

EES Ph.D. Student Handbook

The Earth and Ecosystem Science Ph.D. program (EES) at Central Michigan University is interdisciplinary and research-intensive. It offers advanced scientific training in an investigative field of study that employs a systems-level approach to evaluate the physical, chemical and biological structure and function of various natural environments.

EES offers a research intensive program of study, with core courses, electives, and directed research hours designed to offer a flexible plan of study for students entering with a BS or with an MS. Electives and courses on specialized topics are available through Biology, Earth and Atmospheric Sciences, Geography and Environmental Studies, the School of Engineering and Technology and other departments.

Because of the interdisciplinary nature of this program, it is incumbent on students to communicate clearly and frequently with faculty and the program coordinator to plan their course of study and meet the required benchmarks. This handbook provides information to guide students and advisors through this process.

Unless explicitly noted as an exception, EES program policies follow the CMU Graduate policies. Please see policies in the bulletin for the year you entered the EES program.

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Plan of Study

Once admitted to the program and within the first semester of enrolling, each student meets with the dissertation advisor to map out a plan of study, complete a [transfer of credits](#) for relevant graduate coursework, and plan the research project. Successful completion of the PhD requires a minimum of 60 credit hours of graduate work beyond the bachelor's degree.

- The core courses (EES 701 and 703) are designed to provide students of varied backgrounds with universal skill sets and a common understanding of system-level analysis needed to conduct primary research in complex environmental systems.
- Elective course work as recommended by the faculty advisor and dissertation committee will augment each student's training as needed.
- Research credits compose the bulk of a student's credit hours in the program, keeping the focus on the dissertation research.
- Coursework – required and electives - should be documented on Degree Progress. The student's record in Degree Progress can be updated then by the advisor or by the coordinator with instructions from the advisor, so all parties can keep track of student progress within the program.

Required coursework

Required Courses (6 hours)

- *EES 701 Earth and Ecosystem Science Colloquium
- *EES 703 Advances in Earth and Ecosystem Science

(*these courses are offered every other year, so students should be sure to plan for these in either their first or second year, depending on when they enter into this cycle)

Elective Courses I (3-30 hours)

At least 3 credits selected from 500-700 level courses in Biology, Chemistry, Engineering, Environmental Science, Environmental Studies, Geology, Geography, Mathematics, Meteorology and Statistics. These credits may be transferred from master's level work with the permission of the advisor and program director. Realistically most students need 12 credits here, of electives or a combination of electives and Special Topics credits.

EES 790 Special Topics

Elective Courses II (3-30 hours)

EES 695 Research Internship in Earth and Ecosystem Science
EES 796 Directed Research

Dissertation (12 hours)

#EES 899 Dissertation


(#register for no more than 6 credits of EES 899 until the Prospectus has been submitted to Graduate Studies and approved by the Director of Graduate Studies)

= 60 credits minimum


Expected timeline to graduation

Note: Students who enter with an MS degree may follow an abbreviated schedule, depending on the research project and data collection. All EES-related forms are posted on the EES Students Microsoft Teams site and all official Graduate Studies forms are available on the Graduate Studies [site](#) for access by students and faculty.

Year 1

- Complete, in discussion with advisor, the EES Mentoring Form – this form is to be kept on file by the student and the advisor, and at its completion in Year 1, the advisor must email the Program Coordinator that this discussion has occurred, and the mentoring form completed and signed by both student and advisor.
- Coursework (core courses as available; electives as required by advisor/committee)
- Complete the [Graduate Transfer Credit Request](#) if you have graduate coursework at another institution that may count toward your course requirements. For coursework completed at CMU, the advisor should either submit a course amendment in Degree Progress to identify courses from a previous degree that should count toward elective credits in EES, or request this amendment via email from the Program Coordinator.
- Complete Responsible Conduct of Research training online via the CITI website and send certification with itemized coursework to Coordinator (see instructions on Teams site)
- Read “Guidelines to Begin Research and for Prospectus” on the Office of Graduate Studies [site](#)
- Directed Research credits (EES796)
- Form dissertation committee by end of  second semester in the program
- Meet with committee
- Draft dissertation Prospectus in consultation with Advisor and committee
- Submit **Annual Evaluation Form** to Coordinator at end of spring semester

Year 2

- Meet with advisor to discuss EES Mentoring Form and make any revisions. Sign again to indicate agreement with new year. Advisor emails Program Coordinator to indicate this meeting has occurred and the form has been completed for the next year.
- Coursework (core courses if needed; electives as required by advisor/committee)
- Directed Research credits (EES796) and/or Research Internship (EES695)
- Complete drafting prospectus and submit committee-approved version and form to the Office of Graduate Studies. See DocuSign form which is available on Graduate Studies [site](#)
- Draft proposal for dissertation research project
- Present written and (optional) oral dissertation research proposal to committee (typically a part of the qualifying exams)
- Take qualifying exams as proctored by committee.  The advisor will notify the Program Coordinator when the student has passed the exams.
 - Advisor notifies Coordinator of successful completion of the qualifying exam and that the student can proceed to Candidacy.
- Submit Annual Evaluation Form to Coordinator at end of spring semester

Year 3

- Meet with advisor to discuss EES Mentoring Form and make any revisions. Sign again to indicate agreement with new year. Advisor emails Program Coordinator to indicate this meeting has occurred and the form has been completed for the next year.
- Research – Directed Research (EES796) credits; Dissertation (EES899) credits if appropriate
- Meet with committee
- Submit Annual Evaluation Form to Coordinator at end of spring semester

Year 4 - 5

- Meet with advisor to discuss EES Mentoring Form and make any revisions. Sign again to indicate agreement with new year. Advisor emails Program Coordinator to indicate this meeting has occurred and the form has been completed for the next year.
- Research – Directed Research (EES796) credits; Dissertation credits (EES899) if appropriate
- Meet with committee and review [Dissertation guidelines](#) as provided by the Office of Graduate Studies
- Submit Annual Evaluation Form to Coordinator at end of spring semester
- When committee agrees student is ready to defend:
 - Apply for graduation in the semester before you intend to graduate. Apply at the link on your Degree Progress page.
 - Confirm that your advisor can attend graduation and “hood you”. Report this confirmation to the Program Coordinator, who is contacted by the staff organizing commencement about who will hood graduates.
 - Organize a date and time for both a public presentation of the dissertation research and a private meeting with the committee for the formal defense.
 - Submit written dissertation to committee members at least two weeks before date of defense.
 - Present your research in an open seminar and meet privately with your committee following this
 - If they approve your dissertation, initiate the [DocuSign Dissertation Completion](#) form and the committee will sign off electronically.
 - Submit by email the completed dissertation to the Office of Graduate Studies as directed.
 - Be sure to return lab notebooks, electronic datasets and computer code, and any materials belonging to your advisor, the lab, or CMU.
 - Graduate!

Committee Guidelines

Dissertation Advisor: The advisor for each student is determined upon admission to the program. Advisors must be EES faculty members with graduate faculty status. It is unlikely that a student will be able to change advisors once he/she has begun this program since the funding plan for each student is linked to the faculty member's own funding.

The advisor for the EES student will meet with the student regularly in their first semester to discuss expectations, the proposed project, and complete the EES Mentoring Form. This form serves as an agreement between the advisor and student about expectations, preferred methods of communication, frequency of meetings, etc. Completion of this form should be reported to the Program Coordinator, as well as annual review and updates to this form.

Dissertation Committee composition

Each EES dissertation committee will be comprised of four members: the advisor of the student usually serves as chair and must be a member of the EES faculty; three other members are required. These may be members of the EES faculty or be selected from other faculty at CMU. Some students may opt to have a person from another institution or external agency serve as a committee member. Once the committee membership is finalized, the student should complete the Appointment of Dissertation Committee form and submit it to the Coordinator.

In all cases, those serving on dissertation committees must have Graduate Faculty status, approved by the Director of Graduate Studies. This status is awarded for Full (4 year) or Associate (3 year) terms and must be updated as necessary to enable students to complete their degrees. CMU faculty are usually awarded full 4 year terms while qualified persons from other institutions or agencies are usually awarded Associate status. The graduate faculty application forms are processed electronically and are available through the [Graduate Studies website](#).

The Dissertation Committee members may be changed at the discretion of the student in consultation with the advisor.  A new committee form should be submitted if this occurs.

Rubrics for evaluation

Students progressing through the EES program will be evaluated annually by their committees and will also be assessed at the dissertation proposal and dissertation defense stages. At these benchmarks, special rubrics are used by the committee to provide an overall assessment of the student performance. These rubrics are available both on the EES Faculty Teams site and on the EES Students Teams site for the EES PhD program.

Annual meetings

Students must meet with their committee at least once a year. These meetings are intended to keep committee members up to date with the student's progress, assist with feedback on obstacles or challenges, provide professional advice, etc.

Qualifying Exams

While the EES program requires an exam for PhD students to proceed to Candidacy, there is no set format for these exams, other than that they will typically be administered by the dissertation committee during Year 2 or 3 of the student's progress through the program. Exams may be in written and/or oral format. Exams may be combined with submission and evaluation of the Dissertation Proposal (see page 8).

When exams have been completed and approved by the committee, the student then progresses to Candidacy status within the university but there is no formal document for this step. The committee chair should report the exam results to the program coordinator as this is tracked on a progress spreadsheet within the program. If the committee is not unanimous in its decision to allow the student to proceed to Candidacy, a second opportunity to address any deficiencies will be scheduled within 3 months of the original Qualifying Exam date.

The Dissertation Prospectus and Proposal

The Prospectus

Before a student embarks on the dissertation project in earnest, he/she should first present a brief research plan to the dissertation committee for approval. In consultation with their Advisor, the student will draft a two-page double-spaced abstract of the proposed project to this form and forwards electronically to the committee. This is a shorter version than the longer proposal presented to the committee (described below). A DocuSign sign-off form will be circulated to the student's committee indicating their approval of the Prospectus and submitted to Graduate Studies. Approval by the Director of Graduate Studies is required to indicate institutional approval of the project and enables the student to then register for EES 899 Dissertation credits. The Prospectus should be drafted in Year 1 of the program and the approved version and dissertation committee sign-off form should be submitted to Graduate Studies by the end of Year 1 or early in Year 2. Some changes to the research plan described in the brief Prospectus may be expected and addressed in the Dissertation Proposal described below.

The Proposal

Concurrent to drafting of the Prospectus, a more comprehensive written dissertation Proposal should be developed and drafted in consultation with the Advisor. This research plan should be presented to the dissertation committee for approval. The format of the proposal is up to the committee to define for the student. Students may follow the proposal format for an NSF proposal or some alternate format as requested by the committee. Proposals should include at a minimum: the research question and its significance, the experimental approach and the expected results.

The dissertation proposal is evaluated by the committee as part of the overall program assessment. Committee members should be given the rubrics and should submit the completed rubrics to the Coordinator for record keeping.

Proposal Seminar (Optional)

In addition to a written proposal, students can opt to present an oral version of their proposal in a seminar. The dissertation proposal presentation is a seminar (usually in Powerpoint format) during which the student presents their research plan. This seminar may be to the dissertation committee or open to other students and faculty. If your committee determines that you will present your seminar publicly, please work with the program coordinator at least 2 weeks in advance for proper advertising of the event. This is followed by a meeting with the committee in order to offer additional feedback to the student. Generally, qualifying exams are proctored in conjunction with this seminar.

The dissertation proposal is typically presented to the student's committee late in Year 2 or early in Year 3 of the program as part of the Qualifying Exam. If the committee is not unanimous in its approval of the dissertation proposal, the student must meet with the advisor to develop a revised plan. This should be submitted to the committee for review within 3 months from the original presentation date.

Expectations for Graduation

- 1) **The Dissertation Defense:** EES students must prepare a written dissertation under the guidance of their Advisor and Committee and in accordance with the [guidelines](#) set out by Graduate Studies. The written dissertation must be submitted to all committee members for review at least two weeks before the defense.
 - a. Well before scheduling the defense, students should request their advisor run the draft dissertation through the iThenticate 2.0 plagiarism software (user guide found [here](#)), as required by the Office of Graduate Studies. The report generated should be discussed by the student and advisor to ensure no plagiarism is evident in the document. Another report will be generated with the final approved dissertation and that report must be attached to the submission for final approval from the Director of Graduate Studies.
 - b. **Pre-defense committee approval:** students must be in communication with their advisor and committee members more often in the final months of their work towards the degree. The advisor and committee will discuss the timeline to the defense date with the student, generally 3-6 months before scheduling. Discuss format with the committee and determine whether you will write a traditional dissertation or the journal article format and follow the [guidelines provided by Graduate Studies](#).
 - c. **Application for graduation:** You must alert the Registrar that you intend to graduate the semester before the actual graduation date. Be sure to apply for graduation in conjunction with the [posted deadlines](#) on the Graduate Studies website. This prompts an audit of your file and identifies any missing paperwork, incomplete grades or other issues that could delay your graduation. You apply for graduation online via your Degree Progress page and should alert the Program Coordinator as well for a program-specific audit for your file. The Registrar's office will identify any missing items that can disqualify you for participating in graduation so pay attention to the deadlines and paperwork requirements.
 - i. **Walking in a graduation ceremony before final paperwork is approved:** You will need to get permission from the President's office in order to participate in graduation before you have officially completed all requirements of the program (e.g., ABD). Contact the coordinator of Commencement and find more information about each commencement [online](#).
 - d. **Public presentation:** When the advisor and committee indicate a student is ready to defend, the student should determine a date and time that will be convenient for all committee members and then contact the Coordinator to reserve a room for the public defense and the same or another room for the private meeting with the committee. The student should also provide material for a flyer to announce this publicly (photo, title). For the public part of the oral defense, the student should present a summary of the research, usually about 40 minutes in length. The audience is given time then to ask questions.
 - e. **Private meeting with Committee:** After the public presentation is complete, the committee will meet privately with the student. The committee will ask questions about the research project and broader questions about the field of study to gauge the student's overall understanding and expertise.
 - f. **Signature page and submission:** After the private meeting, the student will leave the room and the committee will determine if the student has completed satisfactorily all requirements for the dissertation and for the program. If the committee approves the dissertation and defense, the student will initiate the DocuSign [Dissertation Sign off form](#)

which all committee members will sign electronically. The student will also email the dissertation document to Grad Studies. Sometimes the committee is in agreement that the student has defended successfully but needs to revise the dissertation, so they will wait to sign the form until these revisions are complete and approved.

- g. **Second chance:** If the committee is not in unanimous agreement about the quality of the dissertation, the committee members will present the student with a plan to address the identified weaknesses of the dissertation research. The student will have 6 months to implement the plan and revise the dissertation. When the student and advisor determine the student is ready to present again, the student will follow the same timeline of providing the dissertation to the committee and presenting a defense.

2) Publication and presentation expectations for graduates

- a. The EES program is predicated on the scientific review processes provided through presentations and publications.
- b. By the end of the second year, students should have presented their research at a national or international conference. As funding for student travel is limited at the university currently, students should discuss with their advisor any plans for conference travel to identify the best opportunities and possible funding.
- c. By the dissertation defense date, students should have at least one 1st author or co-author research manuscript published in a peer-reviewed journal or submitted to a journal with positive feedback from reviewers and under revision.

Responsibilities of Graduate Students in EES

As a graduate student in the EES program, you are making a professional commitment to complete an intensive course of study, engage in independent research and write a dissertation. Your research advisor expects dedicated and substantial effort, initiative, respect and a willingness to listen to constructive advice.

As a graduate student at CMU, you are expected to abide by the institutional rules, procedures and standards as documented in the Graduate Bulletin and required by the program. These include:

- Complete required courses and maintain at least a B (3.0) grade point average.
- Develop a timetable and course map. Update as needed to keep track of your progress through the program.
- Maintain the required number of registered credits for each semester you are funded on a Research or Teaching Assistantship, or 6 for the Fall and Spring semesters and 1-2 credits for the Summer.
- Respond in a timely way to professional communications from the program and other offices on campus (e.g. Faculty Personnel Services, Graduate Studies).
- Complete relevant paperwork in a timely way, especially when prompted by advisor or program director/coordinator.
- Complete safety trainings as required for your area.

To be successful as a graduate student and a developing researcher, these also are important:

- Participate in your field by attending relevant seminars, reading published research, traveling to conferences and submitting manuscripts for publications.
- Be in regular communication with your advisor.
- Be receptive to advice from your advisor and your committee.
- Be a thoughtful co-worker: keep your work space tidy; be mindful of your use of supplies and materials; show tolerance and respect for others.
- Ask questions when you need information. Ask for assistance when you need help.

Responsibilities of Faculty Advisors in EES

Faculty advisors are mentoring graduate students as future members of their profession and are expected to provide an intellectually stimulating learning environment for their students. Faculty advisors are the primary point of contact for information, expectations and resources so it is crucial that advisors set clear objectives and communicate effectively. The EES Mentoring Plan, introduced for Fall 2025 and following semesters, provides an intentional discussion between the advisor and student about expectations and responsibilities. This form should be completed in the student's first semester, and revisited annually to confirm or update as needed.

Funding: To advocate for admission to the program for an applicant, the faculty advisor must have a solid funding plan in place and communicate this plan to the student. Changes to this plan should also be communicated to the student so the financial status from semester to semester does not create confusion and stress for the student. The faculty member can coach the student in applications for external funding for travel and/or research support as well.

Coursework and research plan: When the applicant is admitted, the advisor should begin to discuss coursework and the research plan with the student. These should be mapped out within the first semester.

Regular communication: The advisor should establish regular meeting times and provide timely feedback on the student's work, particularly written work. The advisor should assist with the completion of the necessary forms to keep the student moving through the program and meeting the university requirements.

Clear expectations: Advisors should provide explicit information on their expectations for the student, including lab work, hours, interaction with or advising of other students, etc.

Presentation and Publication: Advisors should provide guidance to students on conference submissions and development of manuscripts. Advisors should direct students to sources of travel funding and provide feedback on presentations. Advisors should provide instruction on the drafting of research papers, the appropriate hierarchy of authorship, the appropriate journal for submission, etc.