PHYS 496:

Introduction to Physics Research

Course Overview

Aug. 31, 2018

PHYS 496

"Introduction to Physics Research"

Instructors: Celia Elliott <u>cmelliot@illinois.edu</u>

Jessie Shelton <u>sheltonj@illinois.edu</u>

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



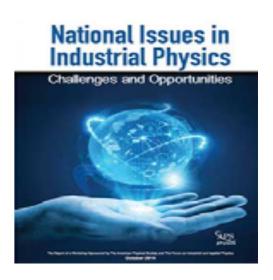
Useful if you want to go from undergrad
 — industry

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, ...



