

University of Mississippi  
Department of Civil Engineering  
Graduate Degree Policy  
Handbook<sup>1</sup>

Approved by the Department Faculty on April 16, 2020

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<sup>1</sup> UM Graduate School policies supersede those in this handbook.

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## 1. Goals/Mission Statement

The program will provide high-quality graduate education in civil and environmental engineering and will produce research and scholarship that is nationally and internationally recognized and supports the economic development of the state, the region, and the nation.

## 2. Graduate Degrees Offered

The University of Mississippi's Department of Civil Engineering offers the following graduate degrees:

- Master of Science (M.S.) in Engineering Science with an Emphasis in Civil Engineering or Environmental Engineering
  - Thesis option (30-hour program, to include 6 hours of thesis)
  - Non-thesis options
    - Project option (30-hour program, to include a minimum of 3 hours of a design-oriented project course)
    - Coursework only option (30-hour program, to include a final oral examination in front of a committee, but no written report)
- Doctor of Philosophy (Ph.D.) in Engineering Science with an Emphasis in Civil Engineering or Environmental Engineering (24 hours of coursework beyond the Master's degree or 48 hours of coursework beyond the Bachelor's degree, plus 18 hours of dissertation)

## 3. Program Descriptions

A degree of M.S. in Engineering Science with an emphasis in civil engineering or environmental engineering prepares a student with advanced technical knowledge and communication skills for pursuing a career in industry, consulting firms, design firms, engineering research and development, public service, or doctoral work.

Students have a choice of several concentration areas: structural engineering, geotechnical engineering, construction materials, advanced materials, water resources engineering, environmental engineering, transportation systems, infrastructure asset management, earthquake and disaster response management, or sustainability.

A Ph.D. in engineering science with an emphasis in civil engineering or environmental engineering prepares a student with advanced technical knowledge and communication skills for pursuing a career in academia, engineering research and development, education, industry, consulting firms, design firms, or public service.

Students have a choice of several concentration areas: structural engineering, geotechnical engineering, construction materials, advanced materials, water resource engineering, environmental engineering, transportation systems, infrastructure asset management, earthquake and disaster response management, or sustainability.

## 4. Faculty

The latest listing of the department's faculty can be found in the [Faculty/Staff Directory](#). Other faculty affiliated with the Department of Civil Engineering are located in the [National Center for Computational Hydroscience and Engineering \(NCCHE\)](#) and the [National Center for Physical Acoustics \(NCPA\)](#).

## 5. Admission

### 5.1 Useful Links for Prospective Students

- For application information, see the Graduate School webpage for [Prospective Students](#).
- International students are encouraged to visit the website of the [Office of International Programs](#).
- Required coursework and other program descriptions are found in the [Graduate Catalog](#).

### 5.2 Admission Requirements

- GRE (minimum score of 300 combined for verbal and quantitative)
- Minimum GPA of 3.0
- Students whose primary language is not English and who do not hold a degree from the U.S. are required to have a minimum score on one of the English proficiency tests. Please consult the Office of International Programs' [English Language Proficiency Requirements](#). Note that the School of Engineering requires a 6.5 minimum score on the IELTS.

At the time of this writing, the Graduate School is developing the Program for Accelerated Advanced Degrees (PAAD), in which undergraduate students may take graduate coursework towards an MS or Ph.D. degree. The Department of Civil Engineering will participate in this program and will evaluate PAAD enrollees for admission to the graduate program on a case-by-case basis.

### 5.3 Additional Application Materials Needed

- Three letters of recommendation
- A statement of purpose and research
- Official undergraduate and graduate (if applicable) transcript(s) sent directly from the student's institution to the Graduate School.

## 6. Cost of Attendance and Financial Aid Information

For tuition rates, go to the Office of Financial Aid [Cost of Attendance page](#) or the Office of the Bursar [Tuition Estimator](#).

Fellowship and research or teaching assistantships are granted on a merit, not need, basis. Determination of funding from the Department of Civil Engineering is made by professors in areas of interest or the chair of the Department of Civil Engineering, based on the information in the

application package. Students will be notified if they are awarded an assistantship. Students may also contact the faculty member(s) in their interest area for sponsorship.

Additional financial aid opportunities can be found in the Graduate School's page on [Financial Aid Information](#).

## 7. Academic Conduct and Research Integrity

Graduate students are expected to conduct themselves professionally and ethically. The University of Mississippi is dedicated to supporting and sustaining a safe and scholarly community of learning dedicated to nurturing excellence inside and outside of the classroom. Each student has a duty to become familiar with University values and standards reflected in University policies. These policies are outlined in the [M Book](#).

**From the [M Book](#), policy ACA.AR.600.001:** "The University is conducted on a basis of common honesty. Dishonesty, cheating, or plagiarism, or knowingly furnishing false information to the University, are regarded as particularly serious offenses." Plagiarism consists of "copying published material verbatim, paraphrasing the work of another without properly citing that work, keeping the content and/or structure of another's work and changing the words, and unfairly using material, such as taking large portions of another's work without substantial addition of one's own ideas or commentary.... a student who copies another's homework, copies answers to test questions, or allows someone else to do work for him/her on homework or tests also violates the standards of honesty and fairness and is subject to academic discipline."

[Plagiarism](#) and cheating are serious offenses and may be punished by failure on the exam, quiz, or project; failure in the course; and/or expulsion from the University. ***Any student found cheating will go through the University's academic discipline process.***

Please also read the Graduate School's regulation on [Academic Conduct](#) and the Office of Research and Sponsored Programs page on [Research Integrity and Compliance](#).

Additionally, graduate students may be required to take the free online 6-hour course [Responsible Conduct of Research](#).

## 8. Master's Degree

### 8.1 Course Requirements and Committees

- The thesis option for the M.S. with an emphasis in civil or environmental engineering requires at least 24 hours of coursework and at least 6 hours of thesis credit (Engr 697-Thesis) with a thesis defense. The thesis committee shall consist of a minimum of three faculty members, including the faculty advisor (known as the chair of the committee).
- The non-thesis project option for civil or environmental engineering requires 27 hours of coursework and a 3-hour project or research course (Engr 699-Special Projects in Engineering Science or Engr 693-Research Topics in Engineering Science) with a written report and oral

presentation in front of a committee. The project committee shall consist of a minimum of three faculty members, including the faculty advisor (known as the chair of the committee).

- The coursework option for civil or environmental engineering requires 30 hours of coursework and a final oral exam and presentation in front of a committee. There is no written report for this option.

All Master's degree options also require attendance in a 1-hour graduate seminar every semester. These seminar hours do not count towards the 30-hour degree requirements.

Graduate courses for all options may include at least one course in mathematics or statistics, one course in numerical or experimental methods, and one course in solid or fluid mechanics. Examples of these courses are shown in Appendix A. These courses should be selected with the approval of the student's faculty advisor or department chair.

## *8.2 Final Oral Examination*

On the scheduled oral examination exam day, the student is expected to make a presentation to the committee. For the Master's thesis student, the student is expected to defend their research. For the project student, the student is expected to present their independent project and answer the committee's questions. For the coursework student, the student is expected to make a presentation on a course project and answer the committee's questions. The committee members evaluate the student's defense of the dissertation, academic competence, and research abilities. If the student's knowledge is deficient in meeting the minimum departmental requirements, the committee may decide on more coursework, significant thesis/project revisions, and/or a second oral exam. If the committee evaluates that the student is successful, then the student is considered to have passed the oral examination. After the oral examination, the student must revise the thesis or project report according to comments by the committee and advisement of the faculty advisor (this step is not necessary for the coursework student). Once the committee and faculty advisor are satisfied with the revisions, the student's faculty advisor submits the completed Report of Final Oral/Written Examination to the Graduate School.

## *9. Ph.D. Degree*

### *9.1 Course Requirements*

The Ph.D. degree with an emphasis in civil or environmental engineering requires 24 hours of coursework beyond the M.S. degree or 48 hours beyond the B.S. degree, and 18 hours of dissertation credit. At least one course needs to be in mathematics or statistics, one course in numerical or experimental methods, and one course in solid or fluid mechanics. Examples of these courses are shown in Appendix A. Other graduate coursework must be approved by the student's advisor.

Ph.D. students are also required to attend a 1-hour graduate seminar every semester. These seminar hours do not count towards the 66-hour degree requirements.

## 9.2 Other Academic Requirements

A qualifying examination, comprehensive examination (including a dissertation prospectus and defense), and dissertation defense are required. The student must pass written and oral comprehensive exams before admission to candidacy (i.e., becoming a Ph.D. candidate).

### 9.2.1 Qualifying Examination

Ph.D. students are required to take a qualifying exam at least one semester after being admitted. The passing grade is 70/100 (averaged value). The qualifying exam is intended to test the student's knowledge in undergraduate courses that are relevant to his or her research. Each problem is typically to last one hour. Different professors will write the problems. Students should meet with those professors ahead of time to define what to study and to determine whether the problem will be open-book, open-notes, etc. The qualifying exams consist of **eight** problems as shown in Tables 1 and 2.

Table 1. Problems Included in the Civil Engineering Ph.D. Qualifying Exam.

Category	Subject
<b>I</b> (min 1)	Statics
	Dynamics
<b>II</b> (min 1)	Mechanics of Materials
	Materials
<b>III</b> (min 1)	Fluid Mechanics
	Hydraulics/Hydrology
<b>IV</b> (min 2)	Mathematics (Engineering Analysis) 1
	Mathematics (Engineering Analysis) 2
	Numerical Analysis
<b>V</b> (2 total and can be in one or more areas of interest)	Transportation/Construction Management
	Structural Analysis/Design
	Soil Mechanics and Foundations
	Environmental Engineering/Water Resources
<b>VI-extended</b>	Topic chosen by faculty advisor

Table 2. Problems Included in the Environmental Engineering Ph.D. Qualifying Exam.

Category	Subject
<b>I</b> (min 1)	Fluid Mechanics
	Soil Mechanics
<b>II</b> (min 1)	Hydrology
	Hydraulics
<b>III</b> (min 2)	Pollutant Transport
	Pollutant Treatment
<b>IV</b> (min 1)	Mathematics and/or Numerical Methods
<b>V-extended</b> (min 1)	Topic(s) chosen by faculty advisor

If a student does not pass the qualifying exam, they may be required to take additional courses in their area(s) of deficiency and then retake the exam. If a student does not pass the exam the second time, the student may be dismissed from the program.

After the student passes the qualifying exam and the faculty advisor reports the results to the graduate school, the student and faculty advisor should choose more courses towards degree completion.

### 9.2.2 Dissertation Committee

A dissertation prospectus committee is established, approved by the faculty advisor, and confirmed to the graduate program coordinator (GPC) or department chair. All committee members must be [graduate faculty](#).

For a Ph.D. in Civil Engineering, the committee consists of a minimum of four faculty members: three from the department, including the faculty advisor (known as the chair of the committee), and one from outside the department.

For a Ph.D. in Environmental Engineering, the committee consists of a minimum of four faculty members: three, including the major advisor, can be from different departments but in a similar discipline as the student, and one from outside the department.

Students and faculty advisors are encouraged to consult regularly with the dissertation committee in order to aim for a robust research process and a smooth path to a comprehensive exam and final defense.

### 9.2.3 Comprehensive Examination

Most of the required graduate coursework should be completed or expected to be completed in the semester when the student plans to take the comprehensive examination. The comprehensive examination consists of two parts, written (the dissertation prospectus) and oral (the prospectus defense). An optional third component, a written examination, may be required.

- Optional written examination: This exam may consist of problems to be solved as determined by the student's dissertation committee and should take place before the required written and oral comprehensive exams. An average score of 70% is required for passing. Based on the outcome of the exam, the student's dissertation committee may require him or her to (1) take additional courses; (2) retake the exam, and/or (3) have an additional oral exam to assess weaknesses and deficiencies. Alternatively, the exam may be an original research proposal (ORP).
- Required written examination: This written examination consists of the student's written dissertation prospectus. The prospectus should be distributed to the dissertation prospectus committee with enough time (typically one to two weeks) for each to read and make comments before the scheduled oral examination.



- Oral examination (prospectus defense): Form [GS5](#) should be completed and emailed to the Graduate School at least 14 days before the student's oral comprehensive exam. The purpose of the oral exam is to further assess the student's knowledge of all required graduate courses needed to conduct the research and to evaluate the student's research proposal documented in the dissertation prospectus. On the scheduled oral exam day, the student is expected to present and defend their dissertation prospectus to the entire dissertation prospectus committee. The committee members evaluate the student's defense of the dissertation prospectus, academic competence, and research abilities. If the student's knowledge is deficient, the committee may decide on more coursework and/or a follow-up oral exam. This is the time to provide any advice on the research approach and future direction to the student. If the committee evaluates that the student is ready to pursue the research presented in the dissertation prospectus, then the student is considered to have passed. Once the decision is made to pass and is conveyed to the student, the student submits the completed form [GS5.1, Admission to Candidacy](#), to the Graduate School.

There should be at least one intervening semester between the semester in which comprehensive examinations are passed and the semester when the student takes the final oral dissertation exam.

#### [9.2.4 Final Oral Dissertation Examination \(Defense\)](#)

On the scheduled oral dissertation exam day, the student is expected to present and defend their dissertation research to the entire dissertation committee. The committee members evaluate the student's defense of the dissertation, academic competence, and research abilities. If the student's knowledge is deficient, the committee may decide on more coursework, significant dissertation revisions, and/or a second defense. If the committee evaluates that the student is successful, then the student is considered to have passed the oral examination. After the defense, the student must revise the dissertation according to comments by the committee and advisement of the faculty advisor. Once the committee and faculty advisor are satisfied with the dissertation revisions, the student submits the completed Report of Final Oral/Written Examination to the Graduate School.

## 10. Graduation Requirements and Final Semester

Students must have a 3.0 GPA in order to be in good standing and graduate.

Additional forms and deliverables required for graduation are listed in the Graduate School's [The End Game](#) page. **Students are responsible for reviewing this entire page, meeting the deadlines listed, and following the instructions on this page early in the semester in which they will graduate.**

For all Master's and Ph.D. students, a final oral examination occurs in the student's last semester at the university. This final oral examination consists of a dissertation defense for Ph.D. students, a thesis defense for Master's thesis students, a project presentation for Master's project students, and an oral examination and presentation for Master's coursework students. Note that two important forms, [GS8](#) and [GS7](#), are due at the beginning of the final semester. Activities leading to the final oral examination follow this order:

- The student applies to graduate using form [GS8](#) and continues working on the dissertation/thesis/project/presentation, following advisement by the faculty advisor and committee.
- Early in the final semester, the student schedules the final oral examination with the committee by reserving a location and time (at least 2 hours) upon consultation with the faculty advisor and the committee and submitting form [GS7](#). The final oral examination should be scheduled at least 7 days (but 14 days is preferred) before the last Friday of classes in the semester, when the final dissertation/thesis is due to the Graduate School. This 7-day minimum is the time needed for the student to revise the dissertation/thesis based on the committee's comments and revisions during the defense. For the Master's project and coursework students, fewer days may be required, but note that last-minute scheduling is challenging.
- The student must keep the faculty advisor apprised of the dissertation/thesis/project/presentation progress and submit drafts to the faculty advisor as requested.
- A complete draft of the dissertation/thesis/project report is due to the committee at least 7 days before the scheduled defense (but 14 days is preferred). **This means that the complete draft should be done about one month before the last day of classes.** No report is necessary for Master's coursework students.
- The student undergoes the final oral examination and dissertation/thesis/project/presentation revisions as described in the earlier Sections 8.2 (M.S.) and 9.2.4 (Ph.D.).

## Appendix A - Examples of suggested graduate courses

### **I. Mathematics or Statistics**

- Bisc 504-Biometry
- Engr 591-Engineering Analysis I
- Engr 592-Engineering Analysis II
- Math 555- Advanced Calculus I
- Math 556-Advanced Calculus II
- Math 575-Mathematical Statistics I
- Math 576-Mathematical Statistics II
- SOC 501-Statistics
- PSY 603-Quantitative Methods in Psychology I
- PSY 604-Quantitative Methods in Psychology II
- EDRS 501-Educational Statistics I
- EDRS 701-Educational Statistics II
- GEOL 518-Quantitative Methods in Geo. & Geo Eng.
- Math 675-Advanced Mathematical Statistics I
- Math 676-Advanced Mathematical Statistics II

### **II. Numerical or Experimental Methods**

- Engr 590-Finite Element Analysis I
- Engr 690-Finite Element Analysis II
- Engr 593-Approximate Methods of Engineering Analysis I

### **III. Solid or Fluid Mechanics**

- Engr 617-Continuum Mechanics
- CE 521-Advanced Mechanics of Materials
- CE 585-Highway Pavements
- Engr 637-Groundwater Modeling
- Geol 505-Hydrogeology