduate School requires a minimum of 30 credit hours of graduate course credit, 21 of which must be taken in residence.** Individual program credit hour requirements may be higher and must be satisfied. Master's students are required to complete a minimum program residence credit of two full semesters either by full-time registration or by part-time registration over several semesters.
- **Exit Survey** from the Graduate School, which is sent from survey@qualtrics.unc.edu. This survey must be completed for the milestone to be cleared and the degree certified by the Graduate School.

*About required engineering coursework:* Students must complete at least **12 credit hours of engineering coursework** offered in the Department of Environmental Sciences and Engineering or graduate-level engineering courses from another institution. Courses taken at another institution must be approved by the student's faculty mentor and must not have counted toward an undergraduate degree elsewhere, if they are to count towards this requirement.

*Additional information about the professional option Master’s Technical Report and Oral Comprehensive Exam:* All students on the professional option are required to take the experiential course Environmental Crisis Management with Master’s Technical Report (ENVR 992.003). MSEE students will work with an advisor on developing an integrated written Technical Report as a thesis substitute.
which they will submit to the Master’s Committee. The Technical Report will be presented orally as part of the final oral comprehensive examination.

**About the Graduate School Milestones:** Students completing the MSEE Professional option must pass an Oral Comprehensive Examination, which includes a defense of a technical report. By submitting the Technical report to the Master’s committee and defending it during the Oral Comprehensive Examination students satisfy the following Graduate School Milestones: 1) Final Oral Examination, and 2) Master’s Thesis Substitute. The following **Paperwork must be completed for these Milestones to be officially cleared by the Graduate School.** All Graduate School paperwork must be submitted before students upload their technical report to the [Carolina Digital Repository](https://cudr.unc.edu/).

- [Master’s Comprehensive Exam or Approved Substitute Report Form](https://example.com) - PART III: Report of the Final Oral Examination
- [Report of Approved Substitute for a Master’s Thesis Form](https://example.com)

Students can plan their coursework and track their progress to degree completion using the [MSEE (Professional Option) Course Planning Worksheet](https://example.com).

In accordance with Graduate School rules, some degree requirements can be transferred. See the [UNC Graduate School handbook](https://example.com) for most current guidance.

**Degree Requirements (Research Option MSEE)**

The following requirements must be met for the Research Option MSEE:

- **A minimum of 31 credits total,** which can include [transferred credit](https://example.com)
- **Formation of a three-member committee (Master’s Committee).** Two members must be from among the environmental engineering faculty. At least one committee member must hold a degree in engineering ([see list of engineering faculty](https://example.com)). A minimum of **12 credits of engineering electives** selected as described on our [course planning worksheet](https://example.com).
- Students who have not already had an **undergraduate or graduate course in probability and statistics** must take an appropriate course while in the MSEE program. Similarly, students who have not already had an **undergraduate or graduate course in the biological sciences** must take an appropriate course while in the MSEE program. The acceptability of courses to fulfil these requirements should be decided after consultation with the student's faculty mentor.
- Students and their faculty mentors should develop a written [coursework plan](https://example.com) during the first semester of study.
- **A minimum of 24 credits in formal coursework,** 15 credits must be from ENVR (excluding ENVR 400, 991, 992)
  - **ENVR 601:** Epidemiology for Environmental Scientists or **EPID 600** (Principles of Epidemiology for Public Health)
  - **SPHG 600:** Introduction to Public Health
  - **ENVR 400:** Departmental Seminar. Students are required to register for one semester of ENVR 400 and obtain a passing grade.
  - **ENVR 992.003:** Global Environmental Crisis Management
  - Submit an approved [Technical Report](https://example.com) (Master’s thesis substitute) to the Master’s
committee. Students submit the technical report while enrolled in the **ENVR 992** section (minimum of 3 credits) associated with their faculty mentor.

- **ENVR 991** (minimum of 3 credits): Research in Environmental Sciences and Engineering. This is the research the student performs and about which they write their Master’s Technical Report.
- **Pass the Final Oral Examination** (also known as Oral Comprehensive Examination), which includes research defense.
- **Residence Credit.** The Graduate School requires a minimum of 30 credit hours of graduate course credit, 21 of which must be taken in residence. Individual program credit hour requirements may be higher and must be satisfied. Master's students are required to complete a minimum program residence credit of two full semesters either by full-time registration or by part-time registration over several semesters.
- **Exit Survey** from the Graduate School, which is sent from survey@qualtrics.unc.edu. This survey must be completed for the milestone to be cleared and the degree certified by the Graduate School.

**About required engineering coursework:** Students must complete at least 12 hours of engineering coursework offered in the Department of Environmental Sciences and Engineering or graduate-level engineering courses from another institution. Courses taken at another institution must be approved by the student’s faculty mentor and must not have counted toward an undergraduate degree elsewhere, if they are to count towards this requirement.

**Additional information about the research option Master’s Technical Report and Oral Comprehensive Exam:** This report is based on the student’s research. Format and submission instructions are provided below. The student should provide the draft technical report to their research committee in advance of their Oral Comprehensive Exam. The technical report meets the Graduate School requirement as a Master’s Thesis Substitute. The Oral Comprehensive Exam includes the defense of the student’s research (technical report) and is conducted by the 3-member Master’s Committee.

**About the Graduate School Milestones:** Students completing the MSEE Research option must pass an Oral Comprehensive Examination, which includes a defense of a technical report. By submitting the Technical report to the Master’s committee and defending it during the Oral Comprehensive Examination students satisfy the following Graduate School Milestones: 1) Final Oral Examination, and 2) Master’s Thesis Substitute. The following **Paperwork must be completed for these Milestones to be officially cleared by the Graduate School.** All Graduate School paperwork must be submitted before students upload their technical report to the Carolina Digital Repository.

- **Master’s Comprehensive Exam or Approved Substitute Report Form** - PART III: Report of the Final Oral Examination
- **Report of Approved Substitute for a Master’s Thesis Form**

Students can plan their coursework and track their progress to degree completion using the **MSEE (Research Option) Course Planning Worksheet**.

In accordance with Graduate School rules, some courses can be transferred. See the **UNC Graduate School handbook** for most current guidance.
In addition to the degree requirements, students may also present their work at seminars and at national or international meetings and publish in peer-reviewed literature.

Approved Engineering Electives

The MSEE Course Planning Worksheets provide a list of approved engineering electives that can be chosen to satisfy degree requirements for engineering courses. The MSEE Course Planning Worksheets also list some general electives that are commonly taken by MSEE students. There are other courses in ESE that may be of interest to students in the MSEE program as well. Note that the general electives do not count toward the 12 hours of engineering coursework required for the MSEE degree. For more information, see the MSEE page of our website.

Completing Graduate School Defense Paperwork for the MSEE

Please see our detailed help documentation that identifies where ESE graduate students and faculty should complete and sign the defense paperwork required by The Graduate School (see Figure 4 & 5 below). This paperwork must be completed and submitted to the ESE Academic Coordinator (esestudentservices@unc.edu) before students submit their dissertation to The Graduate School. Students should communicate with their faculty mentor about what other materials they should bring to their defense.
Figure 4: Master’s Comprehensive Exam or Approved Substitute Report (click to access this form via The Graduate School – High Res). Help document can also be found on the ESE Graduate Student Canvas site.

**How to Complete the Form for the MSEE (Research & Professional)**

**Form: Master’s Comprehensive Exam or Approved Substitute**

**Students**
Complete this top box.
Dept/curriculum/School: write ESE/MSEE/Engineering

**Faculty**
Complete PART III
Committee chair: check “successfully passed/failed,” sign & date, initial box certifying registration.

PART I: Report of written examination (if approved substitute)
On behalf of the committee of the examining committee, I certify that the above-named student:
- [ ] Passed the requirement
- [ ] If student previously failed this requirement, describe:

PART II: Report of oral examination (if approved substitute)
On behalf of the committee of the examining committee, I certify that the above-named student:
- [ ] Passed the requirement
- [ ] If student previously failed this requirement, describe:

PART III: Report of the final oral examination (if thesis)
A majority of the committee for the above-named student has judged the thesis defense to be:
- [ ] Unacceptable
- [ ] Acceptable

Committee member signature/date
Committee member signature/date

[ ] By inititing, the committee chair certifies that this student was registered as required during the term this work was completed.

Submit to the Graduate School after all activities have been successfully completed.
Kee record for your files.

This form should be returned to the ESE Academic Coordinator, Jennifer Joyce Moore (esestudentservices@unc.edu), who will then submit the completed paperwork to the Graduate School.
Figure 5: Report of Approved Substitute for a Master’s Thesis Form ([click to access this form](via The Graduate School – High Res). Help document can also be found on the [ESE Graduate Student Canvas site](https://example.com).

**HOW TO COMPLETE THE FORM FOR THE MSE (RESEARCH & PROFESSIONAL)**

**FORM:** Report of Approved Substitute for a Master’s Thesis

**THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**

The Graduate School

REPORT OF APPROVED SUBSTITUTE FOR A MASTER’S THESIS

Student’s Name_________________________ PID# __________________________

Department/Curriculum/School: ________________________________

This student has successfully completed a project or course as a thesis substitute in partial fulfillment of the requirements for the master’s degree.

Project/course title and number and description:

________________________________________________________________________

Date work submitted: ___________________________ I certify that this student was registered as required during the term(s) this work was completed.

Signature of committee chair/faculty mentor ____________________________ Date ____________________________

*This form should be returned the ESE Academic Coordinator, Jennifer Joyce Moore (esestudentservices@unc.edu), who will then submit the completed paperwork to the Graduate School.*
Doctor of Philosophy (PhD) Degree

The PhD, a terminal degree, is intended for students with a strong background in the sciences or engineering and prepares graduates for careers in basic and applied research, education, advanced practice, and management in the field of environmental sciences and engineering. Research, and publication in peer-reviewed journals, is a major focus of a PhD education.

PhD requirements and guidance are not provided here. They can be found in the Gillings Doctoral Handbook. A brief summary is below.

Competencies developed by ESE faculty define what students should know and be able to do upon completion of the PhD program. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. Following are the degree-specific competencies for the PhD in Environmental Sciences and Engineering:

1. Identify key knowledge gap(s), integrate knowledge, and design sound research strategies to fill gap(s) in knowledge in a specific area within environmental sciences and engineering. *(This is met within ENVR 703).*

2. Develop the ability to critically evaluate environmental sciences and engineering research. *(This is met within ENVR 704, taken twice).*

3. Demonstrate depth of knowledge in a specific area within environmental sciences and engineering to support success in research. *(This is met by taking >15 credits of specialized courses and is approved by dissertation committee).*

4. Develop skills to successfully execute a research design within the discipline of environmental sciences and engineering. *(This is met by taking two skills courses or two workshops or trainings leading to certification in two skills and is approved by the dissertation committee).*

5. Develop the ability to present/communicate environmental sciences and engineering research results formally to a broad audience. *(This is met within ENVR 400).*

The above competencies are met via specific courses and/or experiences as indicated in the ESE Competencies Mapping.

Degree Requirements

Requirements for students pursuing the PhD in Environmental Sciences and Engineering can be found here and include formal course work, a comprehensive written exam, a preliminary oral exam (i.e., preparation and defense of a research dissertation proposal), preparation of a dissertation; and a final oral exam (i.e., defense of the dissertation). All PhD students prepare a research proposal and present their work in the Departmental Seminar (ENVR 400). Although not a requirement, most will present their work at national and international meetings and publish in peer-reviewed literature.

Students can plan their coursework and track their progress to degree completion using the PhD Course Planning Worksheet

Bachelor's-to-Master's BS/MS, BSPH/MS, BS/MPH, BA/MPH, BSPH/MPH Degrees

*The Department will not admit students into the BS/MSPH or BSPH/MSPH Degree beginning Fall 2024*
Any student with sufficient STEM coursework at UNC Chapel Hill (BS or BSPH) is eligible to apply for a Master’s degree (MS, MPH) at ESE. A BA student may apply for the Bachelor’s-to-Master’s BA/MPH with adequate completion of STEM courses. This allows UNC students to complete a Bachelor’s and Master’s degree in an accelerated time frame.

- A participating UNC student may take 12 credit hours toward the MS or MPH degree while pursuing a Carolina undergraduate degree and double count those credits toward the Carolina graduate degree program. The double counted work must be at the more advanced graduate level (at minimum, numbered 400 and above).
- Before applying for the MS the student must have:
  - A research mentor: Interested students should identify a mentor as soon as possible, preferably by the fall of the junior year. This enables a student to begin research on the thesis project well before formally starting the master’s
  - A STEM major from UNC-Chapel Hill (BS or BSPH)

**Important reminders:**

- While a student is an undergrad all grades are on **UG grading scale**. When taking advanced courses with graduate students, feedback from an instructor may be given using the graduate grading scale. However, final grades will always be entered into ConnectCarolina using the UG grading scale. If you have questions, please contact esestudentservice@unc.edu.
- ENVR 430 and ENVR 403 are required for the BSPH in Environmental Health Sciences. These two courses, plus two advanced electives, can be double counted and transferred to the accelerated MS. If transferring undergraduate credits, meet with the Academic Coordinator to complete The Graduate School’s Transfer Credit Recommendation form.
- It is recommended that students who apply for admission to the ESE Graduate Program do so in December by The Graduate School’s Funding deadline to be fully considered for funding opportunities.
- Apply using this Current UNC Student (internal) Application link.

Students can plan their coursework and track their progress to degree completion using the **Bachelor’s to Master’s of Science Course Planning Worksheet**

More information about Bachelor’s-to-Master’s programs here. Two important notes about applying:

- Undergraduate students interested in the **MPH program** are eligible to take the MPH core in their senior year if they **pre-apply in their junior year**. See the link above (add link) and Dr. Courtney Woods, Director of MPH ECH for details. All students must formally apply through SLATE in their senior year using the special internal link found here.
- For the MS program, students apply in their senior year using the special internal link found here. See ESE Academic Coordinator for more details or if you have any questions. Important Note: The internal bachelor’s-to-master’s application is free and allows for 12 transfer credits. Students who use this portal, however, will not be eligible for Graduate School recruitment awards.

The overall graduate requirements for any Bachelor’s-to-Master’s degree are the same as for the regular Master’s degree (outlined above for each Master’s degree). Likewise, the degree-specific competencies
are the same as those for the corresponding stand-alone master’s degree. Additional details are described below.

**Timing issues for students considering the Bachelor’s-to-Master’s degree**

Students who wish to earn an accelerated MPH in one year post bachelors, must enroll in the MPH core and pre-practicum class in the senior year. The MPH program includes a pre-practicum course, a 200-hour practicum which is completed over the summer and then a post-practicum course. Students are welcome to take the MPH core and pre-practicum class in their graduate year. The practicum would follow the summer after that. The post-practicum class would be completed in the following fall semester.

It is recommended that three to four semesters before anticipated completion of Bachelor’s program students: plan coursework to accommodate all Bachelor’s degree requirements and the transferable graduate credits; meet with the ESE Academic Coordinator to verify program requirements; for Bachelor’s-to-MS, begin to identify a research mentor in ESE.

- Plan coursework for dual degree year. If pursuing a Bachelor's-to-MS degree, students should take the 1 credit of ENVR 400 in the GRADUATE year. Students will not be able to transfer more than 12 credits from their undergraduate degree.

Students are encouraged to contact ESE Student Services if they are interested in the Bachelor’s-to-Master’s program. The ESE Academic Coordinator will help develop a course planning worksheet, ensure there is a link to a faculty mentor, and review the courses that will be transferred. Once admitted to the master’s program, a transfer credit form must be submitted to The Graduate School in order for the credits to be applied.

**Dual Master’s Programs with City and Regional Planning (MCRP)**

The Department offers dual degrees with the UNC-Chapel Hill Department of City and Regional Planning (CRP), one of the oldest and most distinguished of its kind in the country. This allows a student to complete two Master’s degrees within three years. Students must fulfill the requirements of both degrees, though a single final research project can count for both departments, as long as it fulfills both sets of requirements. Any ESE master’s degree can be taken as part of the joint degree. Typically, a student would spend one year in one department, the next in the other, and the final year completing the requirements for both degrees. Nine credits (for the MS and MSEE) or twelve credits (for the MPH) may be cross-credited. Students should be sure to communicate with the Academic Coordinator of both departments near the end of each year, to ensure that matriculation into each department goes smoothly.

Students can, but need not, be admitted to both degrees simultaneously – i.e., a student could spend one year in one program before applying to the other, or a student could be admitted into one and decide later that they wish to embark on the other. However, admission to the two (ESE and CRP) degrees is a separate process.

ESE degree requirements, degree-specific competencies and measures of success in mastering ESE competencies in the Dual Master’s Program with CRP are the same as the corresponding stand-alone ESE master’s degree. In particular, this requirement extends to completion of ENVR 400. **Students should**
register for 1 credit of ENVR 400 and begin attending ENVR 400 seminars as soon as possible.

Students are encouraged to get in touch with ESE Student Services if they are interested in the Dual Master’s Program with CRP.

Master’s Graduate Degree Requirements At-a-Glance

*NOTE: MPH degree requirements can be found in detail here.*

<table>
<thead>
<tr>
<th>Degree</th>
<th>MSPH</th>
<th>MSEE</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credits Required for Graduation</td>
<td>42</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>ENVR 400 *</td>
<td>1 credit</td>
<td>1 credit</td>
<td>1 credit</td>
</tr>
<tr>
<td>Formal Coursework</td>
<td>≥24 credits</td>
<td>≥24 credits</td>
<td>≥24 credits</td>
</tr>
<tr>
<td>Graduate Coursework in ENVR</td>
<td>≥15 credits</td>
<td>≥15 credits</td>
<td>≥15 credits</td>
</tr>
<tr>
<td>Engineering Coursework</td>
<td></td>
<td>≥12 credits</td>
<td></td>
</tr>
<tr>
<td>Research Skill</td>
<td>REQUIRED</td>
<td></td>
<td>REQUIRED</td>
</tr>
<tr>
<td>Formal Minor (Optional)**</td>
<td>≥9 credits</td>
<td>≥9 credits</td>
<td>≥9 credits</td>
</tr>
<tr>
<td>Public Health Core***</td>
<td>REQUIRED</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Practicum (ENVR 981, 1+credits)</td>
<td>REQUIRED</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Introduction to Public Health Course (SPHG 600)</td>
<td>N/A</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
</tr>
<tr>
<td>Coursework in Epidemiology‡</td>
<td>SPHG 712</td>
<td>ENVR 601 or EPID 600</td>
<td>ENVR 601</td>
</tr>
<tr>
<td>Research Hours (ENVR 991)</td>
<td>≥3 credits</td>
<td>≥3 credits for Research Option students</td>
<td>≥3 credits</td>
</tr>
<tr>
<td>Master’s Technical Report (ENVR 992)</td>
<td>≥3 credits</td>
<td>≥3 credits (ENVR 992.03 for Professional Option students; faculty mentor ENVR 992 section for Research Option students)</td>
<td>N/A</td>
</tr>
<tr>
<td>Master’s Thesis (ENVR 993)</td>
<td>N/A</td>
<td>N/A</td>
<td>≥3 credits</td>
</tr>
<tr>
<td>Committee††</td>
<td>≥3 members</td>
<td>≥3 members</td>
<td>≥3 members</td>
</tr>
</tbody>
</table>
**Consists of SPHG 711, SPHG 712, SPHG 713, SPHG 721, SPHG 722**
††The committee works with the student to tailor and approve each student’s 1) program of courses, 2) research plan, 3) track progress to degree, and 4) assess the written and oral thesis, technical report or dissertation

### III. Academic Reminders

#### ENVR 400 - Seminar Series

ENVR 400 is intended to provide students with exposure to the breadth of research activities in the Department. It also provides an opportunity for doctoral students to gain experience presenting their research to a diverse audience. Attendance and feedback policies are designed to encourage students to support their colleagues in this endeavor, to provide feedback to them, and to ask questions to gain a better understanding of their work. Master’s students should register and successfully complete one semester of ENVR 400.

This course meets a specific competency of the MS, MSPH, and MSEE degrees and successful completion is required for graduation.

*MPH students are encouraged to attend ENVR 400 to broaden their graduate experience, but are not required to enroll in or meet the ENVR 400 graduation requirement.

**Bachelors’-to-Master’s students may enroll for 1 hour of credit and start attending ENVR 400 seminars as soon as they have expressed an interest in the Bachelor’s-to-Master’s degree. Undergraduate students are invited to register and should contact the ENVR 400 instructor to obtain permission.**

#### ENVR 981 (Practicum in Public Health)

The practicum is a planned, supervised and evaluated practice experience. The student will carry out a meaningful project in a professional setting, under the supervision of a qualified Preceptor who is a practicing Public Health professional and is identified ahead of time. The practicum may be paid or unpaid. Prior to beginning the practicum, students should locate the three Practicum forms (Practicum Proposal Form, Student Practicum Evaluation Form, and Practicum Preceptors Evaluation Form) on the canvas site. This will provide a framework for the project.

MPH students must complete a 200-hour practicum and guidelines will be provided in SPHG 701. MSPH students must complete a 45-hour practicum as part of the degree program. The remaining instructions below apply only to the MSPH practicum.

ENVR 981 may be taken for a variable number of credit hours (minimum 1 credit), depending on the scope and duration of the proposed practical experience. Students should enroll in ENVR 981 in the semester that they plan to complete and submit their practicum products. Each ESE faculty member will have a section identified for this course and may serve as instructor/Departmental Representative (see below). The student must register for ENVR 981 for at least one semester before graduation and may register for more than one semester. The experience is:

- **planned** – by the student, the Department Representative and the Preceptor;
- **supervised** - by the Preceptor; and
- **evaluated** - by the Department Representative, the Preceptor, and the student.
The Preceptor must be a qualified professional in a field relevant to public health. Most preceptors are expected to be external to the University, but can also be a credentialed faculty or staff member (such as a Certified Industrial Hygienist).

Planning and Supervision. Planning should include identification of the Competencies to be achieved. The Department Representative will usually be the student’s Faculty Mentor. When the faculty mentor or an acceptable substitute is not available, the Director of Graduate Studies or the Chair of the Practicum Committee will be designated to fill this role.

The format of the practicum experience is flexible. The fundamental requirement is that the basic stipulations (planned, evaluated and supervised, in a Public Health context) be met. Placements may be on an ad hoc basis consistent with the student’s own initiative, through professional contacts of the student’s Faculty Mentor, or arranged through the offices of the Practicum Committee. Examples of appropriate experiences include:

- Service projects or volunteer outreach projects undertaken at the request of external organizations such as Health Departments or community groups. The possibility of this type of placement occurs regularly (but unpredictably) in response to outbreaks of environmentally-transmitted disease outbreaks (e.g., Hepatitis A, Norovirus) or local sanitation issues (e.g., air or water quality issues, solid or liquid waste disposal). A qualified Preceptor can usually be identified from among the Health Department staff or Community Organizers.

- Field experiences in on-site data collection. These may involve both an internal professional preceptor and an external preceptor. Examples of these have included:
  - Occupational Hygiene. For example, sampling of airborne contaminants at workplace sites such as auto body shops or pesticide application areas.
  - Environmental sampling in the vicinity of concentrated animal feeding operations (CAFOs), which are a health problem in eastern North Carolina.

- Internships with agencies such as water and energy utilities, environmental consulting firms, Public Health and Environmental Health Departments, non-governmental organizations (NGOs), federal agencies (e.g., US Environmental Protection Agency, National Institute for Environmental Health Sciences, Centers for Disease Control and Prevention), or international agencies (e.g., World Health Organization). These include paid positions such as Student Contractor and competitive summer internships. The Preceptor would usually be the workplace supervisor.

- Participation in a Project-based Course to which an external professional contributes substantially.

- Public Health Practice (PHP) component of a student’s master’s technical report project. Placement would usually be arranged through the student’s Faculty Mentor. Agencies such as those identified above under Internships may provide suitable environments.

Opportunities such as Service Projects, Project-based Courses, and Internships are sometimes advertised through ESE Student Services and administered (i.e., participant selection, matching) through the Practicum Committee. Field experiences and PHP research components will be arranged by the respective Faculty Mentor.

Prior to beginning the Practicum, the students will submit the following items in the Practicum Proposal Form:
• Practicum Working Title and Summary that generally describes the proposed project title, student’s role and activities you will be engaged in at your practicum site and how the practicum addresses your academic and career goals (min 250 words),
• Two ESE MSPH competencies that will be achieved through the practicum,
• A work Plan with time estimates and estimated completion dates beside each task.
• A description of proposed products. As a part of your practicum, you must produce at least two products for the practice setting, which demonstrates and allows assessment of competency attainment. Examples include “written assignments, projects, videos, multi-media presentations, spreadsheets, websites, posters, photos or other digital artifacts of learning.” Describe (with some specificity) what you anticipate those two products will be.

Documentation of practicum hours. The student shall keep a log of the hours dedicated to the practical experience that must include at least the following information: date, number of hours, and brief description of the tasks performed on each day. The log shall be signed by the student and the Preceptor, and submitted to the Department Representative and the ESE Student Services Office at the end of the semester. This document shall remain part of the student’s file.

Evaluation. See the Student Practicum Evaluation Form. At the end of the practicum the student should submit to the ESE Student Services Office their final products and an exit survey A 2-3 page paper in which the context, goals, accomplishments and impact of the practicum experience are succinctly and thoughtfully summarized should be submitted to the Department Representative and the Preceptor. This paper should, if appropriate, be incorporated into the section of the student’s Technical Report in which the public health relevance and impact of the student’s work is discussed. The student’s committee is encouraged to pay special attention to this section when evaluating the student’s Technical Report. Additional evaluation criteria may be established by each instructor and, if any, communicated to the students registering for that instructor’s section of ENVR 981 at the beginning of the relevant semester. The Department Representative and the Preceptor in consultation award a grade for the course based, in part, on the paper and any additional evaluation criteria (see above). Further, the student will share the Preceptor Evaluation Form with the preceptor. This document allows the preceptor to give feedback on the practicum.

Course Credit will be awarded for ENVR 981 based on the time and effort commitment on the part of the student. Forty-five (45) hours of active effort will be considered equivalent to one credit hour. Since the level of effort may not be predictable at the outset (particularly for service projects), the student should register for a conservatively low number of credits at the outset and adjust registration in subsequent semesters as appropriate.

Students must upload the forms and practicum projects to the upload portal [here](#).

These forms can be found on the [ESE Graduate Students Canvas site](#) (Files > Practicum). Please contact [ESE Student Services](#) to gain access to these resources.

**ENVR 991 - Research in Environmental Sciences and Engineering**

Students should register for ENVR 991 each semester they are doing research. Research credits should be a reflection of the research effort of the student. Students can register for 1-9 credits of ENVR 991 per semester. Research hours will typically make up a significant amount of credit hours each semester, and
typically means a full-time student will carry a total semester load of approximately 16 credits. Please note, 16 credits is the maximum number of credit hours a graduate student can register for during a semester, without an exception to policy (i.e., tuition increases above 16 credits). Keeping in mind these guidelines, students should speak with their faculty mentor to determine the appropriate number of credits of ENVR 991 for which to register.

Students who are near the end of their program, and registered for either ENVR 992 or 993, please note that full-time registration is satisfied by being enrolled in either of these courses. However, you may still need to register for some credits of ENVR 991, depending on where you are with your research. Please speak with your faculty mentor to determine if you need to register for research credits while working on your thesis or professional paper.

Part-time students should speak with their faculty mentors and or the ESE Academic Coordinator should they have questions about registering for ENVR 991.

**How to determine your research hours?** Each semester, students should register for any desired classes, making sure they are registered full-time (total of 9 credit hours including ENVR 991, or 3 credits of ENVR 992 or 993). Then, if appropriate, the student may increase the number of registered ENVR 991 credit hours until the sum of all credit hours is 16 for the semester. Please speak with your faculty mentor and/or the ESE Academic Coordinator so they can help you calculate the appropriate number of research credit hours for which to register. For guidance in deciding the number of ENVR 991 credits for which students should register, students and Faculty mentors may consult the credit hour definition by the UNC Registrar’s Office here.

ESE graduate students work hard on research, and this should be reflected in the number of research hours students register for each semester. Registration for research credits ensures that you are enrolled in the correct number of credits that corresponds with the work you are doing, and so department resources are allocated accordingly.

**Tuition Note:** As outlined by the UNC Cashier’s Office, tuition is assessed on a per credit hour basis. For most graduate programs, tuition is capped at full time enrollment, which is nine hours for graduate students. Estimated rates by program can be found using the tuition estimator. This means that 9 -16 credits cost the same amount of tuition. For more detailed tuition and fees information see the Cashier’s website.

**Transfer Credit**

Up to 30 percent of the total hours required for the master’s degree (9 credits for MS or MSEE; 12 credits for MSPH or MPH) may be graduate-level courses transferred from another approved institution, or from UNC for courses taken before admission to the masters (e.g., courses taken as a non-degree or Continuing Studies student, an undergraduate, or a degree student in another program). Note, a Transfer Credit Recommendation form must be approved by ESE and submitted to The Graduate School by the Academic Coordinator.

**Finishing and Graduation**

All graduate programs offered by the Department of Environmental Sciences and Engineering require the completion of a project. Doctoral students write a dissertation, MS students a master’s thesis, and MSPH,
MPH and MSEE students complete a technical report. Submission guidelines are as follows.

**Thesis (MS)**

Please refer to The Graduate School submission instructions. After the thesis is revised to the thesis committee’s satisfaction, the student will upload it to the ProQuest Theses and Dissertations database (note that there is a fee). The Graduate School will review it before it is published and may require some revisions (usually formatting) from the student. Students should check with their faculty mentors about whether an embargo is desired to avoid problems with journal submission.

The signature of the faculty mentor on the master’s exam form signifies that the paper is ready to submit. All forms must be on file with The Graduate School before the thesis/technical report is uploaded.

**Technical Report (MSPH, MPH, MSEE)**

The Department requires that the student submit:

1. A digital (PDF) copy uploaded to the Carolina Digital Repository. Embargoed reports will become “active” in the system after the embargo ends. Students should check with their faculty mentor about an embargo to avoid problems with journal submission.

2. An electronic copy is to be provided to the student’s faculty mentor.

The Graduate School has strict formatting guidelines for theses and dissertations (see below); these are available on the Graduate School website. MSPH, MPH, and MSEE students are strongly encouraged to adhere to these guidelines when submitting technical reports.

**Guidelines for Formatting Theses and Technical Reports**

Theses and Technical Reports should follow the formatting guidelines as laid out in The Graduate School Thesis and Dissertation Guide. You can also find information on the Submission of Final Work webpage. Currently, technical reports (MSEE, MSPH, MPH) are submitted to the Carolina Digital Repository; theses (MS) are uploaded to the ProQuest database through the Graduate School.

**IV. Other Important Information**

**Courses**

A current listing of courses is available on our department’s Course page.

ENVR 991, 993, 994: For students who are being mentored by an ESE adjunct faculty member (e.g., researchers at the EPA), the student must also have an academic mentor who is a primary ESE faculty. The student signs up for the primary ESE faculty mentor’s ENVR 991 research section.

**Inter-Institutional Registration**

UNC-Chapel Hill has inter-institutional agreements with Duke University, North Carolina State University, North Carolina Central University, and the UNC Campuses in Charlotte and Greensboro. More information is located here on the UNC Registrar’s website. The form must be signed by the
student and their faculty mentor before being submitted to ESE Student Services at esestudentservices@unc.edu.

**Note:** Gilling’s policy for accepting inter-institutional classes differs from the UNC Registrar. Before registering for a class, meet with the Academic Coordinator to make sure credit can be transferred and applied.

**Faculty Research Interests**

Please see our faculty research page [here](#).

**Declaring a Minor**

To request a minor, **graduate students** must fill out the appropriate form (“Minor Declaration Form” on the Graduate School’s [forms](#) page and submit to esestudentservices@unc.edu. Note that the courses in the minor field must be completed *in addition* to ESE requirements for the graduate degree, as per [the Graduate School’s handbook](#).

**Waiving School of Public Health Requirements**

Students may petition to waive Gillings School of Global Public Health course requirements if they possess the appropriate background, or they may substitute other courses in certain circumstances. More information is available on the [Academic Forms and Policies](#) website. Students can find the exemption form that needs to be completed [here](#).

MS, and MSEE students with a previous public health degree do **not** need to take the SPHG 600. To have this course exempted, please meet with the ESE Academic Coordinator.

**Residency and Tuition Remission**

The state of North Carolina distinguishes between residents and non-residents for tuition purposes. Non-residents must pay an out-of-state portion of tuition.

Non-resident students should start taking steps to apply for NC Residency as soon as they arrive. Information on residency is located on the registrar [website](#). US citizens and US permanent residents who are non-residents are strongly encouraged by the Department to apply for NC residency once in the state for 365 days. It is possible to obtain residency shortly after a year of living in North Carolina, but only if a substantial number of tasks (e.g., registering a vehicle, registering to vote, paying taxes in North Carolina) are completed within a short period of time after moving to the state. The intent of this process is to demonstrate that the student is intending to set up domicile in North Carolina – not simply live here to go to university.

**International students cannot apply for residency**, though permanent residents of the United States can (see the [North Carolina State Residence Manual](#) linked to from The Graduate School’s website for more information).

**Why ESE Graduate Students Need to Gain NC Residency?**
We expect domestic students to obtain NC Residency during their first year. You should gain residency as soon as you can because the out-of-state portion of tuition costs each student about $18,000/year. For students who serve as TAs, the sponsoring department rarely covers the out-of-state portion after the first year. Thus, students need to begin the process of applying for residency as soon as they arrive. Students can reapply every semester until residency is granted.

You can find more information about the NC Residency Eligibility Requirements here.

**Insurance**

If a student is on the GRA/TA/Fellow (GSHIP) plan, beginning Fall 2024, BCBS will automatically waive enrolled GSHIP students out of the mandatory Student Blue insurance plan. As BCBS receives notification of a student’s GSHIP enrollment, an administrative waiver will be added to their UNC mandatory Student Blue account. The account will be locked to prevent a GSHIP-enrolled student from voiding the administrative waiver.

If a student is on other insurance (e.g., a spouse’s) they must also waive the compulsory UNC insurance every semester. Otherwise, the student will be enrolled in the regular student plan (and be billed accordingly).

GRAs, TAs and Fellows who are on the GSHIP should fill out the 1112.1.1f UNC-CH Graduate Student Health Insurance Program form. Students will need to return this form to the department as soon as they can, preferably before August.

Note that for students graduating or coming off payroll, the GSHIP is cancelled quite soon afterward (the end of May for May graduates, or for those coming off payroll in May), so they should make other arrangements as soon as they can, whether through an employer or through the marketplace. Continuing students who are coming off payroll and GSHIP insurance in May can enroll in Student Blue plan at any time of the year as losing GSHIP is considered a qualifying life event to enroll in Student Blue.

**How Often Should I Meet with My Faculty Mentor?**

The frequency of meeting varies between student and mentor, though students are encouraged to meet with their faculty mentor at least twice a month. Students should discuss with their mentor if they feel that more frequent meetings are needed.

**Policies for Changing Degree Programs and Faculty Mentors**

In some cases, current students may change their master’s degree program with the permission of their faculty mentor and approval of the Graduate School. MPH students must apply if they wish to change into a Master’s program in Environmental Sciences and Engineering.

Master’s students interested in moving from a master’s to a doctoral program should consult with their faculty mentor and the student services office. The Graduate School offers two options: proceeding beyond the master’s and bypassing the master’s completely. The student is encouraged to talk with their faculty mentor about which option to take. The department might recommend a student apply to the PhD program, which would allow them to qualify for recruitment awards through the department and The Graduate School.
Students may change their academic or research mentor if they find a willing new faculty mentor to take them on. There is no formal process for this, but students should consult with their current faculty mentor, particularly if they are being funded through a research assistantship with that faculty mentor. Their funding does not necessarily transfer. **Students should then notify ESE Student Services at esestudentservices@unc.edu so they can update your student record.**

Students who need assistance handling a problem with their faculty mentor should talk to the ESE Director of Graduate Studies or the Academic Coordinator.

**Addressing Students Concerns**

Your well-being and positive student experience are important to us. **Please visit and bookmark this page for reference.** We are committed to addressing issues in a fair, timely and professional manner. We know it will not be possible in some cases, but to help us achieve the best outcome, we ask students to **follow the 5 steps below whenever possible:**

**Step 1:** Contact your instructor, the individual with whom you have a concern, or your faculty mentor as appropriate. Most concerns can be resolved through discussion between the person(s) involved. If you are uncomfortable interacting directly with the person(s), or if the concern is not resolved satisfactorily, proceed to step 2.

**Step 2:** Discuss the matter with your department’s Director of Graduate Studies (DGS) or the ESE Academic Coordinator. If you have consulted with the DGS, or designee, and still believe the matter has not been dealt with satisfactorily or equitably, proceed to step 3.

**Step 3:** Discuss the matter with your department chair. If you believe the matter has not been dealt with satisfactorily or equitably, you can proceed to step 4.

**Step 4:** Schedule a meeting with Charletta Sims Evans, the SPH Associate Dean for Student Affairs (simsevan@email.unc.edu), if you need further consultation.

**Step 5:** If the issue is still not resolved and you are a graduate student: schedule a meeting with Kate McAnulty, the associate dean for student affairs in The Graduate School (kmcanulty@unc.edu). **Undergraduate students**, contact the Office of Dean of Students.

**Room and Audio/Video (AV) and Other Equipment Reservations**

Relevant information is located on the Gillings website. Other equipment for check out as well as audio and video editing facilities are located in the basement of the House Undergraduate Library.

**Poster Printing**

Conveniently located at the center of campus on the third floor of Student Stores, the UNC Print Stop and Copy Center offers printing and copying services. **You can find more information about poster printing here.**

**Defense Timeline and Announcements**
Students select the date/time for defense in coordination with their Master’s Committee members and book the room or create a Zoom link. They then prepare a Defense Announcement that is sent to students, faculty, and staff in the department.

To announce your technical report or thesis defense, students should send an email to esestudentservices@unc.edu that contains their name, the type of defense they will complete, date of defense, zoom link or location, thesis or dissertation title, abstract, and committee members (indicate chair/faculty mentor). Please follow the following format/template:

- **Student Name:**
- **Type of defense:**
- **Date:**
- **Location or Zoom link and Password:**
- **Title:**
- **Abstract:**
- **Committee Members (indicate committee chair):**

Defenses should be scheduled at least two weeks before The Graduate School submission deadlines so that students have time to incorporate any committee edits and complete submission formatting requirements.

Students are encouraged, but not required, to make their defense open to the public.

**General Information**

- [University Academic Calendar](#)
- [University Academic Integrity Standards](#)
- [University Explanation of Grading](#)