

PHYS 495 - Thesis (Fall semester)
Lafayette College, Fall 2019 Professor Exarhos

About this course

Thesis is an opportunity for highly-motivated students to pursue independent, in-depth research under the guidance of a thesis advisor. The student will engage in all aspects of the research process: reading professional literature to determine the project's place in the field, performing experiments in the lab or simulations (if applicable), analysis, and finally reporting of results. Thesis is a writing (W) course, which means there is a focus on communicating via writing and presentation. The completed thesis should constitute at least 20 pages (5000 words) of revised writing. Students should expect to perform publication-quality research during a thesis. While thesis work may not immediately result in a publication, the goal should be to perform research in a reproducible, precise manner that could be published or expanded upon and published.

Thesis is an individualized educational experience. Regular meeting times between student and thesis advisor (1 or 2 times per week) will be scheduled on an individual basis. Lab work hours (if applicable) will be scheduled on an individual basis.

Thesis committee

The thesis committee is comprised of at least three professors. These must include:

- Thesis advisor
- Another physics professor (Departmental member)
- Another professor from outside of the physics department (Outside member)

Speak with your thesis advisor for assistance in finding appropriate committee members.

Learning Outcomes

After completing a thesis, students should be able to:

- Display a deep understanding of the physics involved;
- Be able to conduct independent research under the supervision of an expert;
- Be able to explain the context in which the research was conducted;
- Be able to explain in writing the methods employed and the results obtained;
- Be able to present the background, methods and results to an audience of physics faculty and students.

Grades

In order to move on to PHYS 496 (Spring semester of thesis), a student must earn an A in PHYS 495 (Fall semester of thesis). In order to earn Honors in Physics, students must earn an A in both PHYS 495 and 496.

Grades are given at the discretion of the thesis advisor. However, generally, the expectations are for the student to:

- Attend meetings with advisor and accomplish expected research tasks;
- Follow appropriate protocols for data collection, documentation, and safety;
- Attend department colloquia;
- Submit complete and well-written thesis document on time (including parts and drafts according to deadlines determined by student and thesis advisor); and
- Present research to the Physics Department according to schedule determined by student, advisor, and department.

Intellectual honesty

You are expected to abide by the principles of intellectual honesty outlined in the Lafayette Student Handbook (available from <http://studentlife.lafayette.edu>).

Any writing you submit for this course must be your own, and sources must be appropriately referenced. Any drawings, photos, or figures used in submitted writing must be your own or be credited appropriately.

Mandatory credit hour statement

The student work in this course is in full compliance with the federal definition of a four credit hour course. **The federal course credit rule requires a total of 180 hours (average 12 hours/week) of student work over an approximately 15-week semester for a full unit (four credit hour) course.** See the Registrar's Office web site for the full policy and practice statement (<http://registrar.lafayette.edu/additional-resources/cep-course-proposal/>).

Timeline

Weekly Meeting Day/Time:

Fall:

Arrange thesis committee (~ Week 2): _____

Outline of proposed thesis due to advisor (~ Fall break): _____

Oral presentation practice (~ 1 week before presentation): _____

Oral presentation, 20-30 min, to Physics Department (~ Reading Day - TBD).

End-of-year report (Introductory Chapter) due to advisor (~ Last Week): _____

Spring:

Completed thesis draft due to advisor (~ 2 weeks before end of classes): _____

Oral presentation practice (~ 1 week before presentation): _____

Oral presentation, 30-45 min, (~ Reading Day - TBD): _____

Final Draft of Thesis (~ Reading Day - TBD): _____

Advisor must submit Final Honors Thesis Nomination Form to Registrar (~ Friday of finals week).

Student and advisor agree to the weekly and semester-long timeline here.

Student name: _____

Student signature: _____

Advisor name: _____

Advisor signature: _____