

# CIVIL AND ENVIRONMENTAL ENGINEERING: RESEARCH, M.S.

This is a named option in the Civil and Environmental Engineering M.S. (<http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/>)

The M.S. CEE-Research degree program takes approximately two years to complete. M.S. research degree candidates will choose a pathway for their program of study: thesis or advanced independent study. Students who do not have a bachelor's degree from an ABET accredited engineering program, or from a recognized international institution, may be required to complete deficiency coursework in addition to completing either the thesis or advanced independent study curriculum requirements. Selection of a pathway is dependent upon the educational objectives of the candidate.

## ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website.

Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet** the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) **of the Graduate School as well as the program(s)**. Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

Requirements	Detail
Fall Deadline	December 15
Spring Deadline	September 1
Summer Deadline	December 15
GRE (Graduate Record Examinations)	Not required.
English Proficiency Test	Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements ( <a href="https://grad.wisc.edu/apply/requirements/#english-proficiency">https://grad.wisc.edu/apply/requirements/#english-proficiency</a> ).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	3

All applicants must meet the Graduate School's admission requirements (<http://grad.wisc.edu/admissions/requirements/>) to be considered for admission. The application deadline is December 15 for the fall term and

September 1 for the spring term. Late applications may not be reviewed for funding opportunities.

In addition, applicants must also meet the department's more stringent admission requirements listed below to be considered for admission:

- **Grades:** A minimum undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester hours (approximately two years of work) is required for domestic applicants. A strong academic performance comparable to an average of B or above grades for all undergraduate course work is required for international applicants.
- **Degree:** A bachelor's degree from an ABET-accredited engineering program or from a recognized international institution is required. Applicants who do not have a bachelor's degree as specified above may study for the master of science in civil and environmental engineering (Program Option C); however, to become eligible for this program, applicants must meet the department's deficiency requirements, some of which may be completed as deficiencies after admission. As a general rule, students with more than 12 credits in deficiencies are not admitted to the graduate program. Rather, they are encouraged to enroll as special students until most of their deficiencies are satisfied. All plans of study within this option must be approved by the department faculty. The deficiency requirements for applicants without a bachelor's degree from an ABET-accredited engineering program or from a recognized international institution must be obtained from the department.

A complete graduate application is required before an application will be reviewed by the faculty. A complete graduate application contains the following:

- **Graduate School Application Form and application fee:** Applicants must submit an online application to the UW-Madison Graduate School. See Graduate School Admissions (<https://grad.wisc.edu/admissions/>) to apply.
- **Statement of purpose:** A statement of purpose for graduate study must be submitted through an applicant's online UW-Madison Graduate School application. Please limit this important document to 1,000 words.
- **Letters of recommendation:** Three letters of recommendation must be submitted through an applicant's online UW-Madison Graduate School application.
- **Transcripts:** Upload the most recent copies of your transcripts to the electronic application, from each institution attended. Study abroad transcripts are not required if coursework is reflected on the degree granting university's transcript. If the application is recommended for admission then we will follow-up with instructions for official transcript submission.
- **English proficiency scores:** Applicants whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. See Graduate School Admission Requirements (<http://grad.wisc.edu/admissions/requirements/>) for more information on the English proficiency requirement.
  - TOEFL scores may be sent to institution code 1846 from ETS

## FUNDING

## GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

## PROGRAM RESOURCES

Financial support is available through fellowships, project/program assistantships (PA), research assistantships (RA), and teaching assistantships (TA). Faculty will contact successful M.S./Ph.D. applicants directly regarding funding opportunities. Admission is not a guarantee of funding.

## REQUIREMENTS

## MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

## NAMED OPTION REQUIREMENTS MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

### Mode of Instruction Definitions

**Accelerated:** Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

**Evening/Weekend:** Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

**Face-to-Face:** Courses typically meet during weekdays on the UW–Madison Campus.

**Hybrid:** These programs combine face-to-face and online learning formats. Contact the program for more specific information.

**Online:** These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

## CURRICULAR REQUIREMENTS

### Requirement Detail

Minimum	30 credits
Credit	
Requirement	

Minimum	16 credits
Residence	
Credit	
Requirement	
Minimum	15 credits must be graduate-level coursework. Details can
Graduate	be found in the Graduate School's Minimum Graduate
Coursework	Coursework (50%) policy ( <a href="https://policy.wisc.edu/library/">https://policy.wisc.edu/library/</a>
Requirement	UW-1244 ( <a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a> ).
Overall	3.00 GPA required.
Graduate	This program follows the Graduate School's GPA
GPA	Requirement policy ( <a href="https://policy.wisc.edu/library/">https://policy.wisc.edu/library/</a>
Requirement	UW-1203 ( <a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a> ).
Other Grade	n/a
Requirements	
Assessments	Pathway A, Thesis: A faculty committee will conduct
and	a final examination on the thesis research. Pathway B,
Examinations	Independent Study: A faculty committee will review and
	approve the final report. A final examination is not required
	but may be requested by the faculty committee.
Language	No language requirements.
Requirements	

## REQUIRED COURSES

### Pathway A—Thesis<sup>1</sup>

Students who wish to do advanced work and research in a well-defined area of specialization are encouraged to pursue this program.

This option requires a minimum of 30 credits of graduate work including:

- A minimum of 18 credits graduate-level coursework (numbered 300 and higher); at least of 9 of the 18 credits must be in Civil and Environmental Engineering (may include the seminar course with approval from the faculty advisor; may not include CIV ENGR 790) Some courses numbered 300+ may require special faculty approval.
- A minimum of one-credit seminar course (Discuss seminar options with faculty advisor.)
- A minimum of 6 credits of CIV ENGR 790 Master's Research or Thesis A faculty committee will conduct a final examination on the thesis research.

<sup>1</sup>

These pathways are internal to the program and represent different curricular paths a student can follow to earn this degree. Pathway names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

### Pathway B—Advanced Independent Study<sup>1</sup>

This pathway requires a minimum of 30 credits of graduate work including:

- A minimum of 21 credits graduate-level coursework (numbered 300 and higher); at least of 9 of the 21 credits must be in Civil and Environmental Engineering (may include the seminar course with approval from the advisor; may not include independent study or research courses) Some courses numbered 300+ may require special faculty approval.
- A minimum of one-credit seminar course. (Discuss seminar options with faculty advisor.)
- A minimum of 3 credits of CIV ENGR 790 Master's Research or Thesis or CIV ENGR 999 Advanced Independent Study A required written report based on the student's advanced independent study

project does not have to meet UW-Madison Graduate School requirements for a thesis, but has to show independent thinking by the student. A faculty committee will review and approve the final report. A final examination is not required but may be requested by the faculty committee.

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### Pathway C—Master's<sup>1</sup> (for Students without Engineering Bachelor's Degrees)

This program is designed for students without engineering bachelor's degrees. Students will meet with their faculty advisor to determine the courses and total credits required to fulfill the deficiency requirements. As a general rule, students with more than 12 credits in deficiencies are not admitted to the program. Rather, they are encouraged to enroll as special students until more of their deficiencies are satisfied. Some of the deficiency course requirements may be completed after admission. The exact number of deficiency courses and credits completed before and after admission will be determined by the faculty advisor. All prerequisite courses must be taken for a letter grade. In addition to the total deficiency credit requirement, Pathway C requires a minimum of 30 credits of graduate work. Students can select either a Thesis Pathway or Advanced Independent Study Pathway, consistent with the requirements of Pathway A or Pathway B described above, to complete the non-deficiency requirements of Pathway C. Students should meet with their faculty advisor to determine which pathway is most appropriate for their degree plan. Deficiency credits cannot be applied to fulfill the 30 credit degree requirement.

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### Seminar Course Options

Code	Title	Credits
<b>Seminar Course Options</b>		
CIV ENGR 579	Seminar-Transportation Engineering	1
CIV ENGR/ ENVIR ST/ URB R PL 717	Water Resources Management Practicum Planning Seminar I	1
CIV ENGR/ ENVIR ST/ URB R PL 718	Water Resources Management Practicum Planning Seminar II	2
CIV ENGR 909	Graduate Seminar - Environmental Chemistry & Technology	1
CIV ENGR/ ATM OCN/BOTANY/ ENVIR ST/GEOSCI/ ZOOLOGY 911	Limnology and Marine Science Seminar	1
CIV ENGR 919	Seminar-Hydraulic Engineering and Fluid Mechanics	1
CIV ENGR 929	Seminar-Environmental Engineering	1
CIV ENGR 939	Geotechnical Engineering Seminar	1
CIV ENGR 949	Seminar-Structural Engineering	1

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## POLICIES

### GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

### NAMED OPTION-SPECIFIC POLICIES

#### PRIOR COURSEWORK

##### Graduate Work from Other Institutions

This program follows the Graduate School's policy for Satisfying Requirements with Prior Graduate Coursework from Other Institutions. (<https://policy.wisc.edu/library/UW-1216/>)

##### UW-Madison Undergraduate

This program follows the Graduate School's policy for Satisfying Requirements with Coursework from Undergraduate Career at UW-Madison. (<https://policy.wisc.edu/library/UW-1216/>)

##### UW-Madison University Special

This program follows the Graduate School's policy for Transfer from UW-Madison University Special Student Career at UW-Madison. (<https://policy.wisc.edu/library/UW-1216/>)

#### PROBATION

This program follows the Graduate School's Probation policy. (<https://policy.wisc.edu/library/UW-1217/>)

#### ADVISOR / COMMITTEE

This program follows the Graduate School's Advisor policy (<https://policy.wisc.edu/library/UW-1232/>) and the Graduate School's Committees policy (<https://policy.wisc.edu/library/UW-1201/>).

#### CREDITS PER TERM ALLOWED

15 credits

#### TIME LIMITS

This program follows the Graduate School's Time Limits policy. (<https://policy.wisc.edu/library/UW-1221/>)

#### GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)

- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
  - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employee disabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

### CEE Grievance Procedures

Students who feel that they have been treated unfairly have the right to a prompt hearing of their grievance. Such complaints may involve course grades, classroom treatment, advising, various forms of harassment, or other issues. Any student or potential student may use these procedures.

- The student should speak first with the person toward whom the grievance is directed. In most cases, grievances can be resolved at this level.
- Should a satisfactory resolution not be achieved, the student should contact the program's Grievance Advisor to discuss the grievance. Currently, the CEE Grievance Advisors are:

**Christina Remucal**, Professor and Associate Chair for Graduate Programs  
remucal@wisc.edu 141 WSEL Phone: (608) 262-1820

**William Likos**, Professor and CEE Department Chair  
likos@wisc.edu 2205 Engineering Hall Phone: (608) 890-2662

If the student prefers to talk with someone outside of the CEE department, contact:  
CoE Assistant Dean for Graduate Affairs

The Assistant Dean for Graduate Affairs ([enr-dean-graduateaffairs@enr.wisc.edu](mailto:enr-dean-graduateaffairs@enr.wisc.edu)) provides overall leadership for graduate education in the College of Engineering (CoE), and is a point of contact for graduate students who have concerns about education, mentoring, research, or other difficulties.

- The Grievance Advisor is responsible for facilitating any complaints or issues of students. The Grievance Advisor first attempts to help students informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns

or difficulties if necessary. University resources for sexual harassment concerns can be found on the UW Office of Compliance website and are included in the next section.

- If the issue is not resolved to the student's satisfaction the student can submit the grievance to the Grievance Advisor in writing, within 60 calendar days of the alleged unfair treatment.
- On receipt of a written complaint, a faculty committee will be convened by the Grievance Advisor to manage the grievance. The program faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.
- The faculty committee will determine a decision regarding the grievance. The Grievance Advisor will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.
- At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 10 working days to file a written appeal to the College.
- Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.

The Graduate School has established policies governing student conduct, academic dishonesty, and sexual and racial harassment. The Graduate School also has procedures for students wishing to appeal a grievance decision made at the college level. These policies are described in the Academic Guidelines.

### OTHER

Students in the accelerated M.S. named options are not eligible for department funded opportunities.

## PROFESSIONAL DEVELOPMENT

### GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

## PEOPLE

**Civil and Environmental Engineering Faculty:** Professors Likos (chair), Ahn, Hanna, Harrington, Hurley, Loheide, McMahan, Noguera, Noyce, Park, Parra-Montesinos, Ran, Russell, Schauer, Wu; Associate Professors Block, Fratta, Ginder-Vogel, Hicks, Li, Pincheira, Prabhakar, Remucal, Sone, Tinjum, Wright; Assistant Professors Blum, Chen, Hampton, Pujara, Qin, Wang, Wei, Zhu; M.Eng Program Director Carlson. See also CEE faculty (<http://directory.enr.wisc.edu/cee/faculty/>).

**Geological Engineering Faculty:** Professors Tinjum (Director) (Civil and Environmental Engineering), Feigl (Geoscience), Goodwin (Geoscience), Hard (Wisconsin Geological and Natural History Survey), Likos (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering), Tikoff (Geoscience), Wu (Civil and Environmental Engineering); Associate Professors Cardiff (Geoscience), Ferrier (Geoscience), Fratta (Civil and Environmental Engineering), Ginder-Vogel

(Civil and Environmental Engineering), Hicks (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering), Zoet (Geoscience); Assistant Professors Hampton (Civil and Environmental Engineering), Golos (Geoscience), Zahasky (Geoscience). See also GLE faculty (<https://engineering.wisc.edu/departments/civil-environmental-engineering/research/geological-engineering/>).

**Environmental Chemistry and Technology:** Professors Hurley (Civil and Environmental Engineering), Bertram (Chemistry), Bleam (Soil Science), Harrington (Civil and Environmental Engineering), Karthikeyan (Biological Systems Engineering), McMahon (Civil and Environmental Engineering/Bacteriology), Roden (Geoscience), Root (Chemical and Biological Engineering), Schauer (Civil and Environmental Engineering), Thompson (Biological Systems Engineering); Associate Professors Ginder-Vogel (director; Civil and Environmental Engineering), Remucal (Civil and Environmental Engineering), Whitman (Soil Science); Assistant Professors Anantharaman (Bacteriology), Majumder (Bacteriology), Qin (Civil and Environmental Engineering), Wei (Civil and Environmental Engineering). See also ECT Faculty (<https://engineering.wisc.edu/departments/civil-environmental-engineering/research/environmental-chemistry-technology/>).