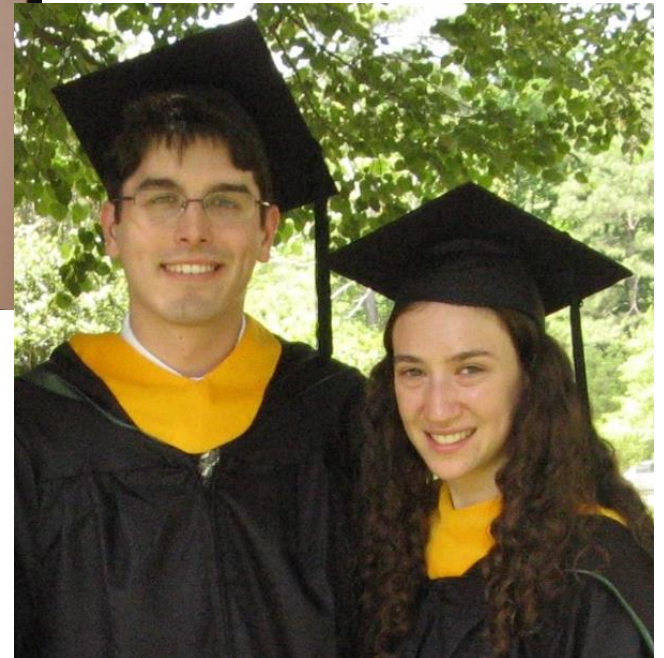
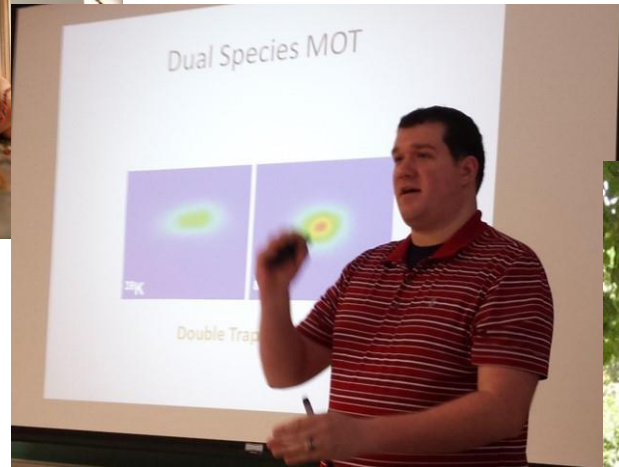
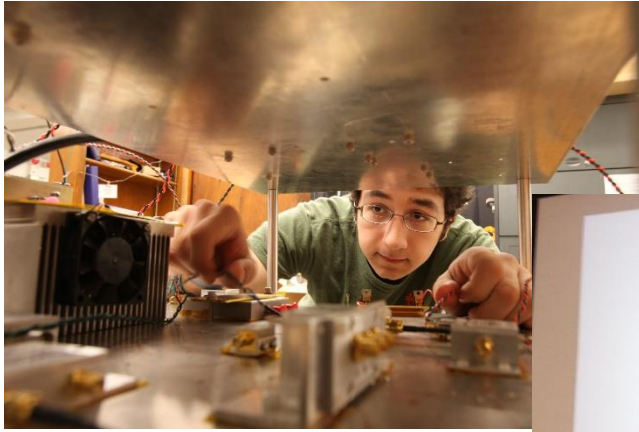


Physics 451 (495): Senior Thesis Research

(i.e. how to present scientific research)



Instructor

Prof. Seth Aubin

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Lab: room 069, Small Hall (new wing), tel: 1-3532

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Office hours:

Aubin: Open office hours and Thursdays 4:30-5:30pm

Course Objectives

Effective **oral** and **written presentation** of scientific research.

The course will cover the following topics:

- Abstracts, i.e. executive summary of a paper.
- The science pitch, i.e. “elevator” talk.
- Long talks.
- Project reports.
- Science literature search resources.
- Graduate school and employment.
- Science and engineering teams.
- Science ethics and professionalism.

Course Work

Thesis and defense (2nd semester): These written and oral presentations are the primary means of evaluating your work.

Research effort: Your weekly productivity and effort on your thesis project are essential components of your course performance.

Midyear report and talk: These written and oral presentations provide guidance on your research performance and can complement evaluations in the second semester.

Short talks and abstracts (1st and 2nd semesters): These short oral and written presentations will occur at the start of each semester.

Course participation: In class participation is required.

Grading

- You will receive a **grade of “G”** for the first semester of this senior thesis course.
- This grade will then be **converted to a final grade** after completion of the thesis in the second semester.
- Your **final grade** for the course will be determined by your research advisor with input from the instructor.
- An **informal grade** will be provided at the end of the first semester, as well as guidance on the trajectory of the research.

Writing Resource Center

- The Writing Resources Center, located on the first floor of Swem Library, is a **free service** provided to W&M students.
- Trained consultants offer **individual assistance** with writing, presentation, and other communication assignments across disciplines and at any stage, from generating ideas to polishing a final product.
- To make an appointment, visit the WRC webpage www.wm.edu/wrc.

CAUTION !!!

Important academic deadlines

Add/drop deadline: Friday, September 7, 2017

Withdraw deadline: Friday, October 26, 2017

If you drop or withdraw from this course, then you will not graduate in May 2019*.

You must register for a total of at least 3 credits to satisfy COLL 400

Schedule (I)

Week 0: 8/31

Class: Intro to Senior Thesis

Overview of the senior thesis course, submission of project titles, photos.

Week 1: 9/7

Class: The “elevator” talk/abstract

The science pitch: oral and written forms.

Week 2: 9/14

Class: Scientific Literature Search Workshop

Workshop by Ms. Kristy Borda, Science Librarian. Location: Swem.

Week 3: 9/21

No Class

Week 4: 9/28

Class: Short talks

Students will give 2-minute talks and submit brief abstracts on their thesis project.

Week 5: 10/5

Class: Graduate School and Employment

Advice on job searching and where and how to apply for graduate school.

Week 6: 10/12

Class: EPAD Team Training

Engineering-related training for EPAD teams.

----- Fall Break -----

Week 7: 10/19

Class: Scientific Ethics Training

Tutorial on the ethical conduct of science and professionalism of scientists.

Schedule (II)

Week 8: 10/26

Class: Scientific Writing and Talks

Structure and style of science papers, reports, proposals, and talks.

Week 9: 11/2

Class: Midyear Report Workshop

Workshop where students will draft an outline of their midyear report and talk.

Week 10: 11/9

TBA

Week 11: 11/16

TBA

Week 12: 11/19

Monday: Midyear report drafts are due

----- Thanksgiving Break -----

Week 13: 11/26-30

“Report feedback week”

Research advisors and instructor will provide feedback on midyear report drafts.

Week 14: 12/3-7

Midyear Talks, week 1

Week 15: 12/10-14

Midyear Talks, week 2

Research ...

Cons

- Research is hard.
- Research is really hard.
- Murphy is very strong.
- Research requires “blood, sweat, and tears”*

* see Marie Curie, Marguerite Perey, Enrico Fermi.

Pros

- Create new knowledge.
- Discover new phenomena and effects.
- Create new instruments, devices, and technologies.

Caveat: The “new” only exists and is relevant if it is documented in a paper, thesis, talk, and/or webpage, and distributed to a wider audience.

Career relevance