Physics 496

Introduction to Physics Research

UIUC built RPC-1 inside PHENIX at the Relativistic Heavy Ion Collider, BNL

Physics 496

Introduction to Physics Research

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Alternate Titles:

"Effective Communication in Science"
"A hodgepodge of what physicists/scientists should know" "Things I wished my advisor had told me"
"How the science world works"

496 Content Highlights theCourse

Writing, Speaking, & 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 & Careers
- Speakers, Colloquia, Journal Club

496 Organizational Matters

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 classmate's writing
- Oral presentations
- Professional and polished

Goals for Physics 496

Help you learn to think critically
About others work and yours!

Help you learn methods to write and speak persuasively
The scientific community (and just about everyone else!) tends to be skeptical, so you can't rely just on 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

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

Importance of Communication in Science and Technology – Three Examples

(I) UIUC Engineering alumni report that their technical writing skills limit career opportunities ➔ College effort to strengthen writing skills in curriculum!

(II) Impact of professional scientific writer and editor hired by the U of I physics department in 1996
➔ increased per faculty funding by 1.7 by 2010 (in constant $) against the background of constant budgets for science! Now the highest in the College for Engineering!

(III) Selection of streamer-tube based tracking over drift-tube based tracking for the NMC experiment at CERN ➔ better presentation won over superior instrumentation …

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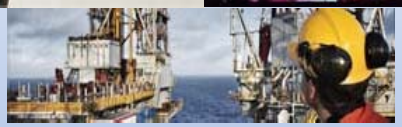
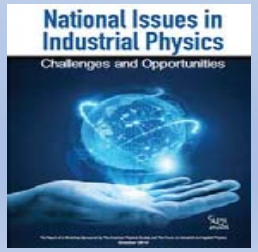

Useful if you want to go to graduate school ➔ academia

Useful for graduate school ➔ industry

Useful for undergraduate degree ➔ industry

Useful for undergraduate degree, anything!

Plagiarism

Never copy phrases longer than 3-4 words

Providing a citation to a bibliographic entry or footnote does not make copying words OK

Includes:

Figures and figure captions
Text from published paper
Text from paper you are working on with advisor Websites

Direct Quotes

Dr. Perdekamp 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.