UTSA The University of Texas at San Antonio™

Academic Policies and Procedures Handbook

Environmental Science and Engineering Ph.D. Program

Graduate catalog 2023-25

CREATING BOLD FUTURES

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I. Ph.D. Program Areas of Study

The School of Civil and Environmental Engineering and Construction Management (CECM) offers the opportunity for advanced study and research leading to the Doctor of Philosophy degree in Environmental Science and Engineering (ESE). The educational objective of this program is to produce graduates who are capable of conducting original research in industry or academia as well as assuming a leadership role in their chosen employment field. This is a multidisciplinary program administered by CECM in the Klesse College of Engineering and Integrated Design (KCEID). It encompasses faculty and facilities from the College of Sciences (COS) and the KCEID. In the COS faculty from the Department of Earth and Planetary Sciences (EPS) and the Department of Integrated Biology (IB) supervise students enrolled in the ESE PhD program.

The program has four separate tracks: Environmental Science, Environmental Engineering, Water Resources, and Geoscience. The Ph.D. degree in ESE is awarded to candidates who display an in-depth understanding of the subject matter and demonstrate the ability to make an original contribution to knowledge in their field of specialty.

This Ph.D. program draws on the resources of the KCEID and COS. Faculty share responsibilities for providing courses, research supervision, and facilities for this program. Areas of research emphasis include hydrology, water quality, water pollution control, waste disposal, environmental quality, remediation, ecology, conservation, restoration, contaminants, air pollution control, global change, atmospheric chemistry, environmental geochemistry, environmental microbiology, microbial geochemistry, volcanic hazards, tectonics, seismic hazards, and planetary science.

II. Governance

The Directors of the ESE Ph.D. Program are faculty members in the CECM and the Earth and Planetary Sciences (EPS) Department appointed by the Deans of the KCEID and the COS, respectively, for a 2-year term. The Directors serve as the Graduate Advisors of Record (GARs) and chair the ESE Ph.D. Committee on Graduate Studies (COGS). Students from KCEID and COS should report to the GAR in their college on their progress to graduation and for administrative inquiries related to the ESE PhD program. The COGS consists of the 2 (two) GARs and 4 (four) faculty members, 2 (two) from KCEID and 2 (two) from the College of Sciences (Table 1). Faculty members may be rotated every 2 (two) years; they will be elected by faculty members from COS and KCEID. The current COGS composition can be found in Table 1 and on the program website. The COGS is responsible for developing and modifying ESE Ph.D. program policies, processes, courses, companion procedures, and operations manuals or guidelines to implement the requirements of the ESE Ph.D. program, ideally at each catalog revision.

Table 1: Composition of the COGS starting academic year 2023-2024.

Name	**Department**	**Email**	**Role**
Godet, Alexis	Earth and Planetary Sciences	alexis.godet@utsa.edu	GAR, overlooking COS students

Sharif, Hatim	Civil & Environmental Engineering, and Construction Management	hatim.sharif@utsa.edu	GAR, overlooking KCEID students
Hutchinson, Jeffrey	Integrative Biology	jeffrey.hutchinson@utsa.edu	Committee member, COS
Brown, Kristen	Civil & Environmental Engineering, and Construction Management	kristen.brown2@utsa.edu	Committee member, KCEID
Urena-Benavides, Esteban	Chemical Engineering	esteban.urena-benavides@utsa.edu	Committee member, KCEID
Whittington, Alan	Earth and Planetary Sciences	alan.whittington@utsa.edu	Committee member, COS

III. Admissions Requirements

III.1. Application process

Applicants must satisfy the university-wide graduate admission requirements. Applicants must also satisfy the following program-specific requirements:

- a Bachelor of Science degree or a Master of Science degree from an accredited university, with a minimum grade point average of 3.0 or better in upper-division and/or graduate courses. The degree should be in biology, ecology, environmental science, chemistry, geology, geography, environmental engineering, civil engineering, or other related scientific or engineering disciplines;
- two letters of recommendation from persons familiar with the applicant's academic potential;
- a statement of purpose that outlines research/specialization interests;
- official transcripts from all institutions attended; international transcripts must be recorded in English or officially translated to English;
- a résumé or curriculum vita.

Applications must be submitted to the UTSA Strategic Enrollment online at https://utsa2023.liaisoncas.com/. Incomplete applications will not be considered. Acceptance into the program is decided by the COGS. Full-time students accepted for the program are eligible to apply for financial support in the form of competitive teaching assistantships, research assistantships, and/or research fellowships.

Students are initially accepted in the program as doctoral students. After the completion of the written qualifying exam and oral comprehensive exam, students advance to candidacy and become doctoral candidates.

III.2. Funding

All full-time students who apply to the ESE Ph.D. program should contact faculty members in their field of interest to inquire for potential funding graduate research assistant or a teaching assistant. Assistantships provided to students must include medical insurance. Each assistantship is renewable on a yearly basis based upon student progress in the program. To qualify for renewal of funding, a student must be in good standing (i.e., maintain a 3.0 GPA and have fulfilled all their obligations as outlined in the original offer letter issued to them) and must be enrolled in 9 hours in the fall semester, 9 hours in the spring semester, and 3 hours in the summer semester.

Student financial support is standardized across the four tracks of the program and may include funds for tuition, medical insurance, and stipends. The amount of compensation for this program can be found on this page: https://klesse.utsa.edu/research/graduate-funding.html.

III.3. Acceptance Package

The acceptance package must include:

1. Admission letter with signatures from the GARs. If financial support is provided by the department and/or faculty supervising professor, the admission letter with detailed financial support (amount supported and years of support) must include signatures from the GARs and department and/or supervising professor.
2. Accepted students must meet all UTSA matriculant requirements, including immunization requirements, if any. Failure to comply with requirements will result in holds on a student's account.
3. The admission letter must inform students of any conditions for admission.
4. For international students only, the admission letter must provide information regarding Visa and Social Security requirements and deadlines; the letter can direct students to UTSA International Services website for International Students (https://international.utsa.edu/).

IV. Degree Requirements

Students are expected to graduate from the program in five years. Part-time students should discuss their timeline to completion of the degree in line with their non-academic duties with their advisor. The achievement of milestones (Table 2 and Addendum A) permits students to stay on track. Student must report progress toward graduation using the form in Addendum B to their Research Advisor and GAR.

Table 2: Program milestones and time of achievement.

Milestone	Expected Time of Achievement
Review of student's progress with Dissertation Advisor	Monthly

Completion of a program of study	In the first year in the program an no later than the oral comprehensive exam
Completion of core courses (10 CR)	In the first year in the program for full-time students
Successful completion of written qualifying exam	At the end of first year in the program for full-time students
Coursework successfully completed	Prior to oral comprehensive exam
Dissertation Committee appointed and approved by Graduate School	Prior to start of oral comprehensive exam
Dissertation proposal (oral comprehensive exam) completed and approved	2 semesters after completing written qualifying exam
Student admitted to doctoral candidacy	After completed and approved oral comprehensive exam
Dissertation completed, successfully defended, and approved by Committee	4 semesters after completing oral comprehensive exam

IV.1. Courseload and track electives

The ESE Ph.D. program requires that students complete a minimum of 60 semester credit hours beyond the Master's degree (Table 3 and Addendum A). This coursework includes courses that have been designed to provide advanced instruction in areas considered to form the foundation for the disciplines of Environmental Science and Engineering. Students should complete CE 5001 Process and Ethics in Thesis/Dissertation Research Development during their first year in the program to fully benefit from it. Enrollment in the Graduate Seminar is required for a minimum of 2 semester credit hours. A minimum of 15 semester credit hours of Doctoral Research and a minimum of 15 semester credit hours of Doctoral Dissertation must be completed prior to graduation. Any grade lower than "B" in graduate or remedial coursework at the undergraduate level does not count toward the 60 semester credit hours. Students with only a baccalaureate degree are required to have a minimum of 75 semester credit hours to graduate (Table 4). Progress should be recorded using the 'Program of Study' form (Addendum C); it is recommended to students to start using the Program of Study form in the first semester in the program, and to submit it to the GAR of the student's Dissertation Advisor's college as part of the package to request advancement to candidacy (see part IV.3).

Twenty one (21) semester credit hours of required elective courses must be selected by each student according to his/her selected track of study, as defined in the tables below. These elective courses need to be approved by the GAR of the college and the student's Dissertation Advisor, and reviewed by the student's Dissertation Committee. These elective courses may be offered by departments in the College of Sciences, the College of Engineering, or other departments at UTSA. A maximum of 6 semester credit hours of Independent Study courses can count toward the degree as "other electives".

Finally, university-wide requirements stipulate that to receive a doctoral degree from UTSA, the following minimum requirements must be met:

1. All completed coursework included in the final program of study must have been taken within the preceding eight years to include successful completion and defense of the dissertation.
2. The student must formally apply for the degree in the Office of the Registrar no later than the deadline for the semester in which they intend to graduate (for deadlines, see the online registration calendar).
3. The student must meet the grade-point-average requirement of 3.0 or higher (on a 4.0 scale) in all work counted as part of the degree program.
4. No courses in which grades of less than "C" (below 2.0 on a 4.0 scale) were earned may be applied to a doctoral degree.
5. The majority of graduate coursework must be completed at UTSA.

Table 3: Students who have obtained a master's degree are required to complete these courses. Addendum B should be used to track progress toward completion of degree requirements.

Program of Study		**Hours**
A. Degree Core Curriculum		**10**
CE 5001	Process and Ethics in Thesis/Dissertation Research Development	
One of the following:		
CE 5043	Advanced Civil Engineering Statistics	
ES 5023	Environmental Statistics	
STA 5103	Applied Statistics	
GEO 5063	Applied Statistics for Geoinformatics	
One of the following:		
CE 5143	Numerical Methods in Civil Engineering	
ES 5233	Experimental Design and Analysis	
ES 6033	Applied Multivariate Statistics for Ecological Data	
STA 6813	Multivariate Analysis	
STA 6863	Spatial Statistics	
One of the following:		
CE 5093	Geographic Information Systems (GIS)	
CE 6383	Global Change	
ES 5043	Global Change	
GEO 5033	Geographical Information Systems	
GEO 6043	Global Change	
B. Track Electives		**12**

These can be selected from 5000- to 7000-level courses offered in CECM, Department of Earth and Planetary Sciences, Department of Integrative Biology, or other UTSA departments, with the approval of the student's Dissertation Committee and the Chair of the COGS. The objective of these courses is to provide advanced training in areas considered to form the foundation for these disciplines. The Dissertation Advisor will develop a plan of study in collaboration with the student based on the career goals, chosen track, and dissertation objectives of the student. The plan of study will include courses that build the fundamental knowledge required to complete the dissertation, and courses outside of traditional areas for students involved in multidisciplinary research.

1. **Environmental Science Track Electives**

The objective of this track is to train students in conducting research in the various aspects of environmental science with a focus on the application of chemical, physical, and/or biological sciences in solving environmental problems. These elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other UTSA departments, and must be approved by the student's Dissertation Committee Chair and the COGS.

2. **Environmental Engineering Track Electives**

The objective of this track is to train students in conducting research in the various aspects of environmental engineering with a focus on the application of science and engineering principles in sustaining the natural environment (i.e., air, water, and land). These elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other UTSA departments, and must be approved by the student's Dissertation Committee Chair and the COGS.

3. **Water Resources Track Electives**

The objective of this track is to train students in conducting research in the various aspects of water resources, with an emphasis on the application of science and engineering principles in the study of physical, chemical, biological, and social factors that affect water quantity and quality. These elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other UTSA departments, and must be approved by the student's Dissertation Committee Chair and the COGS.

4. **Geoscience Track Electives**

The objective of this track is to train students in conducting research in the various aspects of geoscience, with a focus on the application of physical science in solving problems relating to the past, present, and future of the Earth system, and of other planets. These elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other UTSA departments, and must be approved by the student's Dissertation Committee Chair and the COGS.

C. Other Electives	**6**
These can be selected from 5000- to 7000-level courses offered in CECM or other departments, with the approval of the Environmental Science and Engineering COGS.	
D. Seminars (2 semester credit hours)	**2**
Two of the following (the same course can be repeated twice):	

CE 6621	Graduate Seminar in Environmental Science and Engineering	
ES 5981	Graduate Seminar in Environmental Science and Engineering	
GEO 5991	Graduate Seminar in Geosciences	
E. Doctoral Research and Dissertation		**30**
Select one of the following options (15 semester credit hours required of Doctoral Research and 15 semester credit hours required of Doctoral Dissertation):		
Option I		
CE 7213	Doctoral Research (or CE 7212, or CE 7211)	
CE 7313	Doctoral Dissertation (or CE 7312, or CE 7311)	
Option II		
ES 7213	Doctoral Research (or ES 7212, or ES 7211)	
ES 7313	Doctoral Dissertation (or ES 7312, or ES 7311)	
Option III		
GEO 7213	Doctoral Research (or GEO 7212, or GEO 7211)	
GEO 7313	Doctoral Dissertation (or GEO 7312, or GEO 7311)	
Total Credit Hours		**60**

Table 4: Students who have obtained a bachelor's degree are required to complete these courses. Addendum B should be used to track progress toward completion of degree requirements.

Program of Study		**Hours**
A. Degree Core Curriculum		**10**
CE 5001	Process and Ethics in Thesis/Dissertation Research Development	
One of the following:		
CE 5043	Advanced Civil Engineering Statistics	
ES 5023	Environmental Statistics	
GEO 5063	Applied Statistics for Geoinformatics	
One of the following:		
CE 5143	Numerical Methods in Civil Engineering	
ES 5233	Experimental Design and Analysis	
ES 6033	Applied Multivariate Statistics for Ecological Data	
STA 6813	Multivariate Analysis	
STA 6863	Spatial Statistics	
One of the following:		
CE 5093	Geographic Information Systems (GIS)	
CE 6383	Global Change	
ES 5043	Global Change	

GEO 5033	Geographical Information Systems	
GEO 6043	Global Change	
B. Track Electives		**21**

These can be selected from 5000- to 7000-level courses offered in CECM, Department of Earth and Planetary Sciences, Department of Integrative Biology, or other departments, with the approval of the student's Dissertation Committee and the Chair of the COGS. The objective of these courses is to provide advanced training in areas considered to form the foundation for these disciplines. The Dissertation Advisor will develop a plan of study in collaboration with the student based on the career goals, chosen track, and dissertation objectives of the student. The plan of study will include courses that build the fundamental knowledge required to complete the dissertation, and courses outside of traditional areas for the student involved in multidisciplinary research.

1. **Environmental Science Track Electives**

The objective of this track is to train students in conducting research in the various aspects of environmental science with a focus on the application of chemical, physical, and/or biological sciences in solving environmental problems. These elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other UTSA departments. The overall program of study for this track may differ by no more than 12 semester credit hours from the program of study for the Ph.D. degree in Environmental Science and Engineering and must be approved by the student's Dissertation Committee Chair and the COGS.

2. **Environmental Engineering Track Electives**

The objective of this track is to train students in conducting research in the various aspects of environmental engineering with a focus on the application of science and engineering principles in sustaining the natural environment (i.e., air, water, and land). Elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other departments. The overall program of study for this track may differ by no more than 12 semester credit hours from the program of study for the Ph.D. degree in Environmental Science and Engineering and must be approved by the student's Dissertation Advisor and the COGS.

3. **Water Resources Track Electives**

The objective of this track is to train students in conducting research in the various aspects of water resources, with an emphasis on the application of science and engineering principles in the study of physical, chemical, biological, and social factors that affect water quantity and quality. Elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other departments. The overall program of study for this track may differ by no more than 12 semester credit hours from the program of study for the Ph.D. degree in Environmental Science and Engineering and must be approved by the student's Dissertation Advisor and the COGS.

4. **Geoscience Track Electives**

The objective of this track is to train students in conducting research in the various aspects of geoscience, with a focus on the application of physical science in solving problems relating to the past, present, and future of the Earth system, and of other planets. Elective courses can be selected from the graduate courses offered by the College of Sciences, CECM, or other

departments. The overall program of study for this track may differ by no more than 12 semester credit hours from the program of study for the Ph.D. degree in Environmental Science and Engineering and must be approved by the student's Dissertation Advisor and the COGS.		
C. Other Electives		**12**
These can be selected from 5000- to 7000-level courses offered in CECM or other departments, with the approval of the Environmental Science and Engineering COGS.		
D. Seminars (2 semester credit hours)		**2**
Two of the following (the same course can be repeated twice):		
CE 6621	Graduate Seminar in Environmental Science and Engineering	
ES 5981	Graduate Seminar in Environmental Science and Engineering	
GEO 5991	Graduate Seminar in Geosciences	
E. Doctoral Research and Dissertation		**30**
Select one of the following options (15 semester credit hours required of Doctoral Research and 15 semester credit hours required of Doctoral Dissertation):		
Option I		
CE 7213	Doctoral Research (or CE 7212, or CE 7211)	
CE 7313	Doctoral Dissertation (or CE 7312, or CE 7311)	
Option II		
ES 7213	Doctoral Research (or ES 7212, or ES 7211)	
ES 7313	Doctoral Dissertation (or ES 7312, or ES 7311)	
Option III		
GEO 7213	Doctoral Research (or GEO 7212, or GEO 7211)	
GEO 7313	Doctoral Dissertation (or GEO 7312, or GEO 7311)	
Total Credit Hours		**75**

IV.2. Dissertation Committee

Students must choose a Dissertation Committee consisting of a chair and at least three additional graduate faculty members. Fixed-Term Track (FTT) faculty can be part of the Dissertation if they are elected special member of the graduate faculty. This committee must include a minimum of one faculty member from CECM and one from the COS. The Dissertation Committee Chair is the student's Dissertation Advisor; when the Dissertation Advisor is a FTT, a tenure-track or tenured faculty must serve as the Dissertation Committee Chair. Students must submit the names of their Dissertation Committee to their GAR by the end of their second year of study (see Addendum A) using the 'Appointment of Doctoral Dissertation Committee' form available on the Graduate School website; the completed form must be routed to the GAR of the student's Dissertation Advisor's college who will sign and route it for further approval, during the semester before they plan to defend their dissertation proposal.

Experts in the field of study who are not affiliated with UTSA (e.g., adjoint faculty from Southwest Research Institute) can serve as dissertation committee members if appointed as special members of the graduate faculty. Initial appointment can take up to two months to be finalized and cannot be made during the Summer semester. A list of current special and adjoint members of the

graduate faculty is available on the Graduate School website, as well as guidelines to request the election of a new special or adjoint member of the graduate faculty.

IV.3. Advancement to Candidacy

Ph.D. students advance to candidacy after completing their written qualifying examination and their oral comprehensive examination. Results of the written and oral examinations must be reported to the COGS and the Dean of the Graduate School using the 'Completion of Qualifying Exam' form available on the Graduate School website. Students must work with their GAR to complete these forms and gathered signatures of the committee members. The GAR will route the form to the program administrative staff for further approval. The 'Application for Candidacy for the Doctoral Degree' can be found on the Graduate School website. Admission into the doctoral program does not guarantee advancement to candidacy. After advancement to candidacy, the student's Dissertation Committee can be changed at the student's request and with the approval of the GAR of their Dissertation Advisor's college.

IV.3.1. Written qualifying examination

Students must complete the core curriculum courses and then take the written qualifying examination. Full-time students should take the qualifying examination by the end of their first year in the program (see Addendum A). Part-time students need to take the written qualifying examination at a time dictated by the COGS.

The committee administering the written qualifying examination includes three members: two instructors of core courses taken by the student, and the Dissertation Advisor. Thus, it does not need to the dissertation committee, which gives more time to students to finalize their dissertation committee. The written qualifying examination may include two questions asked by the core course instructors and may cover one or more of the six core areas (statistics/spatial data science, biology, chemistry, environmental engineering, geoscience, and water resources). The Dissertation Advisor may ask one question on a topic related to the student's doctoral research. Students should spend no more than six hours per day, for three individual days within a 7-day span, to answer all the questions; the written qualifying examination is a take-home exam. Students are expected to show in-depth knowledge of the topics pertaining to their track of study. The written qualifying examination tests the student's undergraduate background, their degree of understanding of the material presented in graduate courses, as well as their critical thinking and written communication skills. No more than two attempts to pass the written qualifying examination are permitted; a student who fails the written qualifying exam at their first attempt must wait until the next semester to take that exam again. Students who fail the qualifying examination twice are terminated from the program. Students are notified of their results by a letter from the GAR of their Dissertation Advisor's college. Students who pass the written qualifying exam are eligible to enroll in Doctoral Research hours.

IV.3.2. Oral comprehensive examination

Students should take their oral comprehensive examination within one year after passing their written qualifying examination. The oral comprehensive examination is a dissertation proposal defense. The dissertation proposal consists of both a written proposal and oral defense of the student's proposed research. The written dissertation proposal should describe the topic, the literature review, the proposed methodology and approach, and highlight the novelty and potential contribution of the topic to the scientific field. It should be formatted in typical NSF or NASA style, and be no more than 15 pages (including figures and captions, but not including references cited).

The committee administering the oral comprehensive examination is the Dissertation Committee and should consist of four members (see part IV.2). Students should request written approval from the ESE Program for their dissertation committee members and Dissertation Advisor selection using the 'Appointment of Doctoral Dissertation Committee' form available on the Graduate School website; the completed form must be routed to the GAR of the student's Dissertation Advisor's college who will sign and route it for further approval, during the semester before they plan to defend their dissertation proposal.

Students must develop a dissertation proposal during their second year in the program (see Addendum A). The student's Dissertation Advisor must approve the student's research proposal before scheduling the oral examination. Students should submit their dissertation proposal to their Dissertation Committee members at least two weeks before the defense. The dissertation proposal defense consists of an oral presentation ranging from 25 to 45 minutes in duration, followed by a question-and-answer session that involves all Dissertation Committee members and is orchestrated by the student's Dissertation Committee Chair. The student decides if the oral presentation is public, while the question-and-answer session must be private. No more than two attempts to pass the oral comprehensive examination are permitted, and two attempts cannot be taken during the same semester. Students who fail the oral comprehensive examination twice are terminated from the program. After successful completion of the oral comprehensive exam, students become Doctoral Candidates and may enroll in Doctoral Dissertation hours.

IV.4. Dissertation

Candidates must demonstrate their ability to conduct independent research by completing an original dissertation. The Dissertation Committee guides, critiques, and finally approves the candidate's dissertation. The format of the dissertation must follow the doctoral degree regulations of the Graduate School as documented under 'Completing the Degree' section of UTSA Graduate Catalog.

Students in the ESE doctoral program must submit a dissertation that should include at least three chapters that correspond to published, submitted, or planned manuscripts in peer-reviewed journals, preceded by an introduction and followed by a conclusion. By the time of the final oral dissertation defense, at least one student first-authored manuscript should have been submitted for publication in a peer-reviewed journal.

IV.5. Final Oral Dissertation Defense

The student must notify the Graduate School in writing two weeks prior to the final scheduled oral defense; the student may email the administrative staff from their Dissertation Advisor's college belongs to (COS: Laurie Gay; KCEID: Stephanie Jimenez) who will route the information to the Graduate School. The final oral dissertation defense should be advertised with flyers and emails distributed to the ESE Program community by COS (Laurie Gay) and KCEID (Stephanie Jimenez) administrative staff. The final oral defense consists of a public presentation of the dissertation, followed by a closed oral defense during which Dissertation Committee members ask questions of the doctoral candidate. Questions aim to probe student's mastery of their field of research. The total duration of the final oral dissertation defense is normally ca. 3 hours including the public presentation. The results of the oral defense must be reported to the Dean of the Graduate School by the GAR of the student's Dissertation Advisor's college using the 'Certification of Completion of Dissertation Requirements for a Doctoral Degree' form; the student and their Dissertation Advisor can complete the form, gather signatures and route the form to their GAR who will route it for further approval. The awarding of the degree is based on the approval of the Dissertation Committee and the

Dean of the Graduate School. The Dean of the Graduate School certifies the completion of all university-wide requirements.

IV.6. Research Expectations

Students are expected to present their research at least once at professional or academic conferences appropriate to their tracks, within the broad field of environmental science and engineering. The choice of a poster or oral presentation is discussed between the student and their Dissertation Advisor, as it depends on the scope of the conference, progress made on the research, the program of the conference, amongst others. A non-exhaustive list of conferences includes the Annual Meeting by the American Institute of Chemical Engineers (AIChE), conferences by the ACS (American Chemical Society), the American Geophysical Union (AGU) meeting, American Meteorological Society (AMS) meeting, the American Society of Civil Engineering (ASCE) meeting, the Texas Academy of Science Annual Meeting, the annual meeting of the Geological Society of America (GSA), and the Goldschmidt conference.

Attending conferences has a cost. To facilitate their attendance at conferences, students presenting their research should apply to financial support from the Graduate School (https://graduateschool.utsa.edu/gps/presenting/).

V. Academic Advising

Before applying to and being admitted into the ESE program, a student must contact a faculty member who will agree to be their supervising professor. The supervising professor will be a member of the CECM, Integrative Biology (IB) or EPS departments. This supervising professor normally becomes the student's Dissertation Advisor. Should the student decide to change technical areas, one of the GARs will serve as the interim advisor, until a new Dissertation Advisor can be identified.

Academic advising includes elements that are designed to ensure that students remain in good academic standing and make satisfactory progress through the program.

Dissertation Advisors are responsible for the following:

- Providing suggestions on course selection
- Reviewing the student's Program of Study to determine if the student is making progress consistent with the expectations of the program and reaching milestones according to the timeline provided in this Handbook; working with the COGS and student to determine if modifications are necessary
- Clarifying the timetable for completing any remaining course requirements, examinations, and other requirements
- Providing the student with assistance in understanding the requirements for successful completion of the dissertation
- Meeting with students at regular intervals (at least monthly) to review the progress of research/dissertation
- Providing the student with assistance in assembling a dissertation committee
- Providing the student with experiences and information that will optimize the student's career opportunities and success

Students are responsible for the following:

- Meeting with their Dissertation Advisor at regular intervals (at least monthly) and presenting their progress on their assigned research tasks in writing
- If a student is full time and paid by college, departmental, or research funds, they must be present and on campus throughout the year, except when undertaking fieldwork or other off-campus activities; in case of an extended period off campus because of illness or injury, active military service, or leave to provide care to a family member, students may consider to request a leave of absence.
- Full-time students must take their written qualifying examination within the first 2 long semesters of their studies.
- Part-time students must take their written qualifying examination within the first 4 long semesters (i.e., Fall or Spring) of their studies.
- Full-time students must pass their oral comprehensive examination within 2 long semesters after passing their writing qualifying exam.
- Part-time students must pass their oral comprehensive examination within 4 long semesters after passing their writing qualifying exam.

All students must aim to pass their dissertation defense within 4 semesters after passing their oral comprehensive exam.

VI. Maximizing the Graduate Experience

Students are encouraged to network with peers and faculty members beyond their dissertation committee. Actively participating in seminars and engaging with invited speakers, even when not enrolled in the course, are excellent opportunities to broaden scientific knowledge, network, and sense of belonging to a community of learners. Students should attend seminars and events organized by relevant UTSA research centers, such as the NASA MIRO CAMEE center and the Institute for Water Research, Sustainability and Policy (IWRSP).

Students are encouraged to become members of professional organizations, and to even take an active role as a student representative on committees. Such a responsibility can be a great investment for future employment. For instance, students could consider joining chapters on campus, such as the Environmental and Water Resources Institute (EWRI) UTSA chapter (contact them at ewri.utsa@gmail.com to get on the mailing list), the joint student chapters for EWRI/Water Environment Association of Texas (WEAT), or the Association of Engineering Geologists (AEG) UTSA student chapter.

Students should take advantage of their time in the program to apply for research grants – see section III.2. This is an opportunity to understand grant proposal development and review, and funding mechanisms. It is also an opportunity to develop future research trajectories.

Students should take advantage of events organized by and resources offered through the Graduate School: https://graduateschool.utsa.edu/current-students/ and https://graduateschool.utsa.edu/events.html

VII. Inclusive Excellence

The Office of the Vice President for Inclusive Excellence outlines UTSA's Core Values: "We encourage an environment of dialogue and discovery, where integrity, excellence, inclusiveness, respect, collaboration and innovation are fostered." UTSA cultivates an inclusive community of

learners and embraces the diverse backgrounds of its faculty, staff, and students. This overarching goal permits UTSA faculty and staff to provide students with tailored advising and to support their growth as scientists and future active members of the society, whether in Texas, the USA, or abroad. Instances of non-compliance must be reported to the UTSA Equal Opportunity Service and Title IX office.

VIII. Important Links

ESE Ph.D. Program: https://future.utsa.edu/programs/doctoral/environmental-science-engineering/

CECM Faculty: https://klesse.utsa.edu/civil-environmental-construction-management/faculty/

EPS Faculty: https://www.utsa.edu/sciences/earth-planetary-sciences/faculty.html

IB Faculty: https://www.utsa.edu/sciences/integrative-biology/faculty.html

Graduate School: https://graduateschool.utsa.edu/

Graduate Catalog: https://catalog.utsa.edu/graduate/

Doctoral Forms: https://graduateschool.utsa.edu/faculty-staff/doctoral-forms/index.html

Addendum

Addendum A: Example of ESE Ph.D. Program Milestone Agreement (minimum of 60 or 75 semester hours for students holding a master's or bachelor's degree, respectively).

Note: Students are required to have at least 1 manuscript published/accepted/in press/submitted by a peer-reviewed Journal as part of the degree program

1st Semester (Fall)	1. Register for courses (core, elective, seminar) 2. Search and select a supervising professor
2nd Semester (Spring)	1. Register for courses (core, elective, seminar) 2. Begin discussion with your supervising professor on your dissertation work 3. Make necessary steps to take written qualifying exam (**Letter of Intent Due - Mar 15; Submit plan for written qualifying exam – Due May 15**)
3rd Semester (Summer)	1. Register for courses (core and elective) 2. Take written qualifying exam (**no later than one week before Fall semester begins**) 3. Collect preliminary data for your proposed dissertation work
4th Semester (Fall)	1. Register for elective courses, seminar, and doctoral research 2. Continue to collect preliminary data for your proposed dissertation work 3. Work with supervising professor to select Dissertation Committee members 4. Request written approval from the ESE Program for your Dissertation Committee members and supervising professor selection 5. Submit the '*Appointment of Doctoral Dissertation Committee'* form to the Graduate School for approval of your dissertation committee members and supervising professor[1,2] 6. Begin writing Dissertation proposal
5nd Semester (Spring)	1. Register for elective courses, seminar, and doctoral research 2. Complete your written Dissertation proposal and submit to Dissertation Committee members at least two weeks before its defense[3] 3. Defend your Dissertation proposal[4]; a defense in the following Summer semester is acceptable 4. Submit the '*Dissertation Proposal Approval*, 'Completion Of Qualifying Exam' and the '*Application for Candidacy for the Doctoral Degree'* forms to the Graduate School for admission to candidacy (approval of Dissertation proposal by Dissertation Committee members) 5. Continue to collect data for your dissertation
6th, 7th, etc. Semesters	1. Register for elective courses and doctoral research and/or dissertation hours 2. Continue to collect data for your dissertation and begin writing dissertation
2nd to Last Semester	1. Register for elective courses 2. Register for doctoral dissertation[5] 3. Continue and complete data collection for your dissertation work 4. Continue writing your dissertation 5. Work with supervising professor on draft dissertation 6. Submit Program of Study to the GAR of the college of student's Dissertation Advisor
Last Semester	1. Register for doctoral dissertation[5] 2. Apply for Graduation according to deadlines from the Graduate School (September 15, February 15, and June 15 for a Fall, Spring, and Summer graduation, respectively)[7] 3. Complete your written dissertation and submit to Dissertation Committee members at least two weeks before its defense[3] 4. Defend your Dissertation[4] 5. Submit the 'C*ertification of Completion of Dissertation Requirements for Doctoral Degree*' form to the Graduate School for successfully completing your dissertation 6. Submit finalized Dissertation to the Graduate School after defense and approval from your Dissertation Committee[6,7]

[1]All members of the committee must conform to the ESE program guidelines as outlined in the graduate catalog.

[2]All members of the committee need to be appointed to the Graduate School (No members can be appointed during the summer semester)

[3]Written proposal/dissertation must be given to your Dissertation Committee members **at least 2 weeks** before the day of the defense.

[4]Flyer for the public defense of the proposal/dissertation must be electronically sent to all program faculty and students **at least 3 weeks** before the day of the defense.

[6]**Registration of a minimum of 1 Dissertation hour is required in the graduating semester.**

[7]Check with Graduate School (website or catalog) for deadlines

[8]In addition to the Graduate School requirements, students are required to submit 2 bound copies of the finalized Dissertation to the program office. You may order personal bound copies of your thesis or dissertation through ProQuest when you submit your document, or by contacting FedEx.

Addendum B: Example of student progress report for the ESE Ph.D. program.

ANNUAL SELF-EVALUATION OF STUDENT PROGRESS (Due August 1)

EVALUATION PERIOD: SEPTEMBER 1, _____ - AUGUST 31, _____

STUDENT NAME: _____ **PROGRAM:** _____ **Track:** _____

SUPERVISING PROFESSOR(S): _____ **ASSESSMENT REVIEW DATE:** _____ **Year(s) in program:** _____

COMMITTEE MEMBERS: _____ _____ _____

_____ _____ _____

GOALS OF THE ANNUAL STUDENT SELF-EVALUATION PROCESS ARE TO:

A. Create a document of student's research and academic progress, and identify student's career goal.
B. Provide comments to students on past year's performance and establish goals for next year.

INSTRUCTIONS:

A. Fill out all sections of the self-assessment, and expand tables if more space is needed.
B. Meet with your research advisor(s) to discuss your self-assessment, and return completed form to GAR(-s)

Section I: Student Self-Assessment

Brief Overview of research project and major research accomplishments during this period:

Publications: If Yes, please include author(s), title, journal, volume, page no. ☐ Yes ☐ No

Conference/Seminar Presentations: If Yes, please include title, meeting, date, location ☐ Yes ☐ No

Honors/Awards: If Yes, please include date, name/title, and description. ☐ Yes ☐ No

Proposal/Patent application submitted/awarded: If Yes, provide title and agency. ☐ Yes ☐ No

Supervisory/Teaching activity: If Yes, describe (eg. Lectures/labs, undergrad oversight). ☐ Yes ☐ No

Teaching: If Yes, please describe (lectures/labs) ☐ Yes ☐ No

Committee/service at professional organizations: If Yes, describe position or service. ☐ Yes ☐ No

Courses taken during this period? If yes, list courses and grades obtained. ☐ Yes ☐ No

Section II: Research and Training Plans for Next Year

- **Identify research gap and/or aim(s) for thesis/dissertation:**
- **Anticipated publications (indicate project authors, titles, and journal):**
- **Anticipated meeting(s) or workshop(s) to be attended:**
- **Fellowship/grant applications planned (indicate agency, type of award, and application date):**
- **Other professional training (*e.g.*, course work):**

Section III: Student Career Goals

- **Describe your immediate plan and long-term career goals post-graduation.**

Section IV: Metacognitive Summary

- **Summarize your strengths and areas for improvement. Describe your goals for the next evaluation period.**

Addendum C: Example of Plan of Study for the ESE Ph.D. Graduate Program.

NAME:		BANNER ID:	
CATALOG: (year admitted)		PROGRAM	Environmental Science and Engineering
CONCENTRATION			

The following courses are required for the degree indicated below*:

Course No.	Course Title	SCH	Gr	Semester	Comments
MANDATORY REQUIRED CORE COURSES (Total of 10 semester credit hours)					
PRESCRIBED ELECTIVES (12 or 21 semester credit hours minimum) **See UTSA Graduate Catalogs; With Approval from Supervising Professor & Course Instructor**					
OTHER ELECTIVES (6 or 12 CR)					
DOCTORAL RESEARCH (Minimum of 32 sch)					
	Seminar				
	Seminar				
	Doctoral Research (15 sch maximum credit)				
	Doctoral Research (15 sch maximum credit)				
	Doctoral Research (15 sch maximum credit)				
	Doctoral Research (15 sch maximum credit)				
	Doctoral Research (15 sch maximum credit)				
	Doctoral Dissertation (15 sch maximum credit)				
	Doctoral Dissertation (15 sch maximum credit)				
	Doctoral Dissertation (15 sch maximum credit)				
	Doctoral Dissertation (15 sch maximum credit)				
	Doctoral Dissertation (15 sch maximum credit)				

TOTAL SCH _____ **STUDENT SIGNATURE:** _____

Upon completion of the above requirements, in addition to meeting the University-wide requirements for all Doctoral degrees, the abovenamed student has satisfied all requirements for Doctor of Philosophy of ESE

Supervising Professor's Signature _____ Date _____

Dissertation Committee: Chair_____ Date_____

Print Name/Signature

Print Name/Signature

Graduate Advisor of Record (GAR)/ _____ Date _____