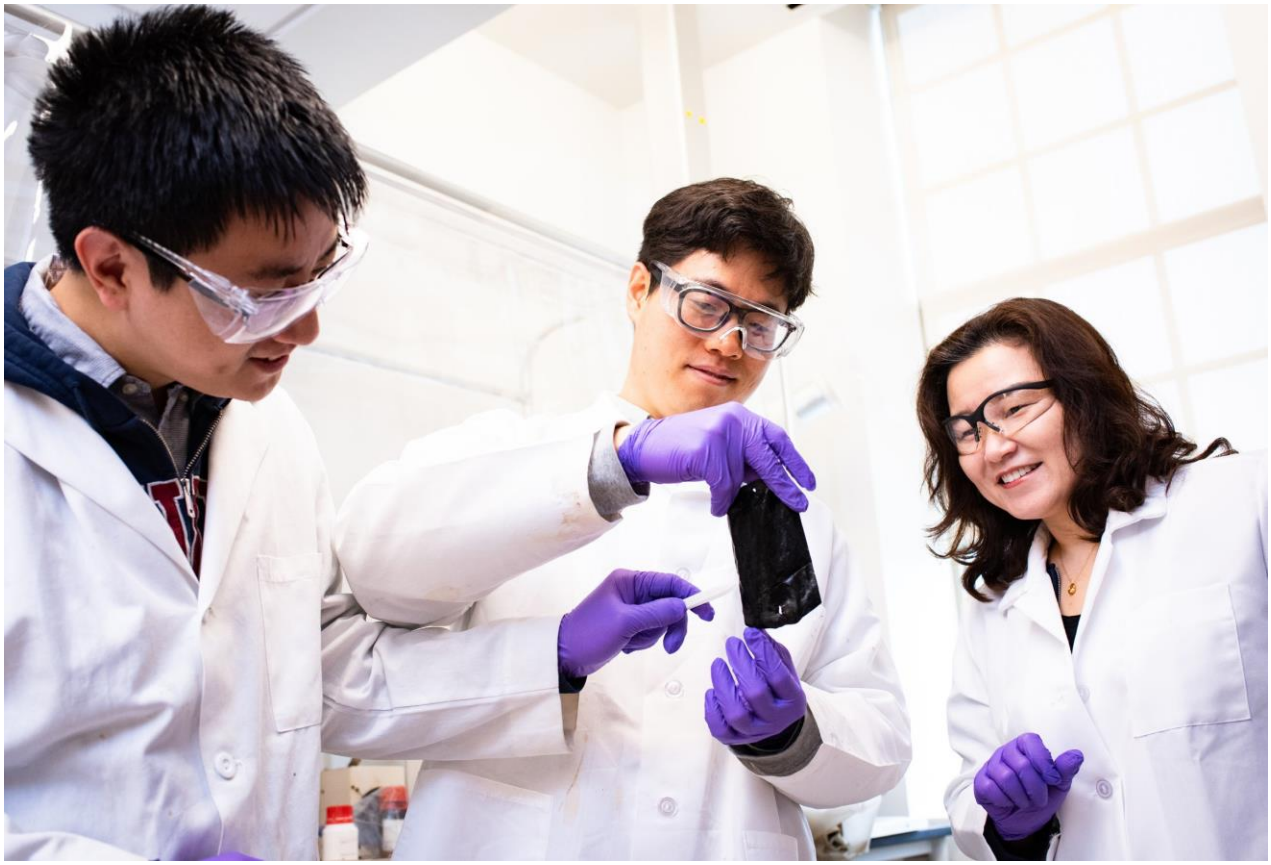
WashU McKelvey Engineering

Department of Energy, Environmental & Chemical Engineering

PhD Student Handbook 2024-2025



EECE Home | Energy, Environmental & Chemical Engineering at WashU (wustl.edu)

The Department of Energy, Environmental & Chemical Engineering brings together an interdisciplinary group of faculty to tackle global challenges. By focusing on cleaner air, water, and sustainable energy, we meet the rising demand for energy and goods. Our research is organized into three key areas: Energy—focusing on sustainable systems and energy conversion; Environmental Engineering—addressing air, water quality, and resource recovery; and Chemical Engineering—advancing materials, processes, and synthetic biology.

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Academic Program Leadership

Department Chair is responsible for all tasks supporting shared governance, from shaping the department mission and building consensus around department goals to conducting department meetings and implementing long-range department programs, plans, goals, and policies. The chair is available to speak with any student by appointment and welcomes interactions with students.

Director of Graduate Studies (DGS) serves as the administrative supervisor and coordinator of graduate studies within a program, overseeing all components of graduate education and promoting academic quality and integrity. The DGS oversees the Master's and PhD programs and is available to speak with any student by appointment.

First-year PhD Advisor is a full- time faculty member in EECE and will be responsible for acquainting the student with first-year procedures, research rotations, procedures to select permanent advisor, and initial choice of classes as per guidelines in the PhD Handbook. The First-year PhD Advisor is available to speak with any student by appointment.

Graduate Program Advisor is part of the McKelvey Graduate Student Services office and serves as the primary point of contact for PhD degree requirements, policies/procedures, and campus services and resources.

Director of Undergraduate Studies coordinates the academic advising and administration necessary to support the academic experience for undergraduate students.

PhD Graduate Committee supports the DGS's role in overseeing and administering the PhD program and is the liaison between the DGS and the faculty members in the department. The PhD Program Committee exist to ensure that the PhD program reflects the consensus view of the department's faculty and addresses the needs the department's students.

Director of Master's Program is responsible for the operation of the students and improving their experience.

Master's Program Committee serves the same role as the PhD Program Committee only for the Master's Program supports both the DGS and Director of Master's Program.

Academic Program Coordinator supports the day-to-day operations of the department.

Departmental Administrator (DA) provides support and provide guidance on the administration of compliance, financial, personnel, and other related aspects of research projects. The DA is responsible for payroll and human recourses and will lead a group of staff that will handle purchase orders, check requests, travel reimbursements, shipping as well as other resources that support PhD research and education.

EECE Equity, Diversity and Inclusion (EDI) Committee is an organization of faculty, students, and staff whose goal is to increase awareness of EDI issues and continuously improve our culture towards one

reflecting EDI principles. More information can be found here: https://eece.wustl.edu/about/equity-diversity-inclusion.html"

EECE Graduate Student Council (GSC) is a group organized by graduate students, geared towards advocating for EECE graduate GSC organizes professional development events to guide students through the milestones of the program and encourage networking with industry and academia professionals in the Wash U alumni network. As interactions and friendship with fellow EECE students is key to the graduate student experience, GSC also leads several social events throughout the year, particularly geared towards integrating first-year students into the program. The GSC executive board consists of a president, secretary, treasurer, Graduate Student Senate representative, professional development chair, social chair, and social media chair. Additionally, one representative from each lab serves as a liaison to the GSC executive board and attends a bi-annual meeting. Serving on the council is a great opportunity to grow leadership skills and play a role in decision making in EECE. Elections are held at the end of each fall semester and first-years are welcome to join the team.

McKelvey Graduate Student Services offers academic and resource support for all McKelvey graduate students. https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/index.html

Faculty Directory: https://eece.wustl.edu/faculty-research/directory.html

Staff Directory: https://eece.wustl.edu/about/staff.html

PhD Requirements and Milestones

The following is a brief summary of the required milestones for PhD students:

1) Conduct research rotations in first semester of study and match with a permanent advisor
2) Pass the qualifying examination in first-year of residency in the program
3) Complete Mentored Teaching Experience
4) Form your Research Advisory Committee and defend a proposal within 18 months of passing the qualifying examination
6) Complete a minimum of 72 credits (at least 36 credits of coursework and minimum of 30 credits of doctoral research)
7) Defend PhD dissertation by making an open oral seminar presentation, followed by questions from the dissertation committee members

Academic Requirements

Candidates for this degree must complete a total of 72 credits beyond the bachelor's degree. Of these, a minimum of 36 must be graduate coursework and a minimum of 30 must be doctoral research units. To be admitted to candidacy, students must have completed at least 18 credits at WashU, have an overall

GPA equal or greater than 3.25 and pass the qualifying examination. The student must also have completed the research rotations and have selected a permanent advisor. Students are highly encouraged to attend the McKelvey PhD Professional Development programming offered by McKelvey Graduate Student Services: https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/PhD-Professional-Development-Seminars.html.

Transfer Credits: At most, 12 graduate credits in a graduate program from another university may be counted as transfer credits toward the required 36 units of coursework. Core course credits cannot be transferred unless a student has taken the same courses in EECE during MS/MEng study. PhD students can apply for transfer credit by submitting a formal petition to the department through the Transfer Credit Request Form after passing the qualifying exam.

Maximum Research Units per Semester: At most, nine units of doctoral research may be taken in a semester.

Seminar Credits: Students are required to enroll in seminar each Fall and Spring semester in the program. The one-unit EECE seminar course may be taken for graduate coursework credit in up to six semesters for a total of six units.

Independent Study Credits: At most, three credits of coursework may be taken as graduate independent study. An independent study must be entirely separate from study done as part of the graduate thesis research. The student should prepare a proposed plan of study to be completed, and this plan must be described on the Independent Study Petition Form approved by the independent study instructor, student's advisor, Director of Graduate Studies and Department Chair for the independent study credits to count toward the 36 required units of coursework. This credit will not be counted toward the cumulative GPA for the qualification exam requirement.

400-level Courses: Co Up to three 400-level courses may count towards the degree, provided they are approved by the DGS and Department Chair. All other coursework should be 500-level or above.

Registration

Registration takes place each semester and registration deadlines may be found on the academic calendar (https://engineering.wustl.edu/academics/academic-calendar.html). Detailed instructions for registration and available courses can be found at https://courses.wustl.edu/Semester/Listing.aspx.

All graduate students in the department must be enrolled full-time each semester until all degree requirements are completed. The maximum time period for completing all PhD degree requirements is seven years.

Students admitted to a PhD program in McKelvey Engineering must maintain full-time continuous enrollment throughout the approved length of their programs. McKelvey PhD programs are to be completed within six years under normal conditions. During those years, students will be considered full-time with one or a combination of the following enrollments: Registered for 9 or more course units (including doctoral research units); or registered in EGS 9000 Full-time Graduate Research/Study or EGS 9001 Full-time Graduate Study in Absentia (see below). These courses indicate the student's full-time

engagement in research or academic writing and should be used once a student has completed the 72 unit requirement for the program. PhD students who are not registered as above may find themselves in a part-time status and could be in jeopardy of the loss of certain benefits or be in violation of their visa status. Part-time enrollments will be permitted only in extraordinary circumstances. EGS 9002 Full-time Graduate Student Extension should be used for enrollment in circumstances requiring a seventh year.

Students who fail to register in one of the previously mentioned categories will automatically have their graduate standing revoked. Students whose graduate standing has been revoked may apply for reinstatement. There is an application fee for reinstatement ($100). Students seeking reinstatement may be required to take a special reinstatement examination and to repeat any previously met requirements that fails to meet contemporary standards. Candidates for the PhD degree who apply for reinstatement may be required to repeat the qualifying examination.

Coursework

Students formulate their course program in consultation with their advisor. The student is expected to be proficient in the following core courses. PhD students are strongly urged to take at least three graduate-level classes (400-level or higher) outside the Department during their PhD program. These courses can be selected based on discussion with their advisor and research interest areas.

Courses are offered to PhD students in two required core areas. The courses corresponding to these areas are:

a) EECE 501* Transport Phenomena in EECE (Students without an UG or Master's degree in Chemical Engineering may substitute EECE 5001 "Introduction to Chemical Engineering" for EECE 501 "Transport Phenomena in EECE").

b) EECE 503 Mathematical Methods in EECE

These courses will provide the base knowledge that is expected of all PhD students in the Department.

First-year students must register for EECE 508 Research Rotation (zero credits, S/F grade, first semester). During every semester of residency, students should register for EECE 509 Seminar in EECE (one credit, S/F grade).

Students can avail themselves of course sequences in areas of specialization in the Department. Students are encouraged to review the same on the department website (eece.wustl.edu), discuss with their advisors and are encouraged to avail themselves of these opportunities. Students must take courses offered by the EECE Department in the first year.

Suggested Courses for First-year PhD Students

Fall Semester (10 credits)

1) EECE 503 Mathematical Methods in EECE
2) EECE 5001 Introduction to Chemical Engineering (Optional for students who do not have an UG or MS degree in Chemical Engineering)
3) One or Two Elective Classes (select from one or more graduate-level elective classes below

based on discussions with first-year PhD advisor)

4) EECE 508 Research Rotations (zero credits)
5) EECE 509 Seminar in EECE (one credit, Pass / Fail)

Spring Semester (10 credits)

1) EECE 501 Transport Phenomena in EECE (Students without an UG or Master's degree in Chemical Engineering may substitute EECE 5001 "Introduction to Chemical Engineering" for EECE 501 "Transport Phenomena in EECE").
2) Two or Three Elective Classes (select from Graduate-level Elective Classes below based on discussions with permanent advisor, noting needs for PhD qualifying exam)
3) EECE 509 Seminar in EECE (one credit, Pass/Fail)

Menu of Graduate-level Elective Classes

(Please review list of exact offerings each year — current listings of courses are maintained at https://courses.wustl.edu/Semester/Listing.aspx).

Aerosol Science & Engineering

1) EECE 504* Aerosol Science & Technology (fall)
2) EECE 502 Advanced Thermodynamics in EECE (fall)
3) EECE 512 Combustion Phenomena (fall)
4) EECE 514 Atmospheric Science & Climate (spring)
5) EECE 516 Measurement Techniques for Particle Characterization (fall)

Engineered Aquatic Processes

1) EECE 505* Aquatic Chemistry (fall)
2) EECE 531 Environmental Organic Chemistry (fall)
3) EECE 534 Environmental Nanochemistry (spring)
4) EECE 535 Environmental Data Science (spring)
5) EECE 537 Environmental Resource Recovery (fall)
6) EECE 533 Physical & Chemical Processes for Water (spring)

Bioprocesses

1) EECE 506* Bioprocess Engineering 1 (spring)
2) EECE 554 Molecular Biochemical Engineering (spring)
3) EECE 552 Biomass Energy Systems & Engineering (fall)

Multi-scale Engineering

1) EECE 507* Kinetics & Reaction Engineering Principles (spring)

2) EECE 573 Polymers for Energy, Sustainability, and Human Health (fall)
3) EECE 574 Electrochemical Engineering (spring)
4) EECE 576 Chemical Kinetics and Catalysis (spring)
5) EECE 595 Principles of Methods of Micro and Nanofabrication (spring)

Taking other graduate classes from Chemistry, Physics, Biology and other departments in their first-year must be approved by the advisor and the Director of Graduate Studies.

Courses from the Engineering Continuing Studies (T courses) cannot be counted toward doctoral degree course requirements. The courses counted for the doctoral degree should be credit- based rather than pass/fail option.

** Indicates anchor course areas of EECE research expertise. The designation of anchor courses within the areas of EECE research expertise—Aerosol Science & Engineering, Engineered Aquatic Processes, Bioprocesses, and Multi-scale Engineering—provides a structured pathway for first-year students to engage deeply with critical topics in these specialized fields. These courses are strategically chosen to align with the department's core research strengths, ensuring that students gain targeted, in-depth knowledge that directly supports their progression into advanced study and research. This approach fosters early specialization while maintaining a broad understanding of key engineering principles, thereby preparing students to contribute effectively to the department's cutting-edge research initiatives.*

First-Year Student Milestones

There are three important milestone each student must complete in the first year:

1) Orientation Week, 2) Laboratory Rotations, and 3) Assignment of Permanent Advisor 4) Qualifying Exam

1. EECE Orientation

a. Students are required to attend all EECE department orientation sessions where they will be introduced to faculty research and projects that are available to first-year students. Faculty will clearly communicate to the group of students how many first-year students they would like to choose as permanent advisees. Students are also encouraged to set up additional individual meetings with the faculty and learn more about their research groups.

b. All students are required to attend the McKelvey Graduate Student Services PhD orientation and international students will be required to attend an international-specific orientation program conducted by OISS.

2. Laboratory Rotations

All students must register for EECE 508 Research Rotation in their first semester of the program. During orientation, the EECE faculty will present short overviews of their research to the first-year PhD students. To become better acquainted with potential faculty advisors and learn about their research in greater detail, cohort students will then spend approximately one month rotating with each of two

different research groups. Direct admitted students will spend both rotations with the same faculty member.

Students will be given instructions during orientation to submit four rank-ordered faculty preferences for research rotations. Cohort students should note that they may not receive their first choices for their research rotations, and are encouraged to discuss potential rotation opportunities with several faculty prior to submission of their research rotation preferences. Students should only include faculty with whom they have had a dialogue with about joining their lab and that the student is interested in investigating as a potential permanent advisor.

The rotation assignments will be made at a faculty meeting organized by the Graduate Director; and the students will be informed in early September of their first rotation assignment, and by the end of October of their second rotation assignment.

Rotation advisors will set the detailed expectations for the rotation, however, these may include attending research group meetings, conducting a literature review on a relevant topic, and/or learning some of the research methods relevant to the advisor's work.

Students are required to submit short (~3 pages, single-spaced, 12 point font) reports summarizing their research rotation experiences. These reports will be submitted to the rotation advisor and are due one week after the end of each rotation. The purpose of the report is to provide an overview of what the student learned about their rotation topic. This may include a brief summary of the relevant literature or a description of the research techniques learned. Note that the report is an opportunity to reflect on the experience, and students are not expected to generate and report on significant new data during their month-long rotation projects.

3. Permanent Advisor Assignment

All PhD students will be assigned to the First-Year PhD Advisor upon being admitted. The First-Year PhD Advisor will guide each new student through being admitted to being assigned a permanent faculty advisor including conducting Q&A townhalls during the summer, orientation the week before classes start, course registration advising, and advisement on all academic procedural issues. The permanent faculty advisor will be assigned in December of the first-year of residency in the program.

Students are encouraged to communicate with several faculty members and determine their mutual interest in working together. Students can explore opportunities with any faculty member, even if they did not rotate with them. It is the responsibility of the student to meet with faculty and convince them to select the student as an advisee. Based on these discussions between students and faculty, students will submit a list of four rank-ordered choices for their permanent advisor selection during the end of the second semester (dates and forms will be communicated to students by the Graduate Program Advisor). When submitting the ranked faculty preferences, students should only include faculty with whom they have had a dialog with about joining their lab and that they are interested in as a permanent advisor. These ranked choices will be distributed to the faculty prior to permanent advisor assignments. All attempts will be made to assign the student to one of their choices for permanent advisor; however the final assignment decisions will be at the discretion of the faculty advisors and the Graduate Director. It is in each student's best interest to discuss their mutual level of interest with each potential advisor before ranking them on their selection form. Students will be informed of their permanent advisor

assignment by the Graduate Director before the end of the fall semester. Once students are assigned a permanent advisor, students must submit the Lab Affiliation Form. Students should begin research with their assigned permanent advisor soon after and follow other guidelines as outlined in the handbook.

4. Qualifying Exam

The EECE PhD qualifying examination is to be taken in May of the first year of study in the program. It is administered by the EECE Graduate Committee and department faculty as appointed by the Chair. To be eligible to take the qualifying examination, students should earn a 3.25 cumulative GPA in their core math and science courses. Research rotations, seminar, and independent studies will not be counted towards the GPA cutoff.

Disability accommodations formally determined WashU Disability Resources (Disability Resources - Students (wustl.edu) will be respected.

1) Students should take the core EECE classes:

   a) Mathematical Methods in EECE (EECE 503, fall)

   b) Transport Phenomena in EECE (EECE 501, spring Or EECE 5001, fall for Non ChE students)

   c) Students should take elective classes in at least two areas of EECE research expertise

   d) EECE 508 Research Rotation

   e) EECE 509 (required for all semesters of residency in the PhD program)

2) Complete two research rotations. The faculty mentor will assign a Pass or Fail. A Pass is needed to pass the qualifying examination. This will be based on faculty mentor's assessment of the student's engagement in the research rotation.

3) **Qualifying Exam Process:**

The exam is based on literature analysis and oral exams. Students should select one journal paper from a list of papers provided by faculty and conduct extensive review and analysis. A 3-page (single spaced, 12 pt font) critical review on the selected paper must be submitted by May 12, 2025. Oral exams will be held May 14-May 16, 2025.

Students will present their analysis, qualitatively and quantitatively, at the 30-min oral exam and address questions from the exam committee. To pass the oral qualifier a student must demonstrate the ability to:

- Recognize and articulate a research question or problem
- Express a research question or problem's background from existing information
- Employ reasoning and critical thinking skills
- Use basic engineering concepts and fundamental to understand and solve problems
- Effectively communicate in an oral format and respond to scholarly questions

- Comprehend and apply core course content

Qualifying Exam Outcome

The final outcome of the EECE PhD qualifying examination will be determined by the EECE faculty based on the recommendation of the EECE Graduate Committee. The student can receive a Pass/ Conditional Pass/Fail grade for the examination.

A conditional pass occurs when a student demonstrates a weakness and/or a lower exam score in one or more areas that the faculty feel could be rectified. In a conditional pass situation, the student will be a given a written notice of what conditions they have to meet and the deadline by which they need to be met in order to continue in the program.

If the student fails the PhD qualifying examination, they can petition to obtain a Master's of Engineering or Master's of Science degree. There is an option to obtain a Master's of Engineering with a modified curriculum that replaces project management and social, legal, policy aspects requirements with 6 credits of independent research. The requirements for the either Master's level degree has to be met, and no financial aid is guaranteed to students who fail the qualifying exam after the first-year of study. Students who fail the qualifying exam may request to re-take the qualifying examination the next spring based on a petition.

This petition should be submitted in writing to the Department Chair within a week of receiving notification. The decision to allow a student to re-take qualifying examination will be based on the student's performance (e.g., GPA, written and oral qualifying examinations, research rotations, and feedback from the faculty and the student's advisor) and will be made by the Department Chair and Director of Graduate Studies in consultation with the PhD Program Committee. Given that no financial support from the department will be provided after the summer semester of the first-year, students wanting to re-take the qualifying examination will need to successfully join and progress through a master's program in the fall and spring semesters following the summer.

Regarding Conditional Pass, if a student fails to satisfy the condition from the decision letter of the qualifying exam within one year, the students will be advised to withdraw from the PhD program and financial support will be terminated. Although, if requirements for the master's degree have to be met, the student can petition to obtain a Master's of Engineering or Master's of Science degree. There is an option to obtain a Master's of Engineering with a modified curriculum that replaces project management and social, legal, policy aspects requirements with 6 credits of independent research.

Mentored Teaching Experience

All PhD students are required to participate in mentored teaching experience (MTE). The MTE includes the following:

1. Serving as an assistant to instructor (AI) for two semesters after a student has passed the qualifying exam (typically in fall and spring of the second year). As an AI, students may be asked to lecture in an undergraduate class with the instructor in attendance, introduce/interpret laboratory exercises, and conduct formal help sessions before exams. Students may also be

expected to hold one-on-one office hours and participate in grading homework assignments and exams. AI assignments will be made by the department with student preferences and experience taken into consideration. During the AI assignment, students will be registered for EGS9000: Mentored Teaching Experience (zero credits).

2. Students are required to attend the Center for Teaching and Learning MTE Orientation and at least one of the teaching workshops offered by the Center for Teaching and Learning for formal pedagogical training prior to and during their first semester of their AI assignment.

3. Students are required to give at least two formal presentations at the departmental or university- wide, or local level or at a national or international conference. Among the presentations, at least one presentation should be oral at a national or international conference (this last requirement may be waived upon approval of the Director of Graduate Studies).

4. Students must submit the MTE Form upon completion of all requirements of the MTE.

Research Advisory Committee

Students must select a Research Advisory Committee (RAC) to oversee and guide their research as part of the thesis proposal and defense. The RAC must be approved by the Director of Graduate Studies and the Associate Dean of Graduate Student Services prior to scheduling the thesis proposal. Students must submit the Research Advisory Committee Approval Form for approval approximately one to two months prior to the thesis proposal and no later than two weeks prior to scheduling their proposal. The RAC must have five members and must meet the following conditions:

- Four of the five members must be tenured or tenure-track Washington University faculty (one of these four may be an emeritus faculty member)
- Three of the five must come from the student's degree program
- The fifth member must have a doctoral degree and an active research program, whether at Washington University, at another university, in government, or in industry
- At least one of the five must ***not*** come from the student's degree program

Thesis Proposal

The thesis proposal should be successfully presented to the Research Advisory Committee within 18 months of passing the Qualifying Examination.

Following successful completion of the qualifying examination, the student and advisor will decide on a suitable research problem whereupon the student will prepare a comprehensive written research proposal that includes a thorough survey of the literature relevant to the field, a discussion of those areas needing further research, and a clear definition of the proposed research. Results of preliminary studies or feasibility studies should be included. The format and guidelines of the PhD thesis proposal are included in the last portion of this section. Students must schedule their thesis proposal examination

within 18 months of passing the Qualifying Examination. Extensions may be requested with support of the student's advisor to the Director of Graduate Studies. The written proposal should be submitted to the Research Advisory Committee at least one week prior to a Thesis Proposal Examination consisting of an oral presentation to the student's committee followed by a Q&A. Upon completion of the proposal, students must submit the Proposal/Title, Scope, & Procedure Form. The Proposal/Title Scope & Procedure Form must be submitted prior to beginning the student's fifth year of study in the program.

The following guidelines are recommended for the PhD Thesis Proposal:

1) The main body of the proposal should include

- Executive summary (no more than one page)
- Introduction (no more than five pages)
- Research objectives (no more than two pages)
- Preliminary work (no more than five pages in the body of the proposal; additional preliminary data or papers can be included in the Appendices)
- Research plan (no more than 15 pages)
- Timeline (no more than one page)
- References (as needed)

2) The following Appendices should be included at the end of the proposal:

- List of courses taken and to be taken with grades
- Mentored teaching experience
- A short CV of the student highlighting conference presentations and journal papers (published/submitted/to be submitted)
- Copies of papers (optional)

3) Format:

- Font: Times New Roman
- Font size: no less than 11 points
- Line spacing: single-spaced
- Page margin: one-inch margin around the pages
- PhD Students should refer to the National Science Foundation (NSF) Guidelines for Proposal Writing Document as a reference.

Final Dissertation Defense

Students must present the thesis in a public forum and successfully defend the thesis before their Dissertation Defense Committee.

Dissertation Defense Committee: Prior to scheduling the final dissertation defense, students must submit the Dissertation Defense Committee Approval Form (1-3 months prior to the final dissertation defense). The final dissertation defense committee has the same requirements as the Research Advisory Committee. The DDC Approval Form is required prior to scheduling the final dissertation defense. Students must contact their graduate program advisor to initiate this form.

At least four dissertation defense committee members must be present at the defense (including the committee chair). Members of the dissertation defense committee attend in person, but one of the five (or, in case of an emergency, one of the four) members may attend virtually instead. Exceptions (ex: additional committee members that need to attend virtually) may be requested and must be approved by the Director of Graduate Studies.

Scheduling the Dissertation Defense: Students must contact the graduate program advisor at least one month in advance of the dissertation defense with the following information: PDF copy of CV, PDF Dissertation Abstract, Title of Dissertation, Date, Time, and Location of the final defense. Students must submit their completed thesis to their committee at least two weeks prior to the final dissertation defense.

Publications: The student should also have submitted at least one paper to a peer-reviewed journal prior to defending their thesis. Students are expected to have at least one paper accepted in a peer-reviewed journal, and at least another paper submitted prior to graduation.

Dissertation Defense Approval and Submission: Upon completion of the dissertation defense, students must submit the Dissertation Defense Approval Form. Once approved, students must submit their final dissertation to ProQuest following the instructions in the Doctoral Dissertation Guide. Students should follow the deadlines in the McKelvey Academic Calendar.

Graduation Information

Students are responsible for filing an "Intent to Graduate" form in WebSTAC in order to have each earned degree conferred. Deadlines for filing are listed in the Mckelvey Academic Calendar. No degree will be awarded if this form has not been filed.

Other Policies

MS Degree

A student who has passed the Thesis Proposal Examination, completed 30 units of required coursework toward the PhD degree, and published or submitted at least one first author peer-reviewed manuscript arising from their thesis research is eligible to receive an MS degree "along the way". No independent study credits can be counted towards the MS degree. The publication and submission of the manuscript must be with the approval of the research advisor. Students must submit their request to receive the MS degree at least one year before the thesis defense. The granting of the MS degree along the way is by

approval of the Advisor and Director of Graduate Studies. The actual MS degree is only granted as a courtesy and contingent on fulfilling PhD requirements and passing the doctoral defense, the Director of Graduate Studies can approve the award of the MS degree earlier in special cases.

Seminars

Each fall and spring semester the Department Seminar series brings in a variety of academics to give presentations on their areas of research and expertise, represents an essential component of building a vibrant academic culture, and provides students with outstanding opportunities to interact with disparate research and researchers in a variety of focus areas important to our department. All full-time graduate students are required to enroll in EECE 509 Graduate Seminar, which is an S/U course carrying one unit of coursework credit. Full-time graduate students may receive up to six units of coursework for EECE 509. A passing grade (S) is required for each semester for all full-time students and is earned by regular attendance at these events. Each student will be granted a specified number of absences (no excuse required) for seminar before being assigned an "Unsatisfactory" grade (see the EECE 509 syllabus for details). If unforeseen circumstances cause more seminar absences than allocated then special conditions set by the instructor of EECE 509 will need to be met to pass. Otherwise, the student will obtain a "U" grade.

Time Off

Graduate students receiving financial support are expected to commit themselves fully to their studies and research. Intersession periods listed in the university Academic Calendar denote times when classes are not in session, and graduate students are expected to devote themselves full-time to their research during these periods. Students on full support are permitted to take off a **maximum of two weeks** during the calendar year for holidays, interview trips, etc. Students will not be asked to work on university scheduled holidays. Additional time off may be arranged in discussion with the research advisor and must be approved by the graduate program advisor but may result in a reduction of the student's stipend. During the first-year in the program when students do not have a permanent advisor, students should consult their first-year advisor to schedule any time off. Absence of research assistants must be scheduled so as not to impede the progress of an ongoing research project.

Possible Causes for Dismissal from the PhD Program

1. Students who do not pass the qualifying examination or that do not meet the eligibility to sit for the qualifying examination will be transitioned to the MEng program.

2. Students who remain unassigned to a permanent advisor at the end of the first-year will transitioned to the MEng program.

3. Students who are not making satisfactory progress with courses and/or research (or are otherwise impeding progress toward graduation) can be placed on probation. However, except for circumstances justifying immediate dismissal, a student cannot be dismissed without the opportunity to return to good standing during an identified period of probation. The purpose of probation is to do the following: (1) to explicitly warn the student of their status; (2) to provide the student with clear guidelines regarding the performance that will be necessary to return to good standing; and (3) to provide the student with

reasonable time to meet these expectations. To meet these objectives, probation normally should be designated for a minimum of three months. When the probation criteria involve course work, then the probation period would normally correspond to the semester's duration. A student on probation must receive a detailed letter from the Director of Graduate Studies stating the reasons for the probation and explicitly identifying the steps necessary for the student to return to good standing by the end of the probation period. A copy of this letter should be sent to the Associate Dean of Graduate Student Services. If a student does not meet all criteria for good academic standing but the department does not wish to place the student on probation, an appeal for this exception can be made to the Vice Dean of Research and Graduate Education. See bulletin.wustl.edu/grad/engineering/doctorates/policies/ for additional details for possible causes for dismissal from the PhD Program.

4. Students who fail their proposal exam or final defense after two attempts with a minimum of 3 months and maximum of 6 months (under probation) between the two attempts will be dismissed from the graduate program with the approval of the permanent advisor, the Director of Graduate Studies and the Department Chair. Depending on the extent of progress toward graduation, the student thus terminated from the PhD program may be awarded or transitioned to a MEng or MS program subject to DGS and advisor approval.

5. Students who violate McKelvey School of Engineering academic integrity code are subject to dismissal from the program pursuant to Graduate School and McKelvey Engineering policies and procedures.

Forms

All forms must be completed and signed electronically in Docusign. Forms may be located on the McKelvey Graduate Student Services site: https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/forms.html. Other department specific requirements may be communicated through the PhD Advisement Canvas site. Students should contact the Graduate Program Advisor for questions.

Transcript Credit Request Form: To be completed if requesting transfer credits from an institution outside of Washington University.

Lab Affiliation Form: To be completed after matching with a permanent advisor typically in December of the first-year of study.

Mentored Teaching Experience (MTE) Form: To be completed after meeting the MTE requirements typically after the second or third year of study and no more than 6 months prior to the dissertation defense.

Research Advisory Committee Approval Form: To be completed once a research advisory committee has been put into place prior to scheduling the thesis proposal examination.

Proposal/Title, Scope & Procedure Form: To be completed immediately after passing the thesis proposal.

Dissertation Committee Approval Form: To be completed once a final dissertation defense committee has been confirmed and at least 5 weeks prior to the final dissertation defense. Students must contact the Graduate Program Advisor to access this form.

Dissertation Defense Approval Form: To be completed following the final dissertation defense and approved and signed by the Dissertation Committee members.

Resources

McKelvey Resources

Association of Graduate Engineering Students: https://ages.wustl.edu/

Bulletin PhD Program Information: https://bulletin.wustl.edu/grad/engineering/doctorates/

Engineering Academic Calendar: https://engineering.wustl.edu/academics/academic-calendar.html

Engineering Communication Center: https://engineering.wustl.edu/academics/Communication-Center/index.html

Engineering Graduate Career Resources: https://students.wustl.edu/graduate-student-postdoc-career-resources/

Engineering Machine Shop: https://engmachineshop.wustl.edu/

Engineering Research Toolkit: https://sites.wustl.edu/engineeringresearchtoolkit/

Engineering Subject Librarian: https://library.wustl.edu/directory/lauren-todd/

Environmental Health & Safety: https://ehs.wustl.edu/

McKelvey Graduate Student Services: https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/index.html

McKelvey Professional Development Program: https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/PhD-Professional-Development-Seminars.html

Thesis and Dissertation Submission Procedures: https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/thesis-dissertation-submission.html

Women & Engineering Center: https://engineering.wustl.edu/about/diversity/women-engineering-center/index.html

WashU Resources

Bias Report and Support System: https://students.wustl.edu/bias-report-support-system/

Center for Teaching and Learning: https://ctl.wustl.edu/

Disability Resources: https://students.wustl.edu/disability-resources/

The Graduate Center: https://gradcenter.wustl.edu/

Habif Health and Wellness Center: https://students.wustl.edu/habif-health-wellness-center/

Office of International Student Engagement (OISE): Office for International Student Engagement (washu.edu)

Office of International Students and Scholars (OISS): https://students.wustl.edu/international-students-scholars/

Relationship and Sexual Violence Prevention Center: https://students.wustl.edu/relationship-sexual-violence-prevention-center/

Religious Celebration Calendar: https://students.wustl.edu/religious-celebration-calendar/

Research Infrastructure Services: https://ris.wustl.edu/