



UNIVERSITY OF CENTRAL FLORIDA

Environmental Engineering PhD Graduate Program Handbook

Last updated April 7, 2015

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Environmental Engineering PhD

Together, the [Graduate Student Handbook](#) and your graduate program handbook should serve as your main guide throughout your graduate career. The Graduate Student Handbook includes university information, policies, requirements and guidance for all graduate students. Your program handbook describes the details about graduate study and requirements in your specific program. While both of these handbooks are wonderful resources, know that you are always welcome to talk with faculty and staff in your program and in the Graduate College.

The central activities and missions of a university rest upon the fundamental assumption that all members of the university community conduct themselves in accordance with a strict adherence to academic and scholarly integrity. As a graduate student and member of the university community, you are expected to display the highest standards of academic and personal integrity.

Here are some resources to help you better understand your responsibilities:

- [Academic Honesty](#)
- [Academic Integrity Training](#) - Open to all graduate students at no cost
- [Plagiarism](#)

Introduction

This section describes the process for degree completion. Students must follow a prescribed, yet flexible path, achieving milestones along the way. Generally, if a student is hard working and diligent, and is a full-time graduate student, he or she should be able to complete a PhD program within about 2 to 4 years beyond the master's degree. For a student who has entered the PhD with only a BS degree, the total time may be 3 to 5 years.

The PhD degree is a research-oriented degree that requires coursework combined with intensive research. The PhD offers an intensive, individually tailored research program suitable for the preparation of students for an academic career, a research institute career, or specialized consulting career. The program is flexible in content, depending on the student and the advisor. However, certain University, College, and Department rules/policies must be met. The main requirements are listed below. A plan of study must be developed by the student and advisor, with input from the dissertation committee, and must receive departmental approval. It is usually developed near the beginning of the PhD program, at which time transfer credit will be evaluated on a course-by-course basis. It can be amended as the research progresses.

Minimum hours required for PhD - 72 past the bachelor's degree.

- Hours waived for an earned master's - 30 credit hours maximum, provided a course-by-course review is performed
- At least 27 hours of formal course work is required, exclusive of research and independent study. At least 15 of the 27 hours must be taken at UCF after the master's program, exclusive of independent study and research, and taken from approved formal courses
- Dissertation - 18 credit hours
- A minimum "B" (3.0) average must be maintained in the plan of study and no more than two C+, C, or C- grades are allowed. No D+ or lower grades are acceptable.
- Doctoral research hours - 9 hours maximum (more than 9 research hours can be taken, but up to 9 hours only can be counted toward the plan of study).
- Independent Study (XXX 6908) - 6 hours maximum (more than 6 independent study hours can be taken, but up to 6 hours can be counted toward the plan of study).

- No more than a total of 12 hours of doctoral research plus independent study can be included in a plan of study.
- Directed Research (XXX 6918) is not permitted in a PhD plan of study.
- The student must pass a Qualifying Examination in one of the departmental disciplines. This examination must be taken within the first year of study beyond the master's degree. It may be attempted no more than twice.
- The student must pass a Candidacy Examination prepared by the student's committee. The Candidacy Examination is normally taken near the end of the course work and consists of a written portion (which may be the written research proposal and/or additional written questions), and an oral presentation of the research proposal. A copy of the written examination will be kept as part of the student's official record. The student **cannot** register for dissertation hours until the Candidacy Exam has been passed. Admission to Candidacy requires the following:
 - Completion of all but 6 hours or less of course work, except for dissertation hours.
 - Successful completion of the candidacy examination.
 - Successful defense of the written dissertation proposal.
 - The dissertation advisory committee is formed, consisting of approved graduate faculty and graduate faculty scholars.
 - Submittal of an approved program of study.
- The student must pass a Dissertation Defense Examination, which is the oral defense of the written dissertation.
- International students have to meet College of Graduate Studies and International Services Center rules to remain in legal standing as a full-time student throughout their tenure at UCF.

The following illustrates the minimum credit hours requirements for the PhD plan of study. Please note that the academic advisor can increase those hours as he/she sees suitable.

Program Credit Hours

MS to PhD

- Maximum of 30 hours waived
- Minimum 15 hours of coursework (could include maximum 6 hours independent study)
- Minimum 18 dissertation hours
- Maximum of 9 Doctoral Research hours

Total: Minimum of 72 hours

BS to PhD

- Minimum 45 hours of coursework (could include maximum 6 hours independent study)
- Minimum 18 dissertation hours
- Maximum of 9 Doctoral Research hours

Total: Minimum of 72 hours

Articulation Course Requirements

Articulation Courses are those undergraduate courses that are pre-requisites for graduate courses. Articulation courses are required for some students, especially with backgrounds outside the discipline. These typical senior-level courses give students the appropriate level of knowledge needed to take required and elective graduate courses in the discipline. Articulation requirements may vary for each individual student depending on their background. Please contact a faculty advisor for more information.

Graduate Course Requirements

PhD degrees are research-oriented. Because most PhD students in CECE enter the program with a Master's degree, there are no set courses required for the PhD. Each program is unique, and depends on the individual's background and interests, and the research needs of the dissertation project.

Curriculum

Please visit the [Graduate Catalog](#) to see the current curriculum for our program.

Timeline for Completion

The following listing is intended as a guide and reminder to students and faculty as to the approximate timing of events for graduate students. It is intentionally somewhat vague to account for different starting semesters, different research project needs, and different levels of student capabilities. Note that PhD students should, prior to entering UCF, coordinate with the faculty to talk with a potential dissertation advisor and discuss plans for courses in the first semester.

- **Semester 1:** Meet with advisor. Enter UCF and begin classes.
- **Semester 2:** Schedule Qualifying Exam to be taken before, during or immediately after the second semester. Continue to take classes. Begin research planning.
- **Semester 3:** After passing Qualifier, work with Advisor to form a committee. Prepare a Plan of Study, and file it with the Graduate Coordinator. Prepare a formal plan for research, and a research proposal.
- **Semester 4:** Finish classes and/or take research hours. Take the Candidacy Exam as prepared by Committee. Obtaining doctoral candidacy is one of the major milestones in graduate study. After this important exam is passed, then the student truly becomes a PhD candidate, and can now begin taking dissertation hours.
- **Semesters 5:** Conduct Research. Register for Dissertation hours, and work on Dissertation.
- **Last Semester:** File intent to graduate. Defend dissertation. Students must be registered in the semester in which they are completing the requirements for the degree program.

See Timeline for Completion of Degree Program. For specific course selection, please consult with program advisor to obtain an approved Plan of Study.

Examination Requirements

Qualifying Exam

Taken within the first year of studies, preferably within the first two semesters. This exam is a written exam consisting of open and/or closed book questions designed to (1) test the student's knowledge of fundamentals within the broad discipline, and (2) to assess the student's ability to think analytically and creatively. Questions are contributed by various members of the faculty, and the grading is typically on a pass/fail basis. If the student fails this exam, it may be re-taken once.

Candidacy Exam

Taken near the end of all coursework (often involves the defense of a proposal for research). This exam is to assess whether the student truly understands the research that he or she is about to undertake. This exam may include written questions, but should be oriented to the specific field of the research topic. It also tests the student's ability to present technical information clearly and understandably in front of an audience. The exam may be re-taken at the discretion of the dissertation committee.

For further information about graduate student policies, please see the Graduate Catalog: ucf.catalog.acalog.com/index.php?catoid=4 > Policies > Doctoral Program Policies > [Examinations](#).

Note: In addition to passing the exam and obtaining committee approval, students must have the candidacy and dissertation advisory committee documentation received and processed by the College of Graduate Studies prior to the first day of classes for the term in order to enroll in dissertation hours (XXX 7980) for that term.

Dissertation Requirements

Each student must write a dissertation on his or her research that describes a significant and original contribution to the field of study. The dissertation must be in a format specified by the College of Graduate Studies.

University Dissertation Requirements

The College of Graduate Studies [Thesis and Dissertation page](#) contains information on the university's requirements for dissertation formatting, format review, defenses, final submission, and more. A step-by-step completion guide is also available on [Thesis and Dissertation Services](#) Site.

All university deadlines are listed in the [Academic Calendar](#). Your program or college may have other earlier deadlines; please check with your program and college staff for additional deadlines.

The following requirements must be met by dissertation students in their final term:

- Submit a properly formatted file for initial format review by the format review deadline
- Submit the Thesis and Dissertation Release Option form well before the defense
- Defend by the defense deadline
- Receive format approval (if not granted upon initial review)
- Submit signed approval form by final submission deadline
- Submit final dissertation document by final submission deadline

Students must format their dissertation according to the standards outlined in [Thesis and Dissertation Webcourse](#). Formatting questions or issues can be submitted to the Format Help page in the [Thesis and Dissertation Services](#) site. Format reviews and final submission must be completed in the [Thesis and Dissertation Services](#) site. The Dissertation Approval Form is also available in the Thesis and Dissertation Services site.

The College of Graduate Studies offers several thesis and dissertation [Workshops](#) each term. Students are highly encouraged to attend these workshops early in the dissertation process to fully understand the above policies and procedures.

The College of Graduate Studies thesis and dissertation office is best reached by email at editor@ucf.edu.

Dissertation Defense

The dissertation defense occurs after completing and writing the dissertation. The defense determines whether the student has done satisfactory work and fully understands the work that he or she has done. The oral defense of the dissertation is administered by the Advisory Committee which makes a critical inquiry into the work reported in the dissertation and into the areas of knowledge that are immediately relevant to the research. All members vote on acceptance or rejection of the dissertation. The dissertation must be approved by a majority of the Committee. The committee has the final say on whether the student passes or fails. If failed, this exam may not be re-taken.

The College of Engineering and Computer Science requires that all dissertation defense announcements are approved by the student's advisor and posted on the college's website at least two weeks before the defense date and on the College of Graduate Studies [Events](#).

Annual Review

Information projected to be entered in 2019-2020.

Graduate Research

Research is a vital part of graduate education, particularly for doctoral students. The development of research skills and the practice of good research ethics begins with graduate study. Faculty serve a crucial role and are the primary source for teaching research skills and modeling research ethics.

- In the CECE department, much of our research is carried out as a part of Contracted Sponsored Research. Faculty obtain sponsored research from many different government agencies, and/or industry, and thus commit the university to doing certain research tasks. Students are typically hired to help the faculty conduct the research, and as such are contractually obligated to give their “best efforts” to accomplishing the research tasks. In most cases, students who are supported on contracts may use the results of their work as the basis for their dissertation.
- CECE has several institutes and laboratories.
- Dissertation – This document may be among the biggest academic efforts that you will ever make. As of the writing of this handbook, it is required that all theses and dissertations be officially submitted to the College of Graduate Studies in electronic form. It is highly recommended that you (the student) discuss format and content with your advisor, and carefully review other theses or dissertations before you get started. The Graduate Studies web site has some helpful hints with regard to formats for the electronic version of these documents. Please see the [Thesis and Dissertation Webcourse](#).
- It is important to be honest and ethical in conducting research as well as in taking classes. Report all data factually and completely.
- Patents and inventions may arise from the faculty and graduate student research. UCF has clear guidelines and a Patent and Invention Policy in the Graduate Catalog. Please see ucf.catalog.acalog.com/index.php?catoid=4 > Policies > General Graduate Policies > [Patent and Invention Policy](#).
- Students should be aware that in our department, we require that theses and dissertations be written in a journal article format and in accordance with College of Graduate Studies requirements. The UCF College of Graduate Studies conducts workshops on thesis and dissertation formatting, library research, and writing essentials through their Pathways to Success program. It is **highly recommended** that each student coordinate with his or her faculty advisor as to the preferred journal format, prior to beginning to write the dissertation.
- There are specific Laboratory Safety Procedures that must be followed by each student working in a lab in the CECE Department. It is department policy that each student is responsible for knowing and following the Safety Procedures. Please see the laboratories manager and/or your faculty advisor to get a copy of the Safety Procedures for the appropriate lab.
- Research Policies and Ethics Information: UCF's Office of Research & Commercialization ensures the UCF community complies with local, state and federal regulations that relate to research. For polices including required Institutional Review Board (IRB) approval when conducting research involving human subjects (e.g. surveys), animal research, conflict of interest and general responsible conduct of research, please see the website: [research.ucf.edu/ Compliance](http://research.ucf.edu/Compliance).

Financial Support

Financial support is a major concern for graduate students, especially since many rely on financial support from the university to pursue graduate study. In combination, the college, the university, and the department provide financial assistance to graduate students in several ways: (1) fellowships and scholarships are available to academically outstanding students, (2) Graduate Teaching Assistantships – GTAs (for grading or for lab teaching)

are available in limited numbers, (3) Graduate Research Assistantships – GRAs (for helping faculty with research) are more widely available depending on the funding levels of the faculty. Students must maintain satisfactory academic progress (including a GPA of 3.0 and a full course load), and do acceptable research or grading or teaching work to maintain their financial support.

- All students are expected to maintain a 3.0 GPA in their Plan of Study. They must not make any more than two 'C' grades, and those must be balanced with two 'A' grades. Students on contract are expected to work 10 to 20 hours per week on their assigned tasks (whether it be grading, lab teaching, or research), while they are maintaining satisfactory progress in completing their academic courses. All GTAs (especially international students) that have any contact with undergraduate students must take all training required by Graduate Studies. International students must take the SPEAK test. See the following website for GTA information: graduate.ucf.edu/graduate-teaching/.
- Students must meet their obligations (making satisfactory progress toward their degree, maintaining a 3.0 in their POS, doing satisfactory work for their research advisor) to continue to receive their financial support. Students on assistantship agreements must maintain satisfactory work as defined by their supervisor. Also, being on an assistantship agreement requires that the students register for the proper number of hours of classes in time to process tuition remission and so forth.
- The duration of financial support may vary from one semester at a time to up to a 4-year renewable fellowship.
- International students are expected to be here as full-time students, and may not work off campus except under very strict conditions. For information about the types of employment available to international students, and the requirements and restrictions based on visa type, see the International Services Center's website: global.ucf.edu/ > Students > Employment.

Conference Presentation Support

The College of Graduate Studies offers a Graduate Presentation Fellowship that provides funding for master's, specialist, and doctoral students to deliver a research paper or comparable creative activity at a profession meeting. Students must be the primary author and presenter.

For more information on travel support please visit graduate.ucf.edu/presentation-fellowship/.

The Student Government Association offers graduate students travel funding to pay transportation expenses for graduate students who are delivering a research paper or comparable creative activity at a professional meeting. Contact the Student Government Association at 407-823-5648 for more information.

Graduate Student Associations

The Graduate Student Association (GSA) is UCF's graduate organization committed to enrich graduate students' personal, educational and professional experience. To learn more or get involved, please visit facebook.com/groups/UCFgsa/. For individual department or graduate program organizations, please see program advisor.

The Florida Engineering Society prepares engineering students of all disciplines for the high level of performance and responsibility that is required to succeed in today's job market, while providing the opportunity to develop professional relationships with professional engineers, educators and peers.

[National Society of Black Engineers \(NSBE\)](#) strives to increase the number of culturally responsible black engineers who excel academically, succeed professionally, and positively impact the community.

[Society of Hispanic Professional Engineers \(SHPE\)](#) promotes the development of Hispanics in engineering, science and other technical professions.

[Society of Women Engineers \(SWE\)](#) is a useful resource for women in technical fields including engineering.

[Student Panel for Engineering and Computer Science](#) promotes student interests and achievements within the College and to the technical community at-large, serving as an advisory board to the Dean of the College of Engineering and Computer Science and as a coordinating body for college-wide events.

Professional Development

In this section, we identify university resources available to students for professional development. A graduate student's professional development goes beyond completing course work, passing exams, conducting research for a dissertation, and meeting degree requirements. Professional development also involves developing the academic and non-academic skills needed to become successful in the field of choice. Please see catalog.ucf.edu/index.php?catoid=4 > Policies > General Graduate Policies > [Assistantship Opportunities](#).

- UCF has an active professional development program for graduate students, including the Professoriate Program, sponsored by Faculty Center for Teaching and Learning, the GTA Certificate Program, sponsored by FCTL, the Graduate Student Association Seminar Series, the Graduate Research forum, sponsored by the College of Graduate Studies, and special award recognitions such as the Award for Excellence by a Graduate Teaching Assistant, the Award for Excellence in Graduate Student Teaching, the Award for the Outstanding Master's Thesis, and the Award for the Outstanding Dissertation (see section below for more information)
- Doctoral students intending to pursue a career in academia have the opportunity to develop grant-proposal writing skills by working closely with faculty mentors.
- Students are expected to publish the results of their research. In fact, the CECE department strongly encourages students to write their thesis or dissertation in the journal paper format.
- Graduate students in CECE are encouraged to present a poster or a topic of research at conferences while still a student, and often their faculty mentor will be able to fund one or more such opportunities. Also, see the Financial Support section of this handbook for information about travel support.

Instructor Training and Development

The Faculty Center for Teaching and Learning (FCTL) promotes excellence in all levels of teaching at the University of Central Florida. To that end, they offer several programs for the professional development of Graduate Teaching Assistants at UCF.

- **GTA Training** (mandatory for employment as a GTA)
This training provides information and resources for students who will be instructors in a two-day workshop. The seminars cover a variety of topics, including course development, learning theories, lecturing, and academic freedom. Those interested in additional training can also attend an optional training session that normally follows the mandatory training.
- **Preparing Tomorrow's Faculty Program**
This certificate program (12-weeks for domestic students, 16-weeks for international students) consists of group and individualized instruction by Faculty Center staff and experienced UCF professors. Textbooks and materials are provided, and a stipend is offered to current UCF students who complete the certificate. International students are provided the same training as well as information regarding language immersion and tricks and cultural awareness as a way of knowing what to expect from American students.

For more information: fctl.ucf.edu/ > Events > GTA Programs or call 407-823-3544.

Pathways to Success Workshops

Coordinated by the College of Graduate Studies, the Pathways to Success program offers free development opportunities for graduate students including workshops in Academic Integrity, Graduate Grantsmanship,

Graduate Teaching, Personal Development, Professional Development, and Research. For more information and how to register, please visit graduate.ucf.edu/pathways-to-success/.

Graduate Excellence Awards

Each year, students can submit a portfolio for nomination of College and University level awards of excellence. These are intended to showcase student excellence in academic achievement, teaching, research, leadership, and community service.

These awards include the following:

- **Award for Excellence by a Graduate Teaching Assistant**
For students who provide teaching support and assistance under the direction of a lead teacher. This award focuses on the extent and quality of the assistance provided by the student to the lead instructor and the students in the class. (Not intended for students who are instructor of record)
- **Award for Excellence in Graduate Student Teaching**
For students who serve as instructors of record and have independent classroom responsibilities. The focus of this award is on the quality of the student's teaching and the academic contributions of those activities.
- **Award for the Outstanding Dissertation**
To recognize doctoral students for excellence in the dissertation. The focus of this award is on the quality and contribution of the student's dissertation. Excellence of the dissertation may be demonstrated by evidences such as, but not limited to: publications in refereed journals, awards and recognitions from professional organizations, and praise from faculty members and other colleagues in the field.

For more information about these awards, please see graduate.ucf.edu/awards-and-recognition/.

For more information about the Council of Southern Graduate Schools (CSGS) thesis and dissertation awards, please see their website: csgs.org/ > Awards.

Job Search

UCF's Career Services department offers a wide range of programs and services designed to assist graduate students. These services include evaluation and exploration of career goals, preparation for the job search and job search resources. To learn more, visit their website at career.ucf.edu/.

For specific services or resources provided by the academic program, please contact the graduate program director or academic advisor.

Forms

- [College of Graduate Studies Forms and References](#)
A complete listing of general forms and references for graduate students, with direct links, may be found here.
- [Graduate Petition Form](#)
When unusual situations arise, petitions for exceptions to policy may be requested by the student. Depending on the type of appeal, the student should contact his/her program adviser to begin the petition process.
- [Traveling Scholar Form](#)
If a student would like to take advantage of special resources available on another campus but not available on the home campus; for example, special course offerings, research opportunities, unique laboratories and library collections, this form must be completed and approved.

Useful Links

- [Civil, Environmental, and Construction Engineering](#)
- [College of Engineering and Computer Science](#)
- [College of Graduate Studies](#)
- [Academic Calendar](#)
- [Bookstore](#)
- [Campus Map](#)
- [Counseling Center](#)
- [Financial Assistance](#)
- [Golden Rule Student Handbook](#)
- [Graduate Catalog](#)
- [Graduate Student Association](#)
- [Graduate Student Center](#)
- [Housing and Residence Life](#)
- [Housing, off campus](#)
- [Knights Email](#)
- [Library](#)
- [NID Help](#)
- [Pathways to Success](#)
- [Recreation and Wellness Center](#)
- [Shuttles Parking Services](#)
- [Student Health Services](#)
- [Thesis and Dissertation \(ETD\)](#)
- [UCF Global](#)
- [University Writing Center](#)

Grad Faculty

Asterisk = has previous committee experience, which qualifies the person to serve as vice chair

Agarwal, Shaurya *

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Disciplinary affiliations: Environmental Engineering

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Cooper, David *

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Disciplinary affiliations: Environmental Engineering

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Duranceau, Steven *

College: College of Engineering and Computer Science

Disciplinary affiliations: Environmental Engineering

Research interests: Drinking Water Quality, Treatment, Distribution System, Aeration, Membranes, Ion Exchange, Granular Activated Carbon, Coagulation, Filtration, Disinfection, Disinfection By-products, Operations Research, Stabilization Corrosion Control

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