

PHYS 496:

Introduction to Physics Research

Course Overview

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PHYS 496

“Introduction to Physics Research”

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Alternate Titles:

“Effective communication in physics”

“A hodgepodge of what physicists/scientists should know”

“Things I wish my advisor had told me”

“How the science world works”

Goals for PHYS 496

- Help you learn to **think critically**
 - About others' work and your own
- Help you learn **methods to write and speak persuasively**
 - The scientific community (and just about everyone else) tends to be both skeptical and busy, so you can't rely only on quietly producing great results
- Help you learn to **navigate the scientific literature**
 - Researching existing literature is critical for planning future work, writing proposals, writing papers, etc.
- **Teach you how the “world of science” works**

Goals for PHYS 496

- Bottom line:

We want to teach you how to become effective scientists and communicators!

PHYS 496

- Useful if you want to go to grad school → academia
- Useful if you want to go to grad school → industry
- Useful if you want to go from undergrad → industry
- Useful if you want to go from undergrad → anything!



Components of the Course

- Writing, speaking, and presentation skills
 - Writing workshops, journal club, colloquium reports, figures, communicating with non-scientists, ...
- Resources for scientists
 - How to use on-line databases useful for research
- Scientific ethics
 - Case studies
- Exposure to physics research and careers
 - Speakers, colloquia, journal club

Our expectations of you

- In-class participation
 - mandatory attendance, clickers
- Written assignments
 - Don't start too late!
 - We prefer a Word file via email, but an emailed pdf file is OK
- Feedback on your classmates' writing
- Oral presentations
 - Professional and polished
 - Plan to use .pdf or .ppt files (sent to phys496@illinois.edu) on course laptop

Plagiarism

Never copy phrases longer
than 3-4 words

- Providing a citation to a bibliographic entry or footnote does **not** make copying words okay
- Includes:
 - figures and figure captions
 - text from a published paper
 - text from a paper you're working on with your advisor
 - websites

Direct quotes

- Professor Shelton said, “Never copy phrases longer than 3-4 words.”
- Uncommon in technical writing
- It is appropriate for one of your homework assignments
- You can only quote words that someone said in person, in an email, over the phone, or in a letter to you.

Final words

- You will get out as much as you put in
- Talk with us if you have questions regarding homework, plagiarism, life/career issues, ...
- Take advantage of the guest speakers and ask what you would like to know!
- This course is an opportunity to ask us questions about whatever you'd like to know regarding physics, careers, communication, publishing, funding, ...

