

Physics 360/460, Junior/Senior Seminar (Fall 2016)

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Class Website: http://userpages.wittenberg.edu/pvoytas/courses/p360_460_f16/index.html

Primary course goals:

- 1) To develop the skills required to make clear presentations on technical topics.
- 2) To learn to use reference materials pertinent to physics.
- 3) To get a feel for what is currently interesting in various fields of physics/engineering including societal, ethical, and career issues. There will be a few assignments along these lines. Details as they approach.

Overview

One of the more important skills you can learn is how to research, summarize, and present to others on a technical topic. Whether in academia or industry, you will most likely be called upon to do something like that. Furthermore, it is good practice in applying what physics you already know to thinking about some new system or learning about something completely new.

General

Seminar will primarily consist of presentations by you to each other on a physics/astro/engineering (or closely related) topic of your choosing (in consultation with a faculty member). The subjects for talks will be most likely based on a peer-reviewed journal article (see below and seminar website for some suggestions of places to browse or search) or magazines generally regarded as authoritative (see below).

In addition to your presentations, we will have sessions on faculty research projects, resources for researching the technical literature, sessions and news concerning societal, ethical, and career issues.

For juniors only:

Junior comprehensive assessment will take place in the context of Jr. Seminar. This consists of two parts: one quantitative and one qualitative. The material to be covered will be of the 200 level course material. Details will be provided in a separate document.

For seniors only:

Senior project proposals (one paragraph, explaining briefly what you plan to do and with which faculty member(s) you're working) are due to me by Oct. 15 at the beginning of seminar. Your proposal should be signed by you and by at least one mentoring faculty member (electronic submissions are OK if accompanied by a confirming email from whichever faculty you are working with).

You should give one talk in the fall semester on a topic related to your senior project.

Course Grading:

Attendance and Participation (30%) Includes: being in class, responding on feedback, asking questions of speakers.

Presentations (70%).

A grade will be assigned at the end of the semester reflecting your performance to date. You will receive one grade for the whole year. We usually weight later (e.g. Spring semester) talks a bit more in determining your overall course grade, as you will have more experience by then. **Unless you have extenuation circumstances (see me if you do) you should be signed up for zero credits in the fall and 1 credit in the spring.**

Grading for presentations:

The following specific grading scheme will be implemented for regular presentations this semester.

- A significant portion (approx. 50%) of the presentation grade will be based on the quality of the presentation, emphasizing clear presentation style in addition to correctness of content and appropriate level of delivery. Degree of difficulty will also be a factor in grading.
- The remaining (approx. 50%) of the grade for each presentation will be based on the preparation phase (described below). This is designed to encourage good habits of research and preparation.

- You **must** consult with me or another faculty member **no later than one week before** the scheduled presentation about your topic, tentative sources, etc. If it's faculty other than me, you must email me to tell me with whom you're consulting and what your topic is by the end of the Wednesday one week before your talk. Failure to do this will reduce your grade by 5 points (out of 100) per day later than that Wed.
- You **must** go through a dry run with me or another faculty member **no later than end of day the Monday before** your scheduled presentation to practice and allow time for corrections. Failure to do this will reduce your grade 10 points out of 100 per day late.
- Except for excused absences (illness, etc.), if you have not given a dry run by Tuesday night, you will not be allowed to present that week and you will give the talk later. You must then have the talk ready (according to the same guidelines above) by the next Wednesday and be ready to give it the next time there's any opening in the schedule.
- You **must** meet with me within 1 week after your presentation to go over your feedback.

Talk expectations

- Typically 15+5 minutes; presentation + questions (tentative)
- Audience is junior & senior physics majors
- Power Point or similar; don't get carried away with bells and whistles! Use the equation editor. Ask for help if needed.
- Talks should be analytical, not simply descriptive (tell us about the physics!)
- Talks should be based on material from peer-reviewed journal, or journal/magazine generally regarded as authoritative (Web materials require **prior** approval from a faculty member)
- Topic and tentative source(s) due one week before talk
- Dry run (**full presentation**--not just an outline) with a faculty member at least the Monday before.
Schedule the dry run in advance as you may not assume faculty members are available at the last minute.
- Not required (but highly recommended): practice in front of another student (in addition to dry-run).

Suggestions for places to start:

Peer-reviewed scholarly journals

Nature, Science, Physical Review Letters, Review of Scientific Instruments, Applied Physics Letters, ...

Magazines:

Scientific American

Physics World (Institute of Physics)

Physical Review Focus (American Physical Society)

Physics Today (American Physical Society)

Teaching journals:

American Journal of Physics (American Association of Physics Teachers)

The Physics Teacher (AAPT)

Finding scholarly (peer-reviewed) articles

Articles on a specific topic:

Web of Science/Science Citation Index

Google Scholar

Web of Science is available through the library Web site, go to the Library Homepage

(www6.wittenberg.edu/lib) and follow these links:

Research resources

All Databases

Web of Science

Feel free to give the above a try--we'll also run through examples in part of a future class session.