

Spring 2020
PHYS 309: Undergraduate Seminar

Syllabus

Tuesdays 2-3:20 pm in Small Hall room 122 or 235

Undergraduate prerequisites: None.

Instructor

Prof. Seth Aubin

Office: room 255, Small Hall, tel: 1-3545

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

e-mail: saaubi@wm.edu

web: <http://www.physics.wm.edu/~saubin/index.html>

Office hours: Open office hours and Mondays 3-4pm.

Course Objectives

The purpose of this course is to expose students to research in the Physics Department while developing their science presentation skills. The course will feature:

- Seminar-style talks by physics professors.
- Short talks (10-15 minutes) by students.
- Discussions of physics research topics and journal articles.
- In-depth exposure to research in Physics Department.
- Assistance in identifying a senior thesis topic.
- Searching the scientific literature.

Course Materials

There is no textbook. The instructor will provide documents.

Evaluations

You will be evaluated on your in-class participation and short talk presentation. Your final grade will be determined according to the following grading weight distribution:

In-class participation: 50%

Short talk: 50%

Participation: In-class participation is required, and includes asking questions during a talk and discussions on assigned science articles. Attendance is also included in this assessment.

Short talk: You will give a short talk (10-15 minutes) on a topic of current interest in physics research. A short written abstract will summarize the content of your talk.

Important academic deadlines

Add/drop deadline: Friday, January 31, 2020

Withdraw deadline: Monday, March 23, 2020

Weekly Schedule (tentative ... updated: March 20, 2020)

Week 1: 1/28 – room 235 Intro to Undergraduate Seminar

Week 2: 2/4 – room 235 Talk 1: Seth Aubin

Title: Ultra-Cold Matter Technology: Physics and Applications.

Week 3: 2/11 – room 122 Talk 2: Josh Erlich

Title: Quantum gravity.

Week 4: 2/18 – room 122 Talk 3: Mike Kordosky

Title: Experimental Particle Physics at W&M.

Week 5: 2/25 – room 122 Talk 4: Keith Griffioen

Topic: Dark photon search at Jefferson Lab.

Week 6: 3/3 – room 122 Talk 5: Seth Aubin

Topic: Atomic parity violation.

----- Spring Break -----

Week 7: 3/17

Classes cancelled this week due to COVID-19 epidemic

Week 8: 3/24 – on-line Talk 6: Eugeny Mikhailov

Topic: Improving laser-based detectors.

Week 9: 3/31 – on-line Talk 7: Mumtaz Qazilbash

Title: Infrared Spectroscopy of Collective Quantum Phenomena.

Week 10: 4/7 – on-line Talk 8: Justin Stevens

Title: Quarks, gluons and QCD at Jefferson Lab and beyond.

Week 11: 4/14 – on-line Talk 9: Saskia Mordijck

Title: How to fuel a sun.

Week 12: 4/21 – on-line Talk 10: Chris Monahan

Topic: Searches for New Physics at the LHC.

Week 13: 4/28 – room 122 Student Talks