

Professional Skills for Physicists (PHYS 690)

Mon 0900 – 0950 PHYS 221

Instructor: Dr. Michael Hayden **TA:** none
Office: PHYS 218 **Phone:** 5-3199 **Office Hours:** come by anytime

Overview

The purpose of this course is to provide you with some of the practical skills necessary for operation as professional physicists in academia, government labs, and industry. Through handouts, web modules, guest speakers, discussions, homework, presentations, and a written grant proposal, we will explore and develop the skills you will need to be successful teachers and researchers in whichever arena you choose.

Learning outcome

Development of enhanced communications skills as required for professional presentations and publications. This learning outcome will be assessed in the grant writing, CV preparation, and oral presentation assignments, as well as your presentation skills during the ethics case studies.

Summary of course topics

Library research skills – full text journal searching, database searching, thesis searches, Inspec, Interlibrary Loan, Web of Science

Ethics in science – responsible conduct of research, proper authorship, academic integrity

Thesis proposals – how, what, when

Oral and poster presentations – speaking skills, organizational skills, graphic skills

Writing a journal article – format, content, writing style

Grant proposals – full submission, from idea to technical plan to budget and references

Job search – CV, cover letters, reference letters, where, how, and when to look, expectations

Homework

There will be homework for most weeks, ranging from finding articles in the library or completing an ethics module on the web to giving an oral presentation to the class or writing a full grant proposal.

Presentations

Each student will be required to give a 15 minute oral, Powerpoint presentation in a style similar to those you have seen in the Dept seminar series. The topic **must** be related to your thesis research and must be **original** (i.e., your own ideas and results). You must also create a conference style poster based on your talk that is similar to those on the walls outside the research labs.

Grant Proposal

Each student must write a research proposal in the form required by the National Science Foundation (NSF). The proposal should include all the parts required for submission to the NSF but the technical section will be limited to 3 pages, single spaced. This proposal should be based on your PhD/MS proposal.

Grading

Oral presentation – 25%

Poster presentation – 15%

Homework – 25%

Participation – 10% (If you miss more than one class, or if you are late consistently or if you are late for the presentations, you will need to repeat the course.)

Grant proposal – 25%

The course is Pass/Fail. You must score > 80% to pass.