



Environmental Engineering

UNIVERSITY OF COLORADO **BOULDER**



GRADUATE PROGRAM HANDBOOK

2021-2022 ACADEMIC YEAR

ENVIRONMENTAL ENGINEERING GRADUATE PROGRAM HANDBOOK

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Graduate Program Overview

1.1 Program Objectives

Our Environmental Engineering Graduate Program focuses on the fundamental and applied understanding of the processes which govern natural and engineered treatment systems and the effects that they have on human and ecosystem health. The program includes over 35 research and instructional faculty, and covers topics ranging from ecosystem processes, fate and transport of organic contaminants, alternative energy, air quality, sustainability, and water and wastewater treatment. The objects of the CU Boulder Environmental Engineering Program are to prepare graduates to:

- Develop new or improved technologies and/or advance the state of knowledge of environmental engineering processes and systems and/or contaminant fate transport in natural systems.
- Independently plan, perform, assess, and communicate high-quality environmental engineering research or design solutions.
- Work and communicate effectively in interdisciplinary endeavors to solve environmental problems.
- Balance the competing social, political, economic, and technical goals entailed in advancing sustainable solutions to environmental problems.

1.2 Graduate Program Mission Statement

The mission of the Environmental Engineering Graduate Program is to equip students with the advanced understanding of the principles of environmental science and engineering, including deep knowledge in their field of specialization, enabling them to contribute to world-leading research and specialized professional practice that help protect human health, welfare, and the environment.

1.3 Environmental Engineering Degrees

With over 35 research and instructional faculty members, listed [here](#), our graduate students have access to dynamic and interdisciplinary research and courses within our PhD degree, Master's degree, and certificate options. Our program benefits from long-standing relationships of participating faculty with researchers in CU Boulder institutes and federal laboratories in the area.

- **PhD Degree:** Environmental engineering PhD students at CU Boulder take part in cutting-edge, innovative research, as well as an intensive course of study. Students focus heavily on research and partake in graduate courses, as well as graduate seminars to prepare their dissertation.
- **Master's Degrees:** Environmental engineering Master's degree students can take graduate courses and participate in research as part of three different MS degree options.
 - *Professional Master of Science (MS) Degree:* The Professional MS Degree option includes three main

thematic options: General Environmental Engineering, Global Engineering, and Water Reuse. The Professional MS option targets students and early to mid-career professionals who want to expand on their BS education, focusing on acquiring new skills for their professional growth. The courses for this degree can be taken either in person or remotely.

- *Research-Based Master of Science (MS) Degree*: The Research-Based MS option is intended for MS students interested in a short-term research experience, leading to the preparation and defense of a research-based thesis. The program emphasizes education through high-quality research for students interested in careers in industry and the public sector.
- *Bachelor's-Accelerated Master's (BAM) Program*: The BAM degree program offers currently enrolled CU Boulder environmental engineering undergraduate students the opportunity to receive Bachelor's and Master's degrees in a shorter period of time.
- **Graduate Certificate Options**: Either degree-seeking or non-degree-seeking students can enroll in certificate options offered by our program. These certificates indicate expertise in a focused topic area and are intended primarily for continuing education and non-traditional students, though they can be pursued as a supplement to the Master's or PhD curricula. The EVEN Program currently offers a certificate in **Water Engineering and Management**, as well as the **Mortenson Center Graduate Certificate**, which focuses on global development and global engineering.

1.4 Contact Information and Personnel

The Environmental Engineering Program is located in the Sustainable Energy and Environmental Complex (SEEC) at CU Boulder, with the following physical and mailing addresses:

Physical address (map):

4001 Discovery Drive
Boulder, CO 80303

Mailing address:

607 UCB
Boulder, CO 80309-0607

Overall administration of the graduate program, review of applications, and admissions decisions are handled by the EVEN Graduate Committee. This committee consists of at least four current members of our faculty, in addition to the Graduate Committee Chair. Faculty members on the graduate committee are rotated each year and represent a range of different research and educational areas in our department.

During the 2021-2022 academic year, Prof. Joseph Ryan will serve as Program Director and Ms. Jenna Rodriguez and Ms. Deanne Sylvester will be the Graduate Advisors responsible for the PhD and the Master's degree programs. Ms. Laura Vaznelis Ward will assist with program administration and coordination.



Prof. Joseph Ryan

Professor, EVEN Interim Director
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Room: SEEC S286B



Ms. Laura Vaznelis Ward

EVEN Administrative Assistant
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**Ms. Jenna Rodriguez**

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**Ms. Deanne Sylvester**

EVEN Senior Graduate Program Advisor

Email: deanne.sylvester@colorado.edu

Telephone: 303-735-5881

Room: ECOT 426

If you have a question and are not sure whom to contact, you can email us at evenoffice@colorado.edu.

1.5 Student Expectations and Policies

A complete list of CU Boulder student, faculty, and staff policies, to which the Environmental Engineering Graduate Program rigorously adheres, can be found [here](#). Select expectations and policies of greatest relevance to environmental engineering graduate students are provided in the following sections.

1.5.1 Honor Code Policy

All students of CU Boulder are responsible for knowing and adhering to the academic integrity policy. Violations of this policy may include: cheating, plagiarism, aiding academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported by emailing [the Honor Code](#) or by calling their office at 303-735-2273. Students who are found to be in violation of the academic integrity policy will be subject to both academic and non-academic sanctions (including but not limited to university probation, suspension, or expulsion).

The University Honor Code and Procedures are accessible via the Student Conduct and Conflict Resolution website and can be viewed [here](#). Additional information is also available at [here](#). All Environmental Engineering Program graduate students are expected to adhere to this code.

1.5.2 Classroom Behavior Policy

Students and faculty each have a responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to instructors with the student's legal name, but instructors will honor student requests to address them by an alternate name or gender pronoun. Students should advise instructors of this preference early in the semester so that they may make appropriate changes to their records. Additional policy details are available at [this webpage](#).

1.5.3 Discrimination and Harassment Policy

CU Boulder is committed to providing an inclusive environment where all individuals can achieve their academic and professional aspirations free from discrimination, harassment, and/or related retaliation based upon protected classes.

CU Boulder prohibits discrimination and harassment on the basis of protected-class status in admission and access to, and treatment and employment in, its educational programs and activities. For purposes of this CU Boulder policy, "protected classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, and political

philosophy.

CU Boulder takes prompt and effective steps reasonably intended to stop any form of protected-class discrimination and harassment, and related violations, to eliminate any hostile environment, to prevent its recurrence, and as appropriate, to remedy its effects.

At CU Boulder, the **Office of Institutional Equity and Compliance** (OIEC) implements this policy and administers related campus procedures. Anyone who encounters an issue or seeks guidance related to this policy should consult with the OIEC. CU Boulder employees who are mandatory reporters (i.e., “Responsible Employees”), including faculty and graduate advisors, must promptly report allegations of protected-class discrimination and harassment, and related violations, as further outlined in the policy.

The full university Discrimination and Harassment Policy can be viewed [here](#).

Instructors are required to observe religious holidays for absences from class and exams, according to the policies outlined [here](#).

1.6 Mental Health and Other Campus Resources

Students with a variety of concerns, such as academics, anxiety, body image, depression, relationships, substance use and more, should contact Counseling & Psychiatric Services (CAPS), which is a confidential, on-campus mental health and psychiatric service.

Counseling & Psychiatric Services (CAPS)

Website: <https://www.colorado.edu/counseling/>

Phone: 303-492-2277 (24/7 phone)

Location: Center for Community, N352

Office Hours: <https://www.colorado.edu/counseling/hours-and-contact>

The Office of Victim Assistance (OVA) also provides free and confidential information, consultation, support, advocacy, and short term counseling services to CU students, graduate students, faculty and staff who have experienced a traumatic, disturbing or life disruptive event.

Office of Victim Assistance (OVA)

Website: <https://www.colorado.edu/ova/>

Email: assist@colorado.edu

Phone: 303-492-8855 (24/7 phone); after hours press 2 to talk to a counselor

Location: Center for Community, N450

Office Hours: Monday-Friday 8am–5pm (summer 8:30am–4:30pm)

Additional campus resources can be found at <https://www.colorado.edu/resources> and more general health resources are available at <https://www.colorado.edu/healthcenter/>.

1.7 Grievance Procedures

The Graduate School established revised grievance procedures, effective April 1, 2019, that can be found here: **Graduate School Grievance Procedures**. These procedures are intended to provide a process by which graduate students can communicate concerns related to academic issues or academic conflicts. An additional brief guide is available [here](#). Should a student need any assistance with these procedures, they should reach out to their Graduate and/or Faculty advisor, where appropriate.

1.8 Departmental Staff Contacts

A comprehensive list of the financial, advising, communications, human resources (HR), and facilities staff members available to help faculty and students in our department can be found here: [EVEN Faculty and Staff](#). Current staff members that students may frequently interact with are:

- Laura Vaznelis Ward, Program Coordinator, laura.vaznelisward@colorado.edu
- Jenna Rodriguez, Senior Graduate Advisor, jenna.rodriguez@colorado.edu
- Deanne Sylvester, Senior Graduate Advisor, deanne.sylvester@colorado.edu
- Ashley West, HR Coordinator, ashley.west@colorado.edu
- Kayla Boster, Finance Payroll Coordinator, kayla.boster@colorado.edu
- Dorothy Noble, Laboratory Manager, dorothy.noble@colorado.edu
- Stefan Petersen, Instrumentation Lab Coordinator, stefan.peterson@colorado.edu

If students are unsure about who can help them with a particular question or problem, they should email the EVEN Program Administration at evenoffice@colorado.edu.

1.9 Academic Calendar and Registration Deadlines

Details on the 2021-2022 academic calendar can be found [here](#). Additional information on course add/drop, tuition/fees, and registration deadlines is available from the Office of the Registrar [here](#). While the Graduate Program will make every effort to provide general reminders and information about important dates throughout the academic year, students are expected to be aware of any add/drop deadlines and tuition/fees impacts of their enrollment decisions. If you are unsure of the consequences of adding/dropping a course (especially outside of your university designated enrollment window), please reach out to your Graduate Advisor.

1.10 Helpful Links

Additional resources and information of relevance to prospective and current environmental engineering graduate students can be found at:

- **Environmental Engineering Program**
- **University Home Page**
- **Graduate School**
- **College of Engineering**
- **Mortenson Center for Global Engineering**

- **Buff OneCard**
- **Bursar's Office**
- **Campus Policies**
- **Graduate School Catalog**
- **Medical Services**
- **Office of Information Technology**
- **Office of Institutional Equity and Compliance**
- **Office of the Registrar**
- **Parking and Transportation**

- **Recreation Services**
- **Athletics**
- **Regional Transportation District (RTD)**



Admissions

2.1 Overview

In the University of Colorado Boulder (CU) Environmental Engineering Graduate Program, we have a diverse group of graduate students who benefit from—and directly support—an inclusive and supportive educational environment that emphasizes shared excellence. The admissions process plays a critical role in maintaining these values, and we seek to continue growing our graduate program by emphasizing diversity, participation by under-represented groups, community engagement, and technical excellence.

Graduate admissions decisions are made by a committee comprised of the Graduate Program Chair, the graduate advisors, and faculty from the Environmental Engineering Program. When making admissions decisions, this committee conducts a holistic review of all application materials, including the completed application form, Grade Point Averages (GPAs) from prior undergraduate and graduate courses, and transcripts, as well as a statement of purpose, prior job and research experience, and recommendations from individuals who have had an opportunity to observe the ability and performance of the applicant. Although GPAs are considered in admissions decisions, they are examined in the broader context of the entire application, also taking into account the quality of the undergraduate institution.

Consistent with our mission to create an inclusive environment, substantial consideration is given to special qualities such as student motivation, undergraduate program, initiative in research, professional engineering experience, diversity in economic, social, or cultural background, employment or other experience, leadership, and perseverance in overcoming personal handicaps or disadvantages.

2.2 Eligibility

2.2.1 PhD and Master's Degree Options

For admissions to the Master's, Professional Master's, or the PhD Degree Options, applicants are normally required to hold a Bachelor's degree in engineering, natural sciences, or mathematics from an institution accredited by an agency recognized by the U.S. Department of Education. A complete list of accredited institutions and agencies is available from the [Database of Accredited Post-Secondary Institutions and Programs](#). Students with a B.S. or M.S. degree in a discipline other than Environmental Engineering must have completed or will successfully complete courses in:

- Calculus, Linear Algebra, and Differential Equations (4 semesters)
- Probability and Statistics (1 semester)
- Calculus-based Physics (2 semesters)
- General Chemistry (2 semesters, CU Boulder CHEN 1211/CHEM 1221 equivalent)
- Fluid Mechanics (1 semester)

- Fundamentals of Environmental Engineering (1 semester, CVEN 3414 equivalent)
- A college-level basic or earth science (e.g., Biology, Geology) (1 semester)

One semester of statics is recommended, as it is listed in civil and mechanical engineering as a prerequisite for fluid mechanics. This pertains to students lacking an undergraduate engineering degree who wish to pursue licensure after obtaining a graduate degree. However, the requirements for licensure can vary by state.

If an interested student has an undergraduate degree that does not cover these recommended courses or needs further information, please contact cvengrad@colorado.edu prior to applying. If a student has completed prior graduate coursework or a graduate degree that addresses some or all of the above course recommendations, they are fully eligible to apply for either the PhD or Master's degree option, even if the undergraduate degree does not satisfy the recommendations. Student eligibility will be assessed based on the information provided in their application and supporting documentation.

Note that students do not need a Master's degree to be admitted to the PhD degree option. Many of our students enroll directly from their undergraduate institution with only a Bachelor's degree.

Although we recognize that GPAs alone do not paint a complete picture of an applicant's prior performance and future potential, our most competitive applicants meet the following targets:

- **GPA:** Applicants must have at least a 3.00 undergraduate grade point average or have completed 9 semester hours of relevant graduate course work with at least a 3.25 grade point average.

Students must also show promise of ability to pursue advanced study and research, as judged by their scholastic record, four letters of reference, and a personal statement of academic and research interests.

Applicants whose undergraduate language of instruction was not English and/or international applicants are also required to take the Test of English as a Foreign Language (TOEFL), the International English Language Testing System (IELTS), or the Duolingo Language Test. Preferred scores for each of these tests are the following:

- **TOEFL:** A minimum score of 90 on the internet-based test is desired. Please note that paper-based TOEFL scores will no longer be accepted.
- **IELTS:** A minimum score of 7.0 is desired.
- **Duolingo:** A minimum score of 115 is desired.

Note, however, that the TOEFL/IELTS/Duolingo requirement is waived for international applicants for whom English is their native language, or who have completed at least one year of full-time study at a U.S. institution (or at an institution in a country where English is the native language), within two years from the desired admission term.

2.2.2 Provisional Admissions

The Graduate School requires applicants to have a cumulative minimum GPA of 3.0 from prior undergraduate and graduate study in order to be accepted into the PhD, Master's, or the Professional Master's degree option on a non-provisional basis. Occasionally, applicants with below a 3.0 GPA who demonstrate exceptional credentials in the non-GPA components of the application may be offered admission on a provisional basis.

Further information for students admitted on a provisional basis is available [here](#). The terms of your provisional admission will be outlined in your acceptance letter. Program faculty may recommend additional or alternative conditions as appropriate.

According to university policy, students admitted on a provisional basis are not eligible to hold an appointment (i.e., a Teaching or Research Assistant position) without special permission, until they fulfill the specific conditions of their provisional admission. Consequently, the department cannot guarantee initial funding availability for applicants admitted on a provisional basis.

2.2.3 Bachelor's Accelerated Master's (BAM) Degree Program

The Bachelor's Accelerated Master's (BAM) Degree Program options offer currently enrolled CU Boulder un-

dergraduate students the opportunity to receive a Bachelor's and Master's degree in a shorter period of time. Students receive the Bachelor's degree first, but begin taking graduate coursework as undergraduates (typically during their junior year). Because some courses are allowed to double count for both the Bachelor's and the Master's degrees, students receive a Master's degree in less time and at a lower cost than if they were to enroll in a stand-alone Master's degree option/program after completion of their Baccalaureate degree. In addition, staying at CU Boulder to pursue a Bachelor's Accelerated Master's Program enables students to continue working with their established faculty mentors/advisors.

Our specific BAM Program for the Environmental Engineering Program enables students to pursue a Bachelor's degree in environmental engineering and a Master's degree in civil engineering, environmental engineering, or mechanical engineering. In order to gain admission to the BAM Program described above, applicants must meet the following criteria:

- Must have a cumulative GPA of 3.00 or higher to pursue a Master's Degree in environmental engineering. For a Master's degree in mechanical engineering, a cumulative GPA of 3.25 or higher is required.
- Must have no **Minimum Academic Preparation Standards (MAPS)** deficiencies
- Must have at least junior class standing

Undergraduate applicants should contact their **undergraduate academic advisor** to learn more about the BAM Program. Students are also welcome to contact the relevant **graduate program advisor** to learn more about the Master's degree options and to determine their eligibility for admission to the BAM Program.

More information about the BAM Program, policies, and forms may be found on the **Registrar's Office website** as well as the **Graduate School's website**.

2.3 CU Boulder Graduate School Application Requirements

2.3.1 PhD, Master's Degree and Professional Master's Degree Options Application Requirements

Individual graduate departments may have additional or more restrictive standards by which they evaluate graduate applicants. For more information regarding eligibility for the EVEN Graduate Program, please refer back to Section 2.2.1. In addition to the EVEN eligibility requisites, applicants to the EVEN Graduate Program must also meet the following standards set forth by the Graduate School at CU Boulder. More information from the CU Boulder Graduate School regarding admissions can be found on the **Graduate School Admissions website**.

For students not currently enrolled as undergraduate or graduate students at CU Boulder who would like to be considered for the PhD or Master's (i.e. Professional MS or Research-Based MS) degree options, applicants must:

- Hold a Baccalaureate degree from a college or university of recognized standing (or the equivalent) and submit transcripts evidencing the same.
- Show promise of ability to pursue advanced study and research, as judged by the student's scholastic record.
- Have adequate preparation to enter graduate study in the chosen field.
- Have at least a 3.00 undergraduate grade point average. Note: applicants who cannot meet this undergraduate standard may still secure regular admissions if they have completed 9 semester hours of relevant graduate course work with at least a 3.25 average.
- Upload an unofficial copy of all transcripts in the online application. We require one copy of the scanned transcript from each undergraduate and graduate institution that an applicant has attended. This includes community colleges, summer sessions, and extension programs. While credits from one institu-

tion may appear on the transcript of a second institution, unofficial transcripts must be submitted from each institution, regardless of the length of attendance and whether or not courses were completed. Failure to list and submit transcripts from all institutions previously attended is considered to be a violation of academic ethics and may result in the cancellation of your admission or dismissal from the university. Please note that applicants will be required to submit official transcripts from all prior institutions should they wish to proceed with enrollment/registration in the CU Boulder EVEN Graduate Program.

- Provide four letters of recommendation from qualified referees. Academic references are preferred if you have recently been in an academic setting, otherwise, you may use professional references (i.e., managers, clients, etc.)
- International applicants must provide a TOEFL, IELTS, or Duolingo score if English is not their native language. This requirement will be waived if the applicant has completed at least one year of full-time study at a U.S. institution (or at an institution in a country where English is the native language) at the time of application, and within two years from the desired admission term. This can be confirmed by an applicant's transcripts. Non-native English speakers only should provide certificate of adequate spoken and written English. Preferred scores for each English proficiency exam are as follows:
 - TOEFL 90 (only internet-based tests are accepted)
 - IELTS 7.0
 - Duolingo 115
- Provide a Curriculum Vitae or Resume.
- Provide a statement of purpose describing academic/career goals and interests. Applicants should also indicate whether or not they have external funding - government fellowships, corporate sponsorships, etc. - in the statement of purpose.

To receive full consideration, all application materials (including recommendation letters, unofficial transcripts, and TOEFL/IELTS/Duolingo scores) must be received by the deadlines outlined in Section 2.4.

2.3.2 Bachelor's Accelerated Master's (BAM) Degree Program Application Requirements

Eligible students, based on the criteria outlined in Section 2.2.3, may apply to the BAM program by completing the [BAM Intent Form](#).

2.4 Deadlines

2.4.1 PhD and Master's Degree Options - Spring Admissions

Candidates who would like to begin graduate school in the spring semester must apply by the deadline listed below. Candidates should be aware that there may be fewer funding opportunities in the spring admissions cycle, and that the curricula for most graduate programs are designed to begin in the fall semester. However, a small number of students each year elect to start graduate school in the spring semester:

Spring Admissions Application Deadline: October 1st

Application closes at 11:59pm EST

2.4.2 PhD and Master's Degree Options - Fall Admissions

Candidates who would like to begin graduate school in the fall semester must apply by the deadline listed below. Candidates who submit applications by the deadlines below will have the highest chance of being considered for funding and will have the best chance of being admitted in time to be invited to our Visit Day in spring for accepted students:

Fall Admissions Application Deadline: December 1st

Application closes at 11:59pm EST

2.4.3 Bachelor's Accelerated Master's (BAM) Degree Program Admissions

Eligible students interested in applying to the BAM program can do so throughout the calendar year via the **BAM Intent Form**. Submission of applications is recommended during either the Fall or Spring semesters of a student's junior year. The deadlines for application are as follows:

Fall Semester: November 1st

Spring Semester: April 1st

Applicants considering applying later in their undergraduate career should familiarize themselves with all deadlines and requirements for progressing from undergraduate to graduate status on the **BAM website**. More specific information on the BAM Program associated with the EVEN Graduate Program can be found [here](#).

Undergraduate students who have been admitted to a BAM Program must fill out the **Master's Continuation Form** to continue with the Accelerated Master's Program. The form should be filled out early in the semester in which applicants will complete their undergraduate requirements, and they must also apply online to graduate with their Bachelor's degree through the **Buff Portal**. This process must be completed by the following deadlines:

Students graduating in May: February 1st

Students graduating in August: March 1st

Students graduating in December: October 1st

For general questions or for more information, please reach out to **Joanne Uleau**. Alternatively, interested students may reach out to their academic advisor for more in depth information.

2.5 Recruiting Activities

2.5.1 Graduate Program Visit Day

To aid accepted applicants in determining if CU Boulder is the best fit for them, they are invited to participate in our Visit Day for Accepted Graduate Students. Through this event, potential students are given the opportunity to meet faculty, tour campus and our labs, connect with current graduate students, and experience the picturesque beauty that Boulder, Colorado has to offer. This engaging and informative event takes place during spring semester.

2.6 Offers of Admission and Funding

2.6.1 PhD Degree Option

An email will be sent to accepted applicants from the Environmental Engineering Program's Graduate Committee, informing them of its admission decision. If an applicant is accepted, the attachment will list a temporary advisor and any prerequisite courses required by the applicant's specialization program. Shortly thereafter, an official admission notification email will be sent to you from the Admissions Office. The applicant must respond to all forms received from that office in order to become a student at the University of Colorado Boulder.

If the applicant accepts admission, one original transcript from each college or university attended must be sent directly to the Graduate School Office of Admissions by the school that issued them. If the transcript is issued to the applicant, the Office of Admissions must receive them in a sealed envelope from the issuing university.

An advising stop will be placed on an incoming graduate student's university record when it is activated (the refundable deposit has been paid). This stop will be removed when the student has contacted their advisor.

Students applying to the PhD degree option will automatically be considered for funding as part of the admissions application process. Applicants will be informed of any available funding in their letters of acceptance. This also includes any offers of financial support in the form of assistantships or fellowships. If we decide to offer financial support in the form of assistantships or fellowships, applicants will be notified when a decision

has been made.

2.6.2 Master's Degree Options

Generally, Master's students are expected to self-fund their studies and, in nearly all cases, are admitted to the MS option with no offer of funding. Specifically, TA and RA funding from the EVEN Program is reserved for PhD students, although a limited number of Research-Based MS students may receive a TA or RA appointment through their research advisor. Such appointments are left to the discretion of the advisor and are not guaranteed even with acceptance or transfer into the Research-Based MS option.

In accordance with Graduate School regulations, students in the Professional MS option are not eligible for RA or TA appointments. However, funding opportunities for Professional MS students do exist in the form of hourly employment.

2.6.3 Offer Acceptance Deadlines

The deadline for applicants to accept offers of admission and funding are:

PhD and Master's Degree Options: April 15th

Note that an offer of either admission or funding is only considered "accepted" if the enrollment deposit is paid, in full, by the above deadlines. If the deposit is not paid and no request for deferral has been made prior to the deadline, the offer will be considered as "declined" and will be rescinded by the department at its discretion.

2.6.4 Deferrals

Students who have accepted an offer of admission to either the PhD or Master's options may request a deferral of their admission for up to one year. Both PhD and MS students may request to defer their admission to either the following fall or spring semester. Deferral requests will be considered on a case-by-case basis and should be communicated by email to cvengrad@colorado.edu.

Note that some sources of funding may not be deferred to future terms. Applicants considering deferment should make sure to clarify the future availability of any funding offer.

2.7 Internal Applicants and Changes of Program

It is not uncommon for current CU Boulder students to seek admission into the Environmental Engineering Graduate Program.

All candidates for admission, including internal applicants, are evaluated based on the same high standards of eligibility enumerated in Section 2.3 by the graduate admissions committee.

2.7.1 Transfers within the Environmental Engineering Program

Requirements and procedures for each category of in-department program change are as follows:

From Bachelor's to Professional Master's, Master's, or PhD: All current CU Boulder undergraduate students, including those in the Environmental Engineering Program but not in the BS/MS or BAM programs, are required to submit applications according to the requirements outlined in Section 2.3 and the deadlines outlined in Section 2.4. Although these students follow the same application process as external applicants.

From (i) Professional MS (including BS/MS and BAM) to Master's; (ii) Master's to Professional Master's; or (iii) PhD to Master's/Professional Master's: Current EVEN graduate students can be considered for these program changes by completing the [Graduate Program Change/Addition/Discontinuation Form](#). Submit the form by December 1 to request a spring semester start, April 1 to request a summer semester start and August 1 to request a fall semester start.

2.7.2 Transfers into the EVEN Program for Current CU Boulder Students

All current CU Boulder undergraduate students outside the Environmental Engineering Program, but not in the BS/MS or BAM programs, are required to submit applications according to the requirements outlined in Section 2.3 and the deadlines outlined in Section 2.4. Application fees are waived for these students.

For current graduate students in other departments at CU Boulder, transfers into either the Master's or PhD

degree options can again be initiated by completing the [Graduate Program Change/Addition/Discontinuation Form](#). Additionally, **all** such applicants are required to provide:

- The name and contact information of a current member of the CU Boulder faculty who can comment on the appropriateness of the change into the Environmental Engineering Graduate Program. In the case of students transferring into the PhD option without departmental funding, this letter should come from a research advisor who commits to supporting the student for the duration of the PhD.
- A two-page statement from the student outlining reasons for pursuing a degree in environmental engineering, as well as research interests and prior research and professional experience if the student seeks to transfer into the Research-Based MS or PhD options.
- Unofficial transcripts from CU Boulder and all prior undergraduate and/or graduate institutions.
- A current copy of the student's CV. Helpful guidelines on the creation of academic CVs have been compiled by [Cornell University](#) and the [University of Illinois Urbana-Champaign](#).

Students requesting transfer into either 1) the MS option; or 2) the PhD option, without request for department funding (i.e., those with an external fellowship or funding secured directly from the Research Advisor), are eligible to transfer at the beginning of any semester. The [Graduate Program Change/Addition/Discontinuation Form](#) should be submitted by December 1st for requests to begin during the spring semester, by April 1st for requests to begin during the summer semester, and by August 1st for requests to begin during the fall semester.

PhD applicants seeking department funding are only eligible for transfer beginning in a fall semester. In these cases, the form must be submitted by January 15th to be considered for transfer beginning the following fall semester. Students will be considered, in conjunction with all external candidates applying to the PhD option, for a full academic year TA or RA appointment.

Note that these procedures and requirements apply even to students who are changing from another PhD program at CU Boulder into the Environmental Engineering PhD Degree option.

As with in-department transfers, BS/MS and BAM students are only eligible to transfer into the PhD option if they have already completed their undergraduate degree(s); additional requirements may be applicable as well.

Additionally, BS/MS and BAM students are prevented by university policy from counting any credits that were applied towards both the undergraduate and Master's degrees to a PhD degree; therefore, additional coursework beyond the requirements for the Master's degree will be required.

2.8 Certificate, Non-Degree, and Continuing Education Programs

2.8.1 Mortenson Center in Global Engineering Graduate Certificate

Any student currently enrolled in a graduate degree program offered by the College of Engineering and Applied Science at the University of Colorado Boulder may apply for concurrent enrollment in the Mortenson Center in Global Engineering Graduate Certificate. Students interested in completing the Mortenson Center Graduate Certificate must submit a Certificate Enrollment Form signed by the student's academic advisor prior to being able to register for Mortenson courses. General information regarding this graduate certificate can be found [here](#). Please contact [Laura MacDonald](#), Managing Director of the Mortenson Center in Global Engineering and graduate certificate program director, for further information.

2.8.2 Water Engineering and Management Graduate Certificate

The Water Engineering and Management Graduate Certificate complements a technical Master's degree by providing an in-depth study of the skills and tools demanded by the rigors of the water profession. The courses are available to all graduate students and can be completed on campus or through distance learning. Applicants must meet the admission requirements of holding a baccalaureate degree in engineering or related field and they must convey an understanding of the water profession.

Students interested in completing the Water Engineering and Management Graduate Certificate must submit

an [Application Form](#). More information on this program can be found [here](#).

2.8.3 Non-Degree and Continuing Education

Students not currently enrolled as a degree-seeking student at CU Boulder may be eligible to pursue individual graduate coursework. For consideration, students should complete the Online Enrollment Application through the [Office of Continuing Education](#).

2.9 Faculty Advisor

Accepted applicants will be assigned a faculty advisor as part of the admissions process. Each student's initial faculty advisor will be listed in the acceptance letter attached to the email regarding their admissions decision. This letter can be accessed via the application portal. If a student wishes to change advisors, this will need to be communicated to both the current and new faculty advisors. If both faculty members agree to the change, the student will need to contact the graduate program advisor to have the change officially made in the Buff Portal.



Tuition, Fees, and Funding

3.1 Overview

We recognize that the cost of studying and living in Boulder is an important consideration for students of all levels. Although tuition and fees are set by the University, in the Environmental Engineering Program we attempt to provide as much financial support as possible for our graduate students. This support includes multi-year Teaching and Research Assistant (TA and RA, respectively) appointments and hourly employment opportunities. Through these funding opportunities, we attempt to promote educational and research excellence, diversity, and community, while ensuring that graduate students are able to complete their degrees without undue or unforeseen financial burdens.

3.2 Tuition and Fees

Because tuition and fees are charged at variable rates based on residency, program, student status, and number of enrolled credits each semester, a good understanding of the structure of tuition and fees can help to maximize the return on educational investment.

Detailed information on tuition and fees is available at [this section](#) of the [CU Bursar's Office website](#). After choosing the appropriate semester on this page, PhD and MS Thesis student tuition rates are listed under the "Graduate" heading, while Professional MS tuition rates are listed under the "Professional Graduate" heading.

Fees are determined based on a number of factors. To determine the fees for which you are responsible, first identify your graduate status on the [Graduate School website](#). Then, a full list of mandatory fees, by graduate status, can be found [on the fees section](#) of the Bursar's Office website.

Important tuition and fee policies to note are:

- Fees accompany even 1 credit hour of tuition and should be taken into account when calculating educational costs.
- New domestic PhD students, including current CU Boulder students switching into the PhD option, are required to establish Colorado residency within 1 year of starting the PhD option. Further detail on the requirements to establish residency are provided in [Section 3.3](#).
- Students must be enrolled in classes during the first semester in which they enter a new degree option, requiring the payment of tuition and fees. For this reason, it is uncommon (although not impossible) for students to start new degree options during Summer terms.

Further questions about tuition and fees can be directed to the [graduate advisors](#).

3.3 Establishing Residency

New domestic PhD students who are not already Colorado residents must establish residency prior to the beginning of their second year. Any student wishing to establish Colorado Residency, including MS students, should take action immediately. Instructions on how to do establish residency are available from [the Registrar's Office](#). Additional residency guidelines are available [here](#). It takes exactly one year to gain residency and residency status may affect the possibility of future funding opportunities. Students should plan to complete the residency petition in their second semester.

3.4 Funding Overview

3.4.1 PhD Students

PhD students are admitted into the EVEN Graduate Program only after they have identified an advisor, who has committed to support the students for the duration of their PhD work. Typical funding available to PhD students is in the form of TA or RA appointments. TA appointments are offered as part of support for specific courses. RA appointments are offered via specific grants. There are also other funding opportunities available through fellowships. University policy requires appointments for all graduate students be administered on a semester-by-semester basis. As such, if students have any questions about future funding, we encourage them to discuss plans with their faculty research advisor early each semester. Additional questions regarding funding can be directed to the [graduate advisors](#).

3.4.2 Master's Degree Students

Students admitted to the Master's degree options, including BAM students, are expected to secure their own financial support.

While Research-Based MS students are eligible for TA and RA appointments, these opportunities are limited. There is no formal application process for Research-Based MS students to pursue assistantships.

Students in the Professional MS option are not eligible for TA or RA appointments, but are eligible for hourly employment as graders, administrative assistants, and research assistants. These positions do not provide coverage of tuition, fees, or health benefits, but do provide hourly pay at the rate of \$12-\$16 per hour.

3.5 Assistantships

Assistantships are the primary mechanism for financially supporting PhD students. Recipients are awarded coverage of tuition, 90% of university health plan costs, and a living stipend in the form of a monthly salary. Students on an assistantship are required to work, either in a teaching or research capacity, for up to 20 hours per week during the fall and spring terms. During the summer term, students are eligible to receive assistantships with a 40 hours per week work commitment and an increased living stipend, although most students remain on a 20 hour per week appointment throughout the year.

All PhD students are eligible for assistantships. While eligible, MS students receive assistantship funding on a very limited basis. Professional MS students are not eligible to receive assistantships from any department. Further information on appointments is available in the [CU Graduate Student Appointment Manual](#).

3.5.1 Teaching Assistantships

Teaching assistants (TAs) play a vital role in supporting the educational mission of the program and the College of Engineering and Applied Sciences. Under the mentorship of faculty, students have the opportunity to develop their pedagogical skills and further enhance their knowledge in the engineering field. Extensive information and resources for TAs are available in [Appendix D](#).

3.5.2 Research Assistantships

In most cases, research assistants (RAs) are funded directly by faculty through sponsored project or grant funding. As such, specific duties will vary based on the nature of the research and the faculty member. In conjunction with the PhD curriculum, research assistantships provide broad exposure to the research process from grant proposal to publication.

In addition to faculty-funded research assistantships, PhD students may be offered one of two special assistantships in recognition of their outstanding potential. All PhD applicants are automatically considered for

special assistantships with their application for admission. Current PhD students are not eligible to be considered for special assistantships.

- **Dean's Graduate Assistantship:** This Assistantship is jointly funded by the Environmental Engineering Program and the College of Engineering and Applied Sciences. It is intended to support outstanding PhD students during their first academic year of graduate studies and encourages them to pursue research in key areas of national and global need.
- **Dean's Graduate Innovation Assistantship:** The Dean's Graduate Innovation Assistantship is jointly funded by the Environmental Engineering Program and the College of Engineering and Applied Sciences. It is intended to support outstanding PhD students for four years of graduate studies and provides additional training opportunities and significant visibility across the college.

3.5.3 Compensation Rates

Monthly stipend compensation rates for student assistantships, based on PhD student status, are the following:

- **Pre-comprehensive exam:** \$2575 per month
- **Post-comprehensive exam:** \$2675 per month

Additional detail on these PhD student statuses is available in Chapter 4. MS students with RA/TA appointments are paid at the pre-comprehensive exam rate.

3.6 Scholarships and Fellowships

3.6.1 Diversity Scholarship

Diversity and inclusivity are values embodied in the strategic visions of both the College of Engineering and Applied Sciences and the Environmental Engineering Program. We are committed to fostering a diverse and equitable environment for our students in all respects, inclusive of financial support. The Diversity Scholarship offers incoming and current students the opportunity to apply for funding worth \$1000 – \$4000 per semester.

The application for the Diversity Scholarship will be available each semester. The graduate program will market the application deadlines and specific requirements for the scholarship via the graduate student listserv and the program website. While students may apply for the scholarship during any semester the application is open, preference will be given to students who have not previously been awarded a diversity scholarship.

3.6.2 Dean's Graduate Fellowships

Dean's Graduate Fellowships are awards supported by the College of Engineering and Applied Sciences. PhD applicants are automatically considered for this fellowship with their application for admission. Dean's Graduate Fellowships are awarded to applicants that show exceptional potential during the admissions process.

3.6.3 University Graduate Fellowships

University Graduate Fellowships are awards supported by the University of Colorado and the Graduate School. PhD applicants are automatically considered with their application for admission. University Graduate Fellowships are awarded to the top applicants for each incoming class of PhD students. Fellowship amounts can vary, with a maximum award of \$5000 per year. These awards are provided in addition to the tuition, health insurance and living stipend provided by a student's assistantship.

3.7 Hourly Employment

The EVEN Program offers several opportunities to students in the form of hourly employment. Students in hourly positions may engage in either course, research, or administrative support. Hourly pay for a research project requires the commitment and support of a faculty advisor.

Hourly positions typically span 5-20 hours per week during the academic year and up to 40 hours per week during the summer. Students in hourly positions are not permitted to work more than 20 hours per week during the academic year or 40 hours per week during the summer. Compensation rates vary by position.

Hourly employment is available for any graduate student who is not funded through a TA or RA position or similar external funding, though requirements can vary based on position.

The graduate program will reach out to students, via the graduate student listserv, when applications are open. Selection for these positions can be competitive due to semester-to-semester variance in the number of positions available.

Occasionally, hourly employment opportunities arise on an ad-hoc basis. Any such opportunities will be marketed to students through the graduate student listserv.

Note that, unlike assistantships, hourly employment does not cover tuition, fees, or health insurance.

3.8 External Funding and Fellowships

A short list of funding opportunities that EVEN students have applied for in the past are listed below. This list does not encompass all external funding opportunities. Faculty advisors may also have more information about external funding opportunities for specific fields of study.

- [National Science Foundation Graduate Research Fellowship](#)
- [National Defense Science and Engineering Graduate Fellowship](#)
- [NASA Earth Science Fellowship](#)

Additionally, the graduate school provides an extensive list of funding opportunities found [here](#).

3.9 Travel Awards

There are many travel award opportunities available to graduate students. Deadlines for these grants are communicated via the graduate student listserv whenever possible and can be checked at the links below.

UGGS Travel Grant

There is currently a suspension of all university-funded international and domestic travel. Students who applied and received the UGGS travel grant for the upcoming academic year and are unable to use it for the upcoming semester will have until the end of this academic year (FY 2020-2021) to use their funds. Students will not need to re-apply.

The United Government of Graduate Students (UGGS) awards funding (up to 300 dollars) to individual graduate students each academic semester to support travel to academic conferences, meetings, or other events related to the student's studies.

Graduate School Travel Grant

This grant has three application cycles per year for domestic (including Mexico and Canada) and international (excluding Mexico and Canada) travel. The dates for the application cycle can be found in the link above. All applications open at 12:01AM MST on the open date and close at 11:59PM MST on the date listed. If you received travel grant funding from the Graduate School during the last application cycle (May for current fall applicants, November for current spring applicants) you may not apply during this cycle. Master's students can receive travel funding once, and PhD students can receive funding twice during their studies at CU. The Graduate School provides a travel grant of \$300 for domestic conferences and \$500 for international conferences.

Dean's Travel Grant

Graduate students must first apply for, and be denied, funding through the Graduate School before submitting this application. Applications must be submitted a minimum of 2 weeks prior to travel departure to allow for processing time.

3.10 Other Funding Opportunities

3.10.1 Dissertation Completion Fellowship

This fellowship is offered by the CU Boulder Graduate School and is intended to provide outstanding PhD candidates with financial support to assist in the process of completing their doctoral dissertations. The fellowship consists of full support for one academic semester (either fall or spring of the following academic year), and includes a monthly stipend equal to that of the current 50 percent Graduate Part-Time Instructor (GPTI) salary, tuition coverage of up to five dissertation hours, mandatory fees, and coverage under the student gold health insurance plan. More information regarding eligibility and the application process for this fellowship can be found on the [Graduate Students Grants](#) page of the CU Boulder Graduate School website.

3.11 Taxes

Graduate students are responsible for taxes according to the rules and regulations of the Internal Revenue Service (IRS). Graduate advisors and financial staff in the Environmental Engineering Program are not trained or able to provide advice on taxes, but substantial info is available through the [Bursar's Office](#). Please note that there may be special requirements for international students; more information can be obtained [here](#).

3.12 Pre-Enrollment Pay Policy

Faculty will occasionally invite incoming PhD or Research-Based MS students to begin working in their lab prior to the student's first term of enrollment at CU Boulder. In these cases, students are eligible to be paid as an hourly employee, but are not eligible for an RA appointment. The hourly rate available may change from year-to-year.

3.13 Important Note on Full-Time Status and Financial Aid

The Graduate School's definition of full-time student status can vary from the requirements for full-time student status in regards to financial aid. If an applicant has any funding from outside the program or their research group, it is important to ensure that they communicate with the financial aid office and funding sponsors about possible enrollment requirements they may be subject to. This is also true if they are deferring any student loan payments from previous degrees. In both cases, enrollment requirements may be higher than the Graduate School requires.



PhD Degree Option

4

4.1 Overview

The Environmental Engineering PhD Degree option is available to students who are entering graduate studies for the first time (i.e., with a BS or BA degree), as well as to those who already have a Master's of Science (MS) degree. Many incoming PhD students will have degrees in engineering, although students from other fields, such as physics, mathematics, biology, and chemistry are also routinely admitted and must acquire any missing coursework during the course of their PhD studies. Students graduating with a PhD from the CU Boulder Environmental Engineering Program are expected to have extensive fundamental and foundational knowledge in their field of study, in addition to being experts in their area of research.

4.2 Mission Statement

The mission of the Environmental Engineering Graduate Program is to equip students with advanced understanding of the principles of environmental science and engineering, including deep knowledge in their field of specialization, enabling them to contribute to world-leading research and specialized professional practice that helps protect human health, welfare, and the environment.

4.3 Timeline

A PhD student entering without prior graduate coursework will take around 5 years, on average, to complete the PhD degree. However, it is not uncommon for students to finish both earlier and later than this five-year average. A student entering the PhD option with prior graduate coursework from another university may be eligible to transfer up to 21 credit hours to CU Boulder and can typically finish in 3-4 years. Regardless of the time taken to complete the PhD, the primary emphasis is on remaining at CU Boulder long enough to complete high quality research that satisfies the requirements of the PhD dissertation and defense. If a student is nearing the completion of their 6th year in the PhD option, they are required to file a time-limit extension with the CU Boulder Graduate School via this [online form](#). Please contact the [graduate advisors](#) for more information on requesting a time limit extension.

4.4 Requirements

In order to successfully complete the Environmental Engineering PhD option, students must meet the following requirements, which are also outlined on the [EVEN website](#).

4.4.1 Course Requirement

PhD students must complete a minimum of 30 graduate-level credits at the 5000 level or higher. All PhD students must take two core courses: Environmental Engineering Processes and either Water Chemistry or Atmospheric Chemistry. In addition to these core courses, PhD students must also complete a quantitative analysis course (3 hours - satisfied by CVEN 5537, CVEN 5454, MCEN 5020, or a similar graduate-level class). Additional information on the other required classes may be found in [Appendix C](#).

At the time of application, PhD students may choose from six research focus areas to help guide the selection of courses. Additional detail on the courses recommended in each focus area is provided on the [Environmental Engineering Program website](#).

In order to receive credit towards the PhD degree, students must receive a grade of at least B- in each course taken. Courses in which a grade below B- is achieved cannot be counted towards the PhD course requirement. Generally, courses taken on a Pass/Fail basis cannot count towards the PhD course requirement. However, courses taken for Pass/Fail in the Spring 2020 semester are eligible to meet course requirement, as long as a Pass/Pass Plus final grade was received. This exception was granted by the Graduate School in light of the irregular semester delivery due to COVID-19 protective measures. If a course is taken Pass/Fail, and a student receives a Fail grade, this will be factored into the student's cumulative GPA.

Students must have a cumulative 3.0 GPA in order to be eligible for graduation.

4.4.2 Graduate Seminar Requirement

In addition to the course requirements, Environmental Engineering PhD students must also complete four semesters of Environmental Engineering Graduate Seminar. Students must attend two-thirds of the non-credit graduate seminars offered each semester in order to satisfactorily complete this requirement. Attendance to the seminar series is part of the different professional development activities that the program provides to the students, and is therefore an integral part of the graduate experience.

General information regarding the graduate Seminar Series and upcoming seminars can be found on the [EVEN website](#)

4.4.3 Transfer Credit

Note that students do not need an MS degree to be admitted to the PhD option, but students who already have an MS degree, or have completed eligible graduate level coursework, may transfer up to 21 hours of credits towards the PhD course requirements. More information is available on the second page of the [Request for Transfer of Credit Form](#) from the CU Boulder Graduate School. To transfer credits, students must fill out and submit this form to their graduate advisor. Students must also submit an official transcript showing the credits they wish to transfer. If an official transcript with these credits was not submitted when starting the PhD degree option, a new transcript will need to be submitted. Directions on how to submit an official transcript can be found [here](#).

Note that requests for transfer credit can only be made after completing 6 credits of graduate level coursework at CU Boulder with a 3.00 GPA. These requests should be submitted as soon after completion of this 6 credit requirement as possible. Typically, this means that transfers of credit are processed during the second semester of PhD study at CU Boulder. Additional information on transfer of credits is available in Section 6.5 of Chapter 6.

4.4.4 Preliminary Exam

All PhD students must successfully pass the Preliminary Exam, which is intended to assess the potential to successfully complete a PhD in environmental engineering. The objective of the exam is to evaluate a prospective PhD candidate's understanding of aspects of the core areas for environmental engineering and the need for additional courses or other actions that may bolster this understanding.

The Preliminary Examination emphasizes the core areas that pertain to the student's planned research topic. The goal is to have the students advance to their PhD Comprehensive Exam with an appropriate level of knowledge regarding their topic of research. The core areas in the Environmental Engineering Program are:

- General Environmental Engineering
- Drink Water, Wastewater, and Water Reuse Engineering
- Natural Water Engineering
- Global Engineering

- Air Quality Engineering
- Environmental Change Adaptation Engineering

The Preliminary Examination consists of two parts: a PhD dissertation prospectus and an oral presentation. A more in-depth explanation of the Preliminary Examination and how to prepare for it can be found in the [Overview of Preliminary Exam](#). This information is also summarized in Appendix E

The exam should be taken no later than **the end of the student's third semester or 12 months from the time the student is first enrolled** in the PhD option and after the completion of the relevant core courses in the core areas. The student will collaborate with his or her PhD advisor to schedule the exam with the Environmental Engineering Faculty. The Preliminary Exam may be scheduled during the fall or spring semester of the academic year.

Please note that PhD students must pass this Preliminary Examination in order to continue in the Doctoral Program.

4.4.5 Comprehensive Examination (Comprehensive Proposal)

The Comprehensive Exam (Comprehensive Proposal) entails preparation of a written thesis proposal and defense of the proposal before the student's dissertation committee. The committee must have at least five members with research expertise relevant to the dissertation topic. At least three of the committee members must be members of the Environmental Engineering Program Faculty.

Timing for the exam is determined by the student and their faculty advisor, but will normally be scheduled after all course work is completed and at least one year before the anticipated date of PhD completion. Candidates must schedule their exam **within six months** of successful completion of the preliminary exam and **at least three semesters** prior to the dissertation defense. To satisfy University rules, candidates must also have completed thirty units of course credit (including credits transferred from another institution) prior to completing their Comprehensive Examination (Comprehensive Proposal).

An Environmental Engineering PhD degree requires depth of knowledge in the dissertation/research area, as well as breadth of knowledge across the environmental engineering curriculum. Consequently, the Comprehensive Exam is designed to test student knowledge of their proposed research area, and any general knowledge in the field. It is also intended to evaluate whether a student's proposed research project is original and creative work, whether it will make a significant impact in the field, and whether it will qualify for publication in quality peer-reviewed journals. The exam is also an opportunity to demonstrate an ability to present scientific concepts orally. In short, the Comprehensive Exam serves as the gateway to the next phase of the doctoral program: completion of a dissertation.

The Comprehensive Exam consists of the following components:

- **Identification of Research Needs:** In this section, the significance of the research topic must be demonstrated.
- **Preliminary Results:** A brief description of preliminary results that have helped the candidate identify future research needs in their proposal may be included.
- **Hypotheses:** The candidate should state their hypotheses, "scientific positions," that they have taken on the basis of literature review and preliminary work.
- **Research Plan:** The plan for future research should comprise the bulk of the Thesis Proposal.
- **Tentative Schedule and Budget:** The candidate should include a realistic schedule and budget for their research plan.
- **References:** A list of reference cited in the text should be included with publication information.

Students can find more detailed information regarding the Comprehensive Examination (Comprehensive Proposal) in the [Overview of Comprehensive Exam](#), which is also summarized in Appendix F.

Failure to pass the Comprehensive Examination may be remedied by repeating the examination after an inter-

val of not less than four months.

4.4.6 Dissertation Hour Requirement

In addition to coursework, PhD students are required to complete 30 PhD dissertation hours. Students are not able to register for dissertation credits on their own. Thesis, dissertation and independent study credits can only be added by the Graduate Advisor with the approval of the faculty. Thesis and dissertation hours should be requested via the [Course Agreement Form](#) prior to the start of the semester.

The following Graduate School rules apply to enrollment in dissertation hours and should be considered when determining how many dissertation hours to register for each semester:

- PhD students must be registered as full time, regular degree-seeking students at CU Boulder for a minimum of 5 dissertation hours during the semester in which they defend the dissertation.
- A student may not register for more than 10 dissertation credit hours in any one semester, including summer.
- A PhD student is required to register continuously as a full-time student for a minimum of five dissertation hours in the fall and spring semesters of each year, beginning with the semester following the passing of the comprehensive examination and extending through the semester in which the dissertation is successfully defended.
- Prior to passing the comprehensive exam, PhD students are considered by the Graduate School to be full-time if they are registered for at least 1 dissertation credit per semester.

There is little advantage to a student registering for more than 30 dissertation hours during the course of their PhD, and students should attempt to complete this requirement in the semester in which they defend. Please contact [the graduate advisors](#) for assistance with planning dissertation hour enrollment.

4.4.7 Written Dissertation

The written dissertation must comply with Graduate School rules and procedures in terms of format and submission. Full details on formatting requirements are available [here](#), and deadlines and resources to assist in finalizing your dissertation are available [here](#).

The dissertation title appears on official university transcripts and must be submitted to the Graduate School in addition to the physical signature page from the dissertation. Students are also required to submit the full written dissertation electronically at the [ProQuest website](#). While specific dates for deadlines can be found [here](#), the general timeline for these requirements is as follows:

- Final dissertation title submission is due about two months into the final semester.
- The oral dissertation defense must be passed shortly after this date.
- One week after the defense deadline, students must:
 - Electronically submit the written dissertation
 - Upload the [Thesis Approval Form](#) as a supplemental file with the thesis in order for the submission to be complete.

Please see Chapter 3 for information on department support for dissertation printing costs.

4.4.8 Dissertation Defense

Before completion of the PhD degree, students must have their dissertation accepted for defense by the thesis committee. The dissertation defense may occur before or after the final electronic submission of the written dissertation to the Graduate School, but must take place prior to the end of the final semester of enrollment.

Students must then pass a dissertation defense, which is a final examination on the dissertation and related topics. In the defense, students are expected to explain their research clearly and concisely, and to discuss how it relates to other research in the field. This is an opportunity for recognition of completed doctoral work. It is also an opportunity for discussion and formal evaluation of the dissertation.

All required forms should be submitted on time according to the following deadlines:

To the Department: The Doctoral Examination Report should be submitted to [the graduate advisors](#) at least 3 weeks prior to the defense.

To the Committee: The written dissertation should be sent as a single pdf file by email to all members of the defense committee, as well as to [the graduate advisors](#), at least 2 weeks before the defense. This deadline is intended to allow the defense committee sufficient time to review the dissertation and to formulate questions and feedback. Prior to the defense, students should contact all members of the committee to assess their areas of interest and concerns. This will help students anticipate any questions that will be asked.

Students must be registered as full time, regular degree-seeking students at CU Boulder for a minimum of 5 dissertation hours during the semester in which they pass the examination. The examination is conducted by a committee appointed by the chair of the major department and approved by the Dean of the Graduate School, and consists of at least five people:

- One committee member must be outside the student's major department
- Three of the members must be EVEN faculty

The chair and outside member of the committee must have regular or tenured Graduate Faculty appointments. The other committee members must have either regular or special Graduate Faculty appointments. More than one dissenting vote disqualifies the candidate in the final examination. The committee chair and a majority of the committee must be present on the Boulder campus for the examination.

Students should coordinate scheduling the examination with the committee, and should schedule the examination for two hours. The examination is wholly oral and open to the public for the first portion of the examination.

Students must prepare and present a professional oral presentation that summarizes the dissertation. This presentation should be 45-50 minutes in length and delivered to the examination committee. The oral presentation portion of the examination is open to all students and faculty. Questions are entertained at the end of the presentation.

The final part of the examination is closed to only the student and the examination committee. During this portion, questions are entertained that cover the field of concentration and related fields. More than one dissenting vote among the committee constitutes an unsatisfactory exam. A student who fails the exam may attempt it once more after a period of time determined by the committee.

4.5 PhD Student Status

As the requirements towards the PhD degree are completed, PhD students will advance from pre-preliminary exam, to post-preliminary exam, to post-comprehensive exam, status. Milestones required to achieve each status are the following:

- **Pre-preliminary exam status (Pre-prelim):** Students enter the PhD degree option with pre-prelim status and will typically remain at this status through their first three semesters at CU Boulder.
- **Post-preliminary exam status (Post-prelim):** Completion of mathematical proficiency requirement, research development requirement, and the oral preliminary exam. PhD students typically advance to this status during their 3rd semester (i.e. the middle of year 2) at CU Boulder. This status is also sometimes referred to as "Pre-Comprehensive Exam" status.
- **Post-comprehensive exam status (Post-comps):** Completion of the comprehensive exam and the course requirement, typically by the end of year 4 at CU Boulder.

4.6 Application For Graduation

In order to graduate with the PhD degree, students must complete all course and dissertation hour requirements, as well as write and defend their dissertation. Additional details on each of these requirements are provided above.

To graduate with the PhD degree, students must apply online through their [myCU portal](#). On the "Student" tab,

select the “Apply for Graduation” link under “Academic Resources.”

The application for graduation is due a few weeks after the start of the desired graduation semester. Full details on requirements and deadlines can be accessed on the Graduate School PhD [graduation webpage](#). Information regarding upcoming graduation deadlines can also be found on the [Registrar’s Website](#). If you did not submit the [Candidacy Application for Advanced Degree](#) when completing the comprehensive examination, it must be submitted to [the graduate advisors](#) prior to applying for graduation online.

PhD students must be registered as a full time, regular degree-seeking student, for a minimum of 5 dissertation hours during the semester in which they pass the final exam. If a student is unable to meet the Graduate School’s posted defense deadline for that semester, they should consult with their faculty advisor about graduation options.

Detailed graduation information will be communicated to all students through the graduate student listserv at the beginning of each semester.

4.7 Annual Survey

Beginning with the end of the spring semester, the graduate program will conduct an annual survey of PhD students. The purpose of this survey will be to evaluate the overall PhD student experience within the Environmental Engineering Program over the previous academic year. The survey will be conducted anonymously and a report of results will be shared with faculty, staff and students within the department.

4.8 Master’s Degree as a PhD Candidate

Although a Master’s degree is not required for a PhD, students can earn one while working toward the PhD. This is accomplished by applying for an MS degree when 30 graduate course hours have been completed. All requirements described in [Chapter 5](#) must be completed in order to receive the MS degree; the procedure to apply for graduation with the MS degree is also provided in this chapter. PhD students must notify the graduate program advisor and their faculty advisor within the first two weeks of the semester in which they intend to graduate with the MS degree.



Master's Degree Options

5

5.1 Overview

Master's degree students in the CU Boulder Environmental Engineering Program take graduate courses and participate in research and/or project based learning as part of three different degree choices, each leading to a Master's of Science (MS) degree in Environmental Engineering.

- **Professional MS Option:** This coursework-focused degree option emphasizes both project-based and curriculum-driven learning. It is targeted at working engineers and undergraduates considering, or already pursuing, a career in industry, but can also be completed with the ultimate goal of matriculating in a PhD degree option. Currently, the EVEN Program offers 3 PMP degree options: a general degree, one focused on Water Reuse, and one focused on Global Engineering.
- **Research-Based MS Option:** This option is intended for MS students interested in a short-term research experience, leading to the preparation and defense of a research-based thesis. The program emphasizes education through high quality research for students interested in careers in industry, the public sector, and academia. In order to enroll in the Research-Based MS Option, students must first secure a faculty advisor
- **Bachelor's Accelerated Master's (BAM) Program:** Current undergraduate students in environmental engineering may pursue either an Professional MS or Research-Based MS degree through this option.

Many incoming MS students will have prior degrees in some type of engineering, although students from other fields, such as physics, mathematics, biology, and chemistry are also routinely admitted and can acquire any missing background material during the course of their MS studies.

5.2 Mission Statement

The mission of the Environmental Engineering Graduate Program is to equip students with advanced understanding of the principles of environmental science and engineering, including deep knowledge in their field of specialization, enabling them to contribute to world-leading research and specialized professional practice that helps protect human health, welfare, and the environment.

5.3 Timeline

Most Professional MS students complete the requirements for the degree in 2 years of full-time study, although it is not uncommon to graduate in 3 semesters or to take more than 2 years, particularly if one is also working full-time.

Research-Based MS students typically require at least 2 years to complete their degrees. BAM students may require two or three additional semesters of study beyond completion of their undergraduate degrees.

Full-time study is defined by the Graduate School as enrollment in 5 or more graduate credits per semester. Part-time study is permissible throughout the duration of the program, or for select semesters, as long as the following Graduate School requirements are met:

- Full-time enrollment for at least 2 semesters; or
- Part-time enrollment for at least 4 semesters; or
- Full-time enrollment for 1 semester and part-time enrollment in 2 or more semesters.

Master's students, whether part- or full-time, must complete their degree requirements within 4 years of their first semester of enrollment. If more time is needed, students can request a time-limit extension from the Graduate School by filing a time-limit extension via [this online form](#). Please contact the [graduate advisors](#) for more information on requesting a time limit extension.

5.4 Requirements

5.4.1 Professional MS Degree Option

For students interested in the the Environmental Engineering Professional Master's Degree option, there are three tracks available to students pursuing the Professional Master's Degree:

- Water Reuse
- General Environmental Engineering
- Global Environmental Engineering

All Professional MS students must complete the following requirements to be eligible for graduation:

- **Coursework:** 30 graduate-level credit hours must be completed with at least a grade of C in each course, with a minimum cumulative GPA of 3.00.
- Elective courses will be determined in consultation with the student's faculty advisor.
- For students who have undertaken prior graduate study, up to 9 hours of relevant graduate-level coursework may be transferred to meet the course requirements for the MS degree, following the rules established by the Graduate School for transfer credit.

More detailed information regarding course requirements for the available Professional MS tracks can be found on the [Environmental Engineering Program website](#)

5.4.2 Research-Based Master's Degree Option

Once a faculty advisor has been found, students may be admitted into the Research-Based Master's Degree option from the Professional MS, BAM, BS/MS, or EVEN PhD options.

Research-Based Master's Degree students should consult with their thesis and faculty advisors for course selection recommendations. Course selection will depend on a student's chosen area of emphasis, which is chosen from the following six options:

- General Environmental Engineering
- Drinking Water, Wastewater, and Water Reuse Treatment
- Natural Waters
- Global Engineering
- Air Quality
- Environmental Change Adaptation Engineering

Each of these areas of emphasis has specific course requirements. More information on the Research-Based Master's Degree option and course requirements can be found on the [Environmental Engineering Program website](#).

Research-Based Master's Degree students must complete the following requirements to obtain the MS degree:

- **Coursework:** At least 24 semester hours of graduate-level courses, including Environmental Engineering and Science core (6 hours), emphasis area (9-18 hours), and elective (0-9 hours) courses, with a minimum

cumulative GPA of 3.00. The common core of Environmental Engineering consists of the following two courses:

- CVEN 5464 Environmental Engineering Processes
- CVEN 5404 Water Chemistry OR CHEM 5151 Atmospheric Chemistry

More information regarding emphasis area courses and elective courses can be found on the [Environmental Engineering website](#).

- **Graduate Seminar Attendance:** Attendance to Environmental Engineering graduate seminars is required for completion of the Research-Based MS Degree option. These are offered as non-credit seminars each semester, of which students required to attend two-thirds of the offered seminars for satisfactory completion.
- **Faculty Advisor Selection:** Students interested in pursuing a Research-Based Master's Degree are required to select a faculty advisor. Interested students can visit our [website](#) to find out more about our faculty and their research interests, as well as information for how to contact them.
- **MS Thesis Hours:** Students are required to complete a minimum of 4 and maximum of 6 semester hours of thesis credit, with a sum of course and thesis credit of at least 30 hours.
- **Written thesis:** Students must satisfactorily complete and defend a Master's Thesis under the supervision of a research advisor who is a member of the Environmental Engineering Faculty. The written thesis must comply with Graduate School rules and procedures in terms of format and submission. Full details on formatting requirements are available [here](#), and deadlines and resources to assist in finalizing your thesis are available [here](#).

Students are required to submit the full written thesis electronically at the [ProQuest website](#).

- **Thesis Defense:** Students must pass a thesis defense, which is a final examination on the thesis and related topics. In the defense, students are expected to explain their research clearly and concisely, and to discuss how it relates to other research in the field. This is an opportunity for recognition of completed Research-Based MS research. It is also an opportunity for discussion and formal evaluation of the thesis. The thesis defense may occur before or after the final electronic submission of the written thesis to the Graduate School, but must take place prior to the end of the final semester. Failure to defend prior to the end of the proposed final semester may result in the need to register for additional course credits during another semester.

All required forms should be submitted on time according to the following deadlines:

- *To the Department:* The [Master's Examination Report](#) should be submitted to your faculty advisor at least 3 weeks prior to the defense.
- *To the Committee:* The written thesis should be sent as a single pdf file by email to all members of the defense committee, as well as to [the graduate advisors](#), at least 1 week before the defense. This deadline is intended to allow the defense committee sufficient time to review the thesis and to formulate questions and feedback. Prior to the defense, students should contact all members of the committee to assess their areas of interest and concerns. This will help students anticipate any questions that will be asked.

Students must be registered as full-time, regular degree-seeking students during the semester in which they pass the examination. The examination is conducted by a committee appointed by the chair of the major department and approved by the Dean of the Graduate School, and consists of at least three people, two of which must be EVEN faculty.

The chair of the committee must have a regular or tenured Graduate Faculty appointment. The other committee members must have either regular or special Graduate Faculty appointments. Please contact the Environmental Engineering Program [graduate advisors](#) as soon as you form your committee, and no later than 6 weeks prior to your examination, to verify that the necessary appointments are in place. It takes 2-4 weeks to process a faculty appointment. Students should submit a recent CV for any committee member who does not have a faculty appointment to the graduate advisors as soon as possible.

Students should coordinate scheduling the examination with the committee, and should schedule the examination for two hours. The examination is wholly oral and open to the public for the first portion of the examination. Students must prepare a professional oral presentation that covers what was written in the thesis. This presentation should be 45-50 minutes in length. This presentation shall be delivered at the final examination to the examination committee. The oral presentation portion of the examination is open to all students and faculty. Questions are entertained at the end of the presentation. The final part of the examination is closed to only the student and the examination committee. During this portion, questions are entertained that cover the field of concentration and related fields. More than one dissenting vote among the committee constitutes an unsatisfactory exam. A student who fails the exam may attempt it once more after a period of time determined by the committee.

More than one dissenting vote disqualifies the candidate in the final examination. The committee chair and a majority of the committee must be present on the Boulder campus for the examination.

5.4.3 Bachelor's-Accelerated Master's (BAM) Program

The BAM program offers currently enrolled CU Boulder undergraduate students the opportunity to receive both Bachelor's and Master's degrees in a shorter period of time. Students receive the Bachelor's degree first, but begin taking graduate coursework as undergraduates, typically in their junior year. Because some courses are allowed to double count for both the Bachelor's and the Master's degrees, students receive a Master's degree in less time and at a lower cost than if they were to enroll in a stand-alone Master's degree program after completion of their Baccalaureate degree. In addition, staying at CU Boulder to pursue a BAM program enables students to continue working with their established faculty mentors.

Admissions requirements and procedures for the BAM program are outlined in Chapter 2.

Early in the final semester of the undergraduate degree, students must apply to advance to graduate status by completing the [Master's continuation form](#). This form is due by February 1 for spring graduates, March 1 for summer graduates, and October 1 for fall graduates. Students will matriculate into the master's option without additional departmental review provided they meet the basic continuation requirement of a 3.00 cumulative GPA for a Master's degree in environmental engineering. Students continuing on to a Master's degree in mechanical engineering will need to meet the basic continuation requirement of a 3.25 cumulative GPA. International students must have approval from International Student and Scholar Services (ISSS) prior to matriculation.

For their Master's degree, most students in the BAM program will complete the requirements of the Professional MS option outlined in Section 5.4.1. BAM students can pursue the Research-Based MS Degree option if admitted according to the application procedures enumerated in Section 2.7. If admitted to the Research-Based MS option, BAM students should fulfill the Research-Based MS degree requirements outlined in Section 5.

In order to achieve an accelerated BS/MS degree, students in the BAM program are eligible to use 6 graduate credit hours towards both the BS and MS degrees.

Substantial additional information on the BAM program can be found from the Office of the Registrar [here](#), and BAM program policies are available [here](#).

5.4.4 Concurrent BS/MS Degree Program

The concurrent BS/MS program was replaced by the BAM program, effective July 1, 2019. Students currently with the department that were admitted to the BS/MS program will continue to adhere to BS/MS policy in pursuit of their degrees. Both BS and MS degrees will be awarded simultaneously when requirements for both degrees are met. Further details on the concurrent degree program can be found on the [registrar website](#).

To comply with Title IV Higher Education regulations, students pursuing a concurrent BS/MS degree will automatically be changed to graduate status after the completion of 145 credit hours.

5.4.5 Transfer Credit

Students may be eligible to transfer up to 9 hours of coursework to meet the Master's degree course requirements. More information is available on the second page of the [Request for Transfer of Credit Form](#) from the CU Boulder Graduate School. To transfer credits, students must fill out and submit this form to the [Graduate Advisors](#) with official transcript(s) included.

Please note that requests for transfer credit can only be made after completing 6 credits of graduate level coursework at CU Boulder. These requests should be submitted as soon after completion of this 6 credit requirement as possible. Typically, this means that transfer of credit requests are processed during the second semester of study at CU Boulder. Additional information on transfer of credit requests is available in Section 6.5 of Chapter 6.

5.5 Application for Graduation

In order to graduate with the Master's degree, students must apply online through their [myCU portal](#). On the "Student" tab, select the "Apply for Graduation" link under "Academic Resources."

The application for graduation is due a few weeks after the start of the desired graduation semester. Full details on requirements can be accessed by clicking on the appropriate program at [this webpage](#), and deadlines are available by selecting the appropriate semester for graduation on [this webpage](#).

5.6 Graduate Certificates

Professional MS students have the option to pursue a 9-credit (3 courses) graduate certificate in Global Engineering or Water Engineering Management as they fulfill the 30 credit hour coursework requirement.

5.6.1 Mortenson Center Graduate Certificate

Any student enrolled in a graduate program offered by the College of Engineering and Applied Science at the University of Colorado Boulder may apply for concurrent enrollment in the Mortenson Center Graduate Certificate.

Admissions procedures and additional information can be found in [Chapter 2](#).

5.6.2 Water Engineering Management Certificate

The Water Engineering and Management Graduate Certificate complements a Master's degree by providing an in-depth study of the skills and tools demanded by the rigors of the water profession. The courses are available to all graduate students and can be completed on campus or through distance learning.

Admissions procedures and additional information can be found in [Chapter 2](#).



Curriculum

6

6.1 Deadlines

The Environmental Engineering Program adheres to the deadlines and calendar established by the Office of the Registrar. Students can find these dates for the current and future semesters at [this page](#) of the Registrar's website. The primary deadlines to be aware of, with dates that will vary by semester, are as follows:

- **Last day to add a class:** After this date, students can only be enrolled pending a petition to the Office of the Registrar, submitted by the EVEN Program on behalf of the student. Such requests will only be entertained in exceptional circumstances. This date is typically during the second week of the semester for courses that are the standard 16 week fall spring semester length. Courses that are shorter will have earlier deadlines to add and drop.
- **Tuition and fees payment due:** Students must pay tuition and fees, or enroll in a payment plan, by this date. This date is typically the day following the deadline for the last day to add a class.
- **Last day to drop a class:** After this date, students choosing to drop a course will receive a withdrawal (i.e., grade of 'W') on their transcripts; tuition for dropped courses will not be refunded. This date is typically during the third week of the semester.

Students should familiarize themselves with these dates, since it can be difficult or impossible to add/drop classes after the deadlines.

6.2 Adding Courses

As noted above, students should add all courses within their enrollment window, which is determined by the Registrar's office. Upcoming deadlines and important enrollment dates can be found on the [Academic Calendar](#).

6.2.1 Adding Master's Thesis, Master's Report, and Doctoral Thesis Credits

Thesis, dissertation and independent study credits can only be added by the Graduate Program Advisor with the approval of the faculty advisor. Thesis and dissertation hours should be requested via the [EVEN Course Agreement Form](#) prior to the start of the semester.

6.2.2 Adding Independent Study Courses

Independent study credits will be automatically added upon approval of the independent study petition, as described in Section [6.4](#) . The petition can be found [here](#).

Students who wish to drop a course after the drop deadline will be required to provide a letter of explanation stating why they would like to drop the course. In order to drop a class after the drop deadline has passed, students are required to petition the Dean and provide documentation showing that there were extenuating

circumstances beyond their control (such as illness, injury, a death in the family, etc.) that occurred after the drop deadline, preventing the student from attending/participating in the course for which they were registered. Please consult your graduate advisor prior to dropping a course after the drop deadline.

6.2.3 Dropping Courses

Students who wish to drop courses should carefully consider the impact this decision will have on their academic progress, enrollment requirements, visa status, financial aid eligibility, scholarships, graduate appointment requirements, and student housing or health insurance eligibility. It is recommended a student first consult with their faculty advisor, Graduate Program Advisor, ISSS, etc. before dropping a course.

Students may drop courses in the [Buff Portal](#) at anytime before the drop deadline.

Students who wish to drop a course after the drop deadline will be required to provide justification for the change and have course instructor support. Additional approvals may be required from the EVEN Program Director and the Dean of the graduate school before the drop is considered final. Please consult with a graduate program advisor if you are considering dropping a course after the drop deadline.

Students who wish to withdraw from all classes should consult the [Registrar's Office website](#).

6.3 Transcripts

Official transcripts for current and previous graduate students can be ordered [online](#) from the Office of the Registrar. Unofficial transcripts can be downloaded anytime by students through the educational portal.

6.4 Independent Study

An independent study course is defined as research study requiring a high level of self-directed learning. This learning requires students to read, conduct research, and complete written examinations, reports, projects, research papers, portfolios, or similar assignments that are designed to measure competency in the stated objectives. This work may be experiential, directed reading or independent research supervised by a faculty member and approved by the EVEN Program Graduate Committee.

6.4.1 Guidelines

A number of activities are specifically prohibited as independent study work. Included here are such activities as internships, volunteer or paid work in a university department, volunteer work of other kinds, work in a business, extra work in a class, and work completed elsewhere. It is strongly discouraged to use an independent study course in place of a regular course offering. Independent study will normally consist of directed research which leads to the preparation of a substantive presentation of findings, usually in the form of a written paper or report. Any variation on this format must be approved by the EVEN Program Graduate Committee.

University rules do not normally allow Independent Study credit for internship experiences, work-study or hourly pay work done in departments, or for work also compensated by a salary. In general, an independent study should not be used for resolving scheduling conflicts, making up failed classes or alleviating faculty teaching loads.

6.4.2 Requirements

The following minimum criteria must be met to ensure the overall outcomes of the educational experience, the success of the students, and compliance with accreditation standards:

- Students who take independent studies must have a minimum cumulative GPA of 3.3.
- The independent study must include comprehensive objectives in a written form.
- The independent study must demonstrate the relevance and appropriateness to the program outcomes.
- The independent study must promote a high level of self-directed learning.
- The independent study must engage students to interact with the instructor throughout the course.

6.4.3 Enrollment Procedure

The student will develop a plan or idea for independent study and will work with a faculty member to determine the feasibility and supervision of the class.

The student and the faculty member will complete the **Independent Study Agreement Form** including, but not limited to, the following information:

- Course description and area of study, including number of credits to be issued (1 credit hour is approximately equal to 40 clock hours of proposed independent study activity per semester)
- Learning objectives and outcomes.
- Approach to be used (directed reading, instructions and supervision, and/or lab experience, exercises and projects, etc.)
- Information on textbooks, references, and reading materials
- Means of communication between student and faculty member throughout the course of independent study
- Means of evaluation (one or more), typically consisting of a tangible product such as a project, presentation, written review of the literature, homework assignments or exams
- Guidelines, schedules, benchmarks and/or milestones, or weekly task breakdowns throughout the semester

When an independent study is designed and proposed, the rationale for the number of credits awarded by the course should meet the following criteria:

- 1 semester credit hour for each 40 clock hours of documented independent study activities
- The number of allowable independent study credits for any student should be limited to less than or equal to 25% of the total coursework credits required by the student's degree program.

The completed **Independent Study Agreement Form** should be submitted no later than one week prior to the course add deadline, which can be found [here](#).

6.4.4 Documentation

Through the course of an independent study, it is the student's responsibility to communicate with the instructor and document time spent on the independent study. Activities that constitute time spent on an independent study include, but are not limited to: reading, conducting research, completing written examinations, reports, projects, research papers, portfolios and homework assignments.

To ensure proper documentation, a final report or presentation slides should be provided to the graduate advisors at the end of the semester.

6.5 Transfers of Credit

To request transfer credit, graduate students should complete and submit the **Request for Transfer of Credit Form** from the CU Boulder Graduate School. To transfer credits, students must fill out and submit this form to the graduate advisors at cvengrad@colorado.edu. An official transcript(s) must be included with the request.

Please note that requests for transfer credit can only be made after completing 6 credits of graduate level coursework at CU Boulder. These requests should be submitted as soon after completion of this 6 credit requirement as possible. Typically, this means that transfer credit requests are processed during the second semester of study at CU Boulder.

Transfer credits from accredited institutions are accepted by CU Boulder only after approval by the graduate chair and under the special conditions outlined below. Transfer credit is defined as any credit earned at another accredited institution, credits earned on another campus of the CU Boulder system, or credits earned as a non-degree student within the CU Boulder system. Students seeking a degree from CU Boulder must complete the majority of their course work while enrolled in a graduate program as a degree seeking student.

The following rules apply to transferring credit to the CU Boulder Environmental Engineering Program:

1. The maximum amount of work that may be transferred to CU Boulder depends upon the graduate degree sought. Master's students may transfer up to 9 hours, while PhD students may transfer up to 21 hours.
2. Work already applied toward a graduate or undergraduate degree received from CU Boulder or another

institution cannot be accepted for transfer toward another graduate degree of the same level at CU. In addition, work completed for a doctoral degree may not be applied toward a subsequent master's degree.

3. All courses accepted for transfer must be graduate level courses. The course grade must be B or higher. Transfer course work which is to be applied to a graduate degree at CU Boulder and was completed more than 5 years prior to being accepted to the program shall be evaluated by the EVEN Program as to current relevance and applicability to the degree requirements. At the discretion of the EVEN Program, a student may be asked to validate transfer credits prior to approval.
4. Credit may not be transferred until the student has completed 6 credits of graduate level course work as a degree-seeking student on the CU Boulder campus with a 3.0 GPA. Transferred credits do not reduce the minimum registration requirement but may reduce the amount of work to be done in formal courses.
5. With the exception of students enrolled in the BAM or BS/MS programs, seniors at CU Boulder may transfer a limited amount of graduate level work (up to 9 semester hours) provided such work:
 - is completed with a grade of B or above at CU Boulder
 - comes within the five year course time limit
 - has not been applied toward another degree
 - is recommended for transfer by the department concerned, and such transfer is approved by the Dean of the Graduate School

6.6 Course Repetition

A student who receives a grade of C, D, or F in a course may repeat that course once, upon written recommendation by the program director and approval by the Dean of the Graduate School, provided the course has not been previously applied toward a degree. The grade received in a repeated course substitutes for the original grade and only the later grade is used in the Graduate School's manual calculation of the grade point average. However, all grades received appear on the student's transcript and are calculated in the official GPA.

6.7 Change of Record

Change of record requests are required for past-term student record changes and for current-term enrollment requests after add/drop deadlines. Some examples where a change of record request should be made include:

- Any academic record change after the last day of classes (e.g., add, drop, change grading basis or variable credits, expunge, etc.)
- Add a student to a class after the Monday before finals. In such cases, the change of record request must include the student's final grade, because the student will not appear on the grade roster.

Change of record requests can only be made with the graduate advisors and consent of the graduate chair. The program must submit appropriate documentation directly to the Registrar's Office. This office will not accept a student-delivered change of record request. Please reach out to the graduate advisors with any questions about this process.

6.8 Auditing Courses

Degree seeking students cannot audit courses. Students can register for NC (no credit), but will need to pay full price for the course. Please note that for students on a TA or RA appointment, the appointment will not cover the tuition cost of a course taken for no credit.

6.9 Grades of 'Incomplete'

To receive a grade of "I" (or incomplete), the student must receive the consent of the instructor and be able to demonstrate that for documented reasons beyond the student's control, the student was unable to complete course requirements during the semester enrolled. Students are given one year to complete the requirements for the course and receive a letter grade; after one year the incomplete grade automatically changes to an "F."

6.10 4000/5000 Level Courses

The CU Boulder Graduate School requires that there be a difference between 4000 and 5000 level courses that are taught as a combined 4000/5000 section. Students registered at the 5000 level are taking the course for graduate level credit, and thus the course expectations of that student must be at the graduate level. Conversely,

students registered at the 4000 level are taking the course for undergraduate level credit, and thus the course expectations must be at the undergraduate level.

It is advised that the course instructor keep track of the course requirement differences between the 4000 and 5000 level students. An ideal location to document this difference is in the course syllabus. In recent years there have been instances where a student requests changing course credit from 4000 to 5000 level, or vice-versa. The University allows for this change if the student's grade can be adjusted (or additional requirements met) per documentation provided by the course instructor. One example is where a BS/MS student enrolls in a course at the 4000 level, and after completion requests a change to 5000 level, due to some unforeseen event. In this example, the course instructor is approached to determine a grade change, or asked if additional coursework needs to be completed. While it is up to the course instructor on how to proceed, having a documented difference that can be referenced can save the course instructor significant time and hassle, in addition to maintaining Graduate School requirements.

Course instructors should adjust their course requirements as to best fit their course. A graduate level course generally encourages deeper thought, additional workload, and/or higher expectations of the student. With that in mind, a few examples (non-exhaustive), or suggested differences that could be used to distinguish between 4000 and 5000 level students are:

- Additional project requirements for 5000 level students
- Additional exam problems for 5000 level students
- Additional reading assignments and evaluations for 5000 level students
- Additional reports, homework, or other measure of student performance for 5000 level students
- Inclusion of a teaching role for the graduate students

6.11 Grievance Procedures

The Graduate School established revised grievance procedures, effective April 1, 2019, that can be found here: [Graduate School Grievance Procedures](#). These procedures are intended to provide a process by which graduate students can communicate concerns related to academic issues or academic conflicts. An additional brief guide is available [here](#). Should you need any assistance with these procedures, please make sure to reach out to your Graduate and/or Faculty advisor, where appropriate.



Summary of Changes



A.1 Second Edition

Overview

Prof. Joseph Ryan replaced Prof. Rosario-Ortiz as the EVEN Program Interim Director.

Ms. Laura Vaznelis Ward replaced Ms. Laurence Lambert as the EVEN Program Coordinator.

Ms. Jenna Rodriguez and Ms. Deanne Sylvester replaced Ms. Kelly Lewis as the EVEN Program Graduate Program Advisors.

As the EVEN Program has been integrated into the College of Engineering and Applied Science Program of Programs, it no longer resides underneath the Department of Civil, Environmental, and Architectural Engineering. As part of this transition, Kayla Boster and Ashley West have taken over EVEN Program specific finance and HR coordination.

A.2 First Edition

This is the first edition of the EVEN Graduate Program Manual. As such, there are no changes to the content to note at the current time. Future changes to this manual will be noted in this section.



Forms

B.1 Internal Environmental Engineering Forms

- [Overview of Preliminary Examination](#)
- [Overview of Comprehensive Exam](#)
- [Course Agreement](#)
- [Academic Advising Sheet](#)
- [Faculty Advising Agreement](#)
- [Independent Study Agreement Form](#)

B.2 Graduate School Forms

- [Bachelor's Accelerated Master's \(BAM\) Continuation Form](#)
- [Bachelor's Accelerated Master's \(BAM\) Intent Form](#)
- [Candidacy Application for Advanced Degree](#)
- [Concurrent Bachelor/Master Forms](#)
- [Graduate Program Application](#)
- [Graduate Program Change/Addition/Discontinuation Form](#)
- [Graduate School Letter of Completion Request](#)
- [Graduate Student Request for Extension of Time Limit](#)
- [MS Examination Report](#)
- [PhD Examination Report](#)
- [Request for Transfer of Credit form](#)
- [Thesis Approval Form](#)



Focus Area Course Guidance

C.1 EVEN Course Guidelines
This section is still under revision.



Resources for Teaching Assistants

D

D.1 Center for Teaching and Learning

The Center for Teaching and Learning (previously known as the Graduate Teaching Program) is a graduate and professional student development program that strives to encourage graduate students to embrace teaching as an intellectual and inclusive act and to pursue their personal and professional development through participation in the program. The Center for Teaching and Learning (CTL) provides workshops that focus on pedagogical techniques and professional development. In addition to workshops offered throughout the year, the CTL holds two training events each year, the Fall Intensive and Spring Conference. These training events are open to all graduate students.

To encourage graduate students to focus on gaining teaching skills, the CTL also offers two certificates and in college teaching and future faculty development. The two certificates include, the Certificate in College Teaching (CCT) and the Future Faculty Development Certificate (FFD). The CCT helps graduate teachers develop a confident classroom presence, good interactional skills, and a firm foundation in college teaching. Graduate students must teach for two semesters to pursue this certificate. The FFD offers graduate students the opportunity to pursue a project on teaching at the college level under the guidance of a faculty mentor. Graduate students are not required to teach to pursue this certificate. While the Pursuing Excellence in College Teaching Credential (CTC) allows graduate students whose programs do not offer opportunities for classroom teaching, or for those who are not able to complete the Certificate in College Teaching (CCT). Links to the requirements for each certificate/credential are listed below.

- [Certificate in College Teaching \(CCT\)](#)
- [Future Faculty Development Certificate \(FFD\)](#)
- [College Teaching Credential \(CTC\)](#)

D.2 Grading

The method of grading for homework, quizzes and exams will be determined by the course instructor. Some faculty have a preferred methods for each type of assignment or assessment. However, we encourage TAs to suggest different methods to grade more efficiently (so that the TA can focus on other teaching responsibilities). Examples of ways to grade more efficiently are listed below.

- Make sure that all assignments created have clear goals and instructions. This way, students will have more consistent answers that will be easier to grade.
- Use different grading scales for different assignments.
 - check +, check, check- (for quizzes, homework, response papers, quick reports or presentations,

- etc.)
- 100-point numerical scale (for exams, certain types of projects, etc.)
- pass-fail or credit-no-credit (for preparatory work)
- Grade one problem at random from each homework assignment
- Post quizzes on Canvas, so they can be graded automatically
- Limit your comments or notations to those your students can use for further learning or improvement
- Spend more time on guiding students in the process of doing work than on grading it

For more information on grading, [click here](#) for a great resource.

D.3 Faculty Expectations

Faculty expectations of each TA should be determined before the semester begins. We recommend that all TAs meet with the faculty member instructing the course they are assigned to and use the following document to go through the expectations for each class.

D.4 Best Practices

General Reminders

- When paid to be a TA, TAing is your main priority. For example, if a TA responsibility conflicts with lab meeting time it would be important to try to reschedule lab meeting to a time that would not conflict. If this is not possible, working with the instructor and your PI to suggest a compromise (e.g. attend lab meeting every other time) would be another option.
- Be professional with your professor and your students. Communicate openly with your professor, especially regarding semester and summer breaks.
- Set boundaries for yourself. For example, it is important to respond to students questions quickly, but you may want to communicate to your students that you will not respond to email after 11:00pm.
- You must introduce yourself to your TA class during the first week of school and send an email to the class. These introductions are extremely important because previously a lot of undergraduates did not know who their TA was.

Scheduling Office Hours

Office hours in the Engineering Center and in the Sustainability, Energy, and Environmental Complex (SEEC)

- For more information visit our [website](#) or contact the [EVEN Program Coordinator](#). When contacting the Program Coordinator, please include the following information:
 - Course number and title
 - * Day(s) of the week for office hours or date(s) for review sessions.
 - * Start and end time. It's also helpful for the Program Coordinator to know whether their preferred start and end time are flexible (i.e.: prefer 6-7PM, but could also do 7-8PM).
 - * Anticipated attendance. Classrooms tend to fall into 25+, 45+, 60+, 80+, and 120+ seat ranges. So those are good options to keep in mind.
- Note: There are many events that occur in the SEEC Building throughout the year and office hours could move around when these events occur during your scheduled time.

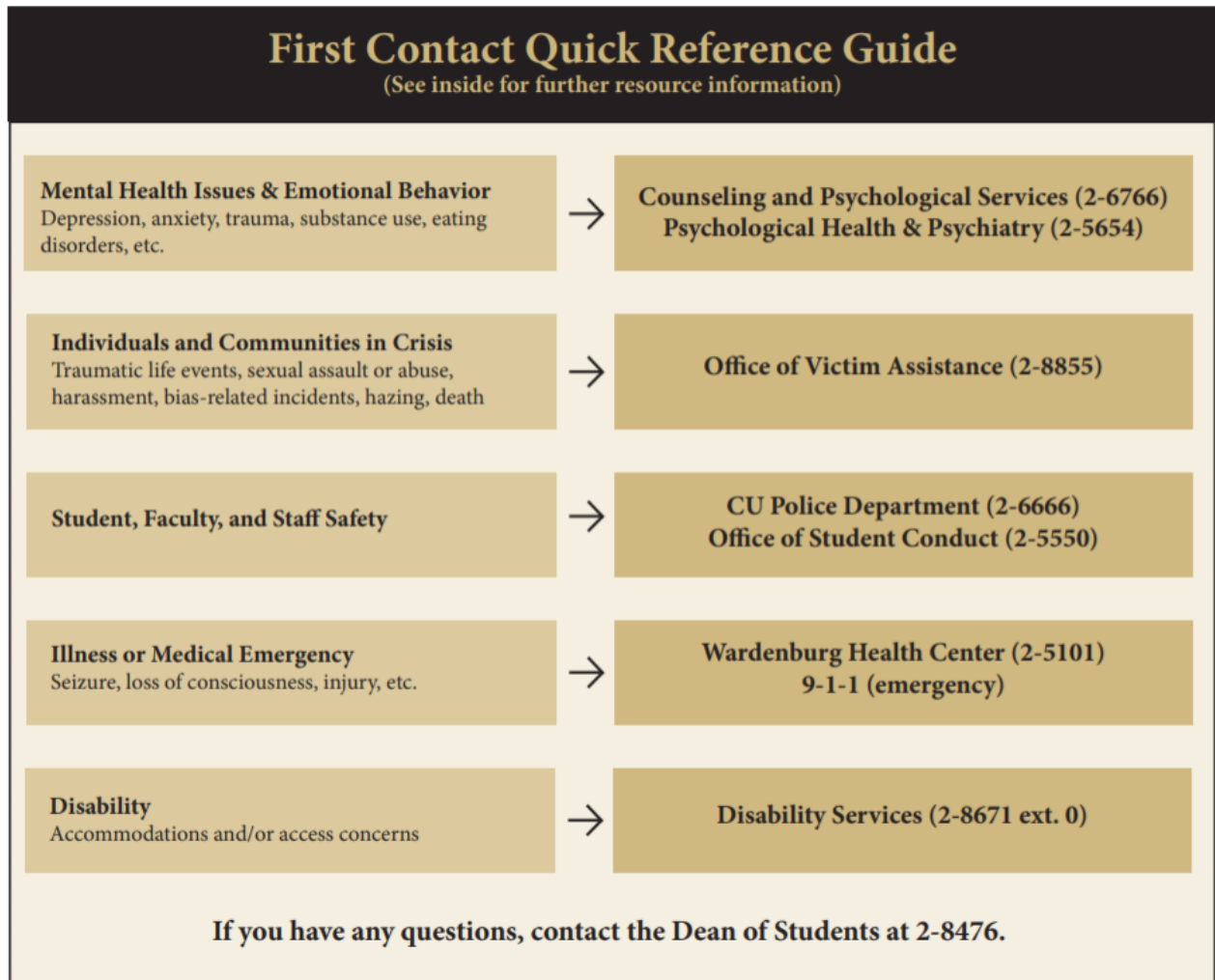
Students in Distress

If you notice that a student in your class is in distress, take action according to the situation. This document ([click here](#)) provided by the graduate school can help guide how to deal with certain situations.

Remember as an employee of CU Boulder, you are a mandatory reporter. CU-Boulder policy requires any supervisor who becomes aware of a complaint of protected class discrimination and harassment and sexual harassment (including sexual assault, intimate partner abuse, and stalking) or related retaliation, to promptly report it to the [Office of Institutional Equity and Compliance \(OIEC\)](#) if the alleged perpetrator is an employee or

a student.

For more information on how to respond to a disclosure, see the following [link](#).



Pedagogical Resources

- [Click here for website including teaching and mentoring resources](#)
- [Click here for a guide specifically for TAing](#)



Preliminary Exam Overview

E

E.1 Overview

The objective of the preliminary exam is to evaluate a prospective Ph.D. candidate's understanding of aspects of the core areas in environmental engineering and the need for additional courses or other actions that may bolster this understanding. This exam is conducted before the student is allowed to move on to the comprehensive exam. The preliminary examination emphasizes the core areas that pertain to the student's planned research topic. The goal is to have the students advance to their Ph.D. comprehensive exam with an appropriate level of knowledge regarding their topic of research.

E.2 Exam Composition

The core areas in the Environmental Engineering Programs (i.e. EVEN CVEN) are:

- Environmental Chemistry
- Environmental Microbiology
- Water, Wastewater and Hazardous Waste Treatment
- Containment Fate and Transport Processes
- Sustainability
- Air Quality Engineering

The preliminary examination consists of two parts: a PhD dissertation prospectus and an oral presentation. For the Ph.D. dissertation prospectus, the student will write a 5-page (double-spaced, 12-point Times Roman font, 1" margins) document that focuses on a potential dissertation topic and addresses research questions in at least **at least two of the core areas listed above**.

The following elements should be included in the prospectus:

- Problem Statement and Background (3 pages)
- Research Goals and Objectives (<1 page)
- General Approach (focusing on a brief description of the steps that will be considered in order to conduct the research) (<1 page)
- Significance and environmental relevance of the research to be pursued (<1 page)
- References (not counted in the 5-page limit)

The Ph.D. dissertation prospectus should be planned with and reviewed by the student's Ph.D. advisor. The student should also identify and include in the prospectus the two core areas that are relevant to their research. The student should expect questions from the committee in these, but not limited to, core areas.

For the oral presentation, the student will deliver a presentation of no more than 15 minutes based on the prospectus. This will be followed by an oral examination by a faculty committee. The combination of the presentation and oral examination will take approximately two hours.

E.3 Timing of Exam

The exam should be taken no later than the **end of the student's third semester** in the Ph.D. program and after completion of the relevant core courses in the core areas. The student will collaborate with his or her Ph.D. advisor to schedule the exam with the Environmental Engineering Faculty. The preliminary exam may be scheduled during the fall and spring semester of the academic year.

E.4 Examination Committee

The Environmental Engineering graduate faculty committee will form an examination committee for each student planning to take the preliminary exam. The examination committee will consist of three faculty members – the student's Ph.D. advisor and at least one other Environmental Engineering program faculty familiar with the core areas to be examined. If appropriate, the third member of the committee may be from outside the EVEN or CEAE Environmental Engineering program.

E.5 Preparing for the Preliminary Exam

After the student and PhD advisor have requested that the student take the preliminary examination and the examination committee has been formed, the student is responsible for:

- Scheduling a 2-hour time with the examination committee
- Reserving a room for the examination
- Delivering the prospectus with two research relevant core areas listed and a list of their graduate course work (with grades) to the committee **at least two weeks** before the exam
- Bringing the Preliminary Examination Form to the exam for signatures

E.6 Preliminary Exam Results

At the conclusion of the preliminary examination, the examination committee will evaluate the prospectus and the oral presentation. There are three possible outcomes for the preliminary examination: Pass, Conditional Pass, and Fail.

A "**Pass**" result accepts the prospectus and oral examination and the student moves on to the next step of the Ph.D. program, the comprehensive examination (i.e., the Ph.D. thesis proposal). This result may be accompanied by recommendations from the committee. These recommendations are usually in the form of requests to review specific topics or even auditing a class. If there are recommendations, the student will work with his or her advisor to address these. Once the recommendations have been addressed, the student must submit a brief summary to the examination committee summarizing the steps that were taken to address them. The recommendations should be addressed within six months of the exam date and ideally before the comprehensive proposal is submitted

A "**Conditional Pass**" result finds some faults with the prospectus or oral examination that are correctable with revisions to the prospectus, additional course work, or some other conditions. Once these conditions are satisfied, the student may re-take the preliminary exam.

A "**Fail**" result finds major faults with the prospectus and oral presentation that are not considered correctable by revision or additional coursework and the student will not continue in the Ph.D. program.

Following a "Conditional Pass" result, the Preliminary Examination may be re-taken only once. The second examination will result in a "Pass" or "Fail" result and needs to be taken **within 6 months** of the original exam date. If additional time is needed before the second examination (i.e., more than six months), the student must submit a written request to the examination committee detailing the reasons why additional time is required. This written request must be submitted before the deadline to re-take the exam has passed. The exam needs to be re-taken before the comprehensive exam is scheduled.

After the preliminary examination, the examination committee will complete the preliminary examination form and return it to the Graduate Committee Chair and it will be filed in the CEAE Department for official recording of the student's progress in the Ph.D. program.

After successful completion of this exam, the student must take the comprehensive exam within six months.

E.7 Preliminary Examination Form

The full overview of the Preliminary Exam and the Preliminary Exam Form can be found on the [EVEN website](#).



Comprehensive Exam (Comprehensive Proposal) Overview

F.1 Overview

The comprehensive exam consists of the preparation and presentation of a dissertation research proposal. This purpose of this exam is to have a committee, consisting of your faculty advisor(s) and others, conduct a detailed review of your proposed Ph.D. research. A full description of the exam may be found on the [EVEN website](#).

F.2 Timing of Exam

You must schedule your exam **within six months** of successful completion of the preliminary exam and **at least three semesters** prior to the dissertation defense. To satisfy University rules, you must also have completed 30 units of course credit (including credits transferred from another institution) prior to completing your thesis proposal.

F.3 Examination Committee

For the comprehensive exam and your ensuing research, you will select a thesis committee with the guidance of your faculty advisor(s). The thesis committee will consist of five graduate faculty able to contribute to the successful completion of the research. At least three members of the committee must be faculty (either program or affiliated) in the Environmental Engineering Program and at least one member must be from another department. This last person could also be from another institution, but the selected person must have a Ph.D. degree. Once you have chosen your committee and presented your comprehensive proposal, you may alter the composition of your thesis committee only with the consent of your advisor, the committee member in question, the remainder of the thesis committee, and the Graduate Committee of the EVEN program.

Once a committee is selected, the next steps are to schedule the exam and develop a comprehensive proposal. The exam should be scheduled by the student, at least a month in advance.

F.4 Composition of Comprehensive Proposal

The student must also develop a proposal, which will outline the hypotheses and testing of your future research. The proposal needs to be detailed enough as to provide the committee the opportunity to conduct a detailed evaluation of your proposed research. The proposal must include the following sections:

1. *Identification of Research Needs (5-8 pages)*: In this section, you must show the significance of your research topic. Answer the question, "Why should anyone care about this research?" Then, you must succinctly review the existing literature on your research topic and identify the research questions that remain to be answered. The literature review should not be simply a "listing" of relevant conclusions from previous research; instead, you must demonstrate that you are not only aware of the literature on your subject, but that you are also able to critically evaluate it and use it to identify future research needs.

2. *Preliminary Results (optional)*: You may include a brief description of preliminary results (if you have any) that have helped you identify future research needs in your proposal. Your results should be presented in the same manner as the literature reviewed in the previous section because your preliminary results are already part of the scientific knowledge leading you toward future work. This section could also be part of the discussion of one or several of the hypotheses.

3. *Hypotheses (1 page)*: The hypotheses are the "scientific positions" you have taken on the basis of literature review and preliminary work. The hypotheses should be stated as scientific opinions on the unanswered questions raised in the previous section. As such, the hypotheses are the basis of your remaining research and **the most important component of your proposal**.

4. *Research Plan (8-10 pages)*: The plan for future research should comprise the bulk of your proposal. The research plan should be driven by the need to test the hypotheses to arrive at answers to the unanswered questions. The plan should be organized into a set of experiments with separate descriptions of materials, methods, data analysis, and expected results. You should anticipate potential experimental outcomes and describe how the experiments will test the hypotheses.

5. *Tentative Schedule and Budget (1 page)*: You should include a realistic schedule and budget for your research plan. Remember that the graduate school requires at least three semesters of residence prior to the defense of your thesis. The budget should include cost estimates for Salary, Equipment, Expendable Materials and Supplies, and Travel (for field sites).

6. *References*: A list of references cited in the text should be included with the following information: Authors, Publication Date, Title, and Source. Present the references in the format used by a journal of your choice. Be complete and accurate.

The entire proposal is limited to 20 pages (double-spaced, 12-point Times Roman font, 1" margins) including tables, figures, schedule, budget, and references. Tables, figure captions, schedule, budget, and references should be single-spaced. The proposal should be well-written and neatly presented. Tables and figures should be integrated into the text. Ask your faculty advisor or fellow students for a past proposal on which to model your proposal.

E.5 Preparing for the Proposal Presentation

The proposal should be submitted to the committee for review 2-weeks before the scheduled exam date. If the proposal needs to be submitted after the 2-week deadline, the student must seek approval from the committee to do so. Keep in mind that most times the committee will agree to the extension of the deadline, but it is still good practice to ask for the extension.

You must defend your comprehensive proposal at a presentation attended by your thesis committee (keep in mind that this exam is closed to the public). You will also need to schedule the room for the exam, allowing for a total of 3 hours. After your proposal is approved, you must also give a presentation on your proposed work at an open seminar as part of the Environmental Engineering Seminar Series. Your presentation should focus on the major hypotheses of the research and the means by which they will be tested. The presentation should be planned for a duration of no more than 45 minutes. During and after the presentation, the thesis committee will ask questions about your proposed research. After the question period, the committee will privately discuss approval or disapproval of the proposal.

E.6 Approval of Comprehensive Proposal

Approval of the proposal is based on the **originality and feasibility** of the proposed research and the **clarity of the hypothesis-experiment** relationships. If the proposal is unconditionally approved, you may continue with your research. Your proposal may also be conditionally approved or disapproved. Depending on the consensus of the committee, you may be required to:

- Make selected changes to your proposal as specified by the committee members OR

- Completely revise and resubmit your proposal (with or without presenting it again)

Revision requirements would include a time period within which the revisions must be completed. Until your revised proposal is approved by the committee, you should not initiate further research.