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# EECE SENIOR THESIS

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## *ENERGY, ENVIRONMENTAL AND CHEMICAL ENGINEERING (EECE)*

The completion of an EECE Senior Thesis involves a demonstration of acquired knowledge based on: a research project with submission of a senior thesis and an oral presentation. Upon the completion of both of these items, the student will be awarded a senior thesis through the EECE department that will be published on WashU Open Scholarship with the approval of the thesis advisor. The document herein is a reference for students in EECE and their thesis advisor.

### *Registration & Timeline*

The first step in declaring your serious interest to complete a senior thesis is to submit the **Senior Thesis Registration Form** during the fall semester of your senior year. Before submission of the Senior Thesis Registration Form, you must have selected your thesis advisor, thesis committee, and thesis topic. The form can be found at the end of this booklet. This form should be turned in to the Undergraduate Curriculum Committee (chaired by Dr. Janie Brennan) by the end of the first week of classes in the fall semester (Friday at 4:00 PM). You will then be registered for EECE 423: Senior Thesis.

The senior thesis examining committee consists of three members selected by the sponsoring advisor in consultation with you and the Undergraduate Curriculum Committee. This three-member committee evaluates the quality of the thesis, suggests revisions, and attends the final oral presentation. At least one member of the committee, other than the principal thesis advisor, must be an EECE faculty member. The second member may be from another academic department.

Once you are actively working on your senior thesis, you can register for EECE 423 “Senior Thesis” which can count towards your EECE electives. A maximum of six units of EECE 300, EECE 400 (Independent Study), and/or EECE 423 will be accepted towards chemical/environmental engineering electives. Independent Study or Senior Thesis credits cannot be used to fulfill the requirement for an advanced laboratory elective in chemical engineering. During the semester, you are expected to meet with your thesis advisor frequently. At the end of the fall semester, you should report on your progress to the Undergraduate Curriculum Committee by completing a **Senior Thesis Progress Report** that presents either a detailed outline or in-depth description of your thesis. The form and suggested format for the progress report is included at the end of this booklet and must be submitted to the Undergraduate Curriculum Committee before the last day of classes in the fall semester (Friday at 4:00 PM).

Most advisors ask for a near-final draft of the thesis in February or March of your final semester in order to read it carefully, suggest revisions, and give you time to make necessary changes. The draft thesis may also be sent to the other committee members for feedback. All committee members must receive a **full, final draft of the thesis** by no later than 4:00 PM on April 1.

Following receipt of the thesis, you should give a **Senior Thesis Oral Presentation**, in which you student present a talk based on your work to your committee and other interested members of the department. This presentation will highlight your accomplishments and the significance of your research.

The **final copy of the thesis**, with all changes required by the examining committee, is due to the research advisor and the Undergraduate Curriculum Committee by 4:00 PM on the last day of classes in the spring semester. It should also be archived through [WashU Open Scholarship](#). Submission instructions can be found [here](#). For students graduating in December, please discuss with the Undergraduate Curriculum Committee for time schedule.

If the thesis is not submitted to the Undergraduate Curriculum Committee by the required due date, the Senior Thesis credit (EECE 423) will be changed to an Independent Study (EECE 300 or EECE 400). The Senior Thesis grade will be primarily determined by your research advisor, but the Undergraduate Curriculum Committee has the right to evaluate the quality of the senior thesis and decide the final credit that will be awarded.

## *What is a Thesis?*

A thesis is “a scholarly piece of writing in which the writer is expected to show a command of the relevant scholarship in his/her field and contribute to the scholarship. It should confront a question that is unresolved and push towards a resolution.”

The thesis should be student’s original work in experiment, design, theory, simulation, or modeling, applied to a research problem of current interest in energy, environmental or chemical engineering. The thesis includes a discussion of the motivation for the work and the current state of knowledge of the research community.

At a minimum, the scope of the thesis should be equivalent to a significant contribution to one or more published papers. This implies a standard of originality: in engineering and science departments, a thesis cannot simply be a literature review—the thesis must include original work. For students applying to graduate school, publishable research is a mark of distinction above and beyond completing a senior thesis. For these students, a first-author paper could ideally be published from the completed thesis. In such cases, a paper can first be prepared for submission, and then modified to conform to the thesis style and content. Thesis chapters may then correspond to the Introduction, Background, Methods, Results, and Discussion sections of a typical journal article. Senior theses vary considerably in length. As a rough guideline, theses may be as short as 25 pages of text and figures, or may extend to as many as 100 pages, depending on the substance and scope of results obtained. In short, the thesis needs to be long enough to describe the background, methods, and results at the level of detail of a published paper. It should also contain a statement (e.g., in an Acknowledgements section) that clarifies which work was done by the student and which work was done by their mentors, research advisor, and others. Theses should be written in a scholarly manner with endnotes to cite published work to which the thesis refers (the use of citation management software makes this easy!) Writing should be consistent with the style of journal articles. Theses must conform to a prescribed format, and the McKelvey thesis format should be followed. A formatting template can be found [here](#).

## Senior Thesis Registration Form

Energy, Environmental and Chemical Engineering

Please attach to this form a short outline or description (<1 page) of the intended senior thesis project. Turn in this form to Dr. Janie Brennan who will present it to the Undergraduate Curriculum Committee. This form must be turned in by the end of the first week of classes in the fall semester (Friday at 4:00 PM).

Name \_\_\_\_\_  
Last First Middle

Email Address \_\_\_\_\_

Student ID Number \_\_\_\_\_

Thesis Topic \_\_\_\_\_  
\_\_\_\_\_

Thesis Committee Members \_\_\_\_\_  
\_\_\_\_\_

The Registrar's Office will manually register you for EECE 423. Please indicate the number of credit hours requested and the section number corresponding to your research advisor (if one has been assigned at [courses.wustl.edu](http://courses.wustl.edu); if no section number has been assigned, leave this blank).

Credit hours in fall semester (0-6): \_\_\_\_\_ Credit hours in spring semester (0-6): \_\_\_\_\_

Section number: \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Student

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Thesis Advisor

## Senior Thesis Progress Form

Energy, Environmental and Chemical Engineering

Please attach to this form a detailed outline or description of the intended Senior Thesis project. Turn in this form to Dr. Janie Brennan who will present it to the Undergraduate Curriculum Committee. This form must be turned in by the last day of fall classes (Friday at 4:00 PM).

Name \_\_\_\_\_  
Last First Middle

Email Address \_\_\_\_\_

Student ID Number \_\_\_\_\_

Thesis Topic \_\_\_\_\_

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Signature \_\_\_\_\_ Date \_\_\_\_\_  
Student

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Thesis Advisor

Progress report: Please provide a 2- to 3-page written summary of your progress to date. At a minimum, this summary report should include:

1. Progress you have made in your research for the thesis. This may include sample collection, laboratory analyses of samples, etc.
2. Your primary research question/hypothesis/focus.
3. Progress you have made in your background research for the thesis. This may include a few references from your works cited list, or a summary of key points.
4. Your plans for the future – what area of the thesis will receive your attention next?
5. If you have an outline for the thesis, even a preliminary one, please include it.