

Introduction to Research and Scientific Communication

PHYS 501/502

Monday @ 2-4pm, Workman 352

Fall 2016 & Spring 2017

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Overview

As implied in the title, Introduction to Research and Scientific Communication, there are two parts to this course:

1. Introduction to Research (formally known as Grad Lab)

This part of the course is designed to provide research experience during the first year of graduate school. This may include an extensive literature review, building an instrument, data analysis, computer programming, or something else altogether. The nature of the project will be determined between you and a faculty member whose research interests you, and you will work with this faculty member throughout the year to complete the research project.

The first step is to identify a faculty member to complete this part of the course with. You should do this within the first week, and no later than the second week of courses.

2. Introduction to Scientific Communication

This part of the course is designed to provide students with an introduction to the communication skills that are required in graduate school and beyond. This not only includes knowledge and strategies for different types of communication, but strategies for collaboration and working with peers as well. The topics for assignments will be related to the research project above, and we will do a lot of hands-on work during class.

Learning Outcomes:

Upon completion of PHYS 501 and 502, students will

- Acquire research experience
- Acquire experience with different types of written scientific communication needed for graduate school and beyond
- Develop and practice good strategies for oral and poster presentations
- Develop strategies for working collaboratively and providing/using peer review
- Demonstrate effective use of graphics for communicating technical information
- Develop effective organization strategies for oral and written communication
- Execute proper referencing and avoid plagiarism

Required Texts

- Schultz, D. M. (2009). *ELOQUENT SCIENCE: A practical guide to becoming a better Writer, Speaker & Atmospheric Scientist*. Boston, MA: American Meteorological Society.

You can download a .pdf copy of the book from an on-campus computer:
(<http://link.springer.com/book/10.1007/978-1-935704-03-4/page/1>)

- Pinker, Steven (2015). *The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century*. Penguin Books.

Recommended Texts

- Silva, Paul J. (2007). *How to Write a Lot*. American Psychological Association.
- Reynolds, Garr (2012). *presentationzen: Simple Ideas on Presentation Design and Delivery*. New Riders.
- Zinsser, William (2006). *On Writing Well: The Classic Guide to Writing Nonfiction*. HarperCollins Publishers.
- Strunk, William and E.B. White (2000). *The Elements of Style*. Pearson Education Inc.
- Medina, J. (2008). *brain rules: 12 Principles for Surviving and Thriving at Work, Home, and School*. Seattle, WA: Pear Press.

This book available electronically through NMT's Skeen Library.

Policies

Grading

The grade will be determined as follows:

- 50% from progress on your research project, to be assigned by your research faculty
- 50% Activities in this course

For the *Communications* part of the course, the breakdown will be as follows:

- 20% Class participation (attendance, class discussions, informal peer review, reading reports, etc.)
- 15% Conference Abstract
- 15% Literature Review
- 20% Proposal
- 20% Oral Presentation
- 10% Other Activities

Attendance

This class meets only once a week, and therefore it is essential that you come to *every* class. If you are ill or have some other emergency, please come talk with me as soon as possible. Occasionally we may reschedule class to accommodate peer writing groups or practice presentations for conferences involving students or faculty who are not enrolled in this course.

Participation

This class is intended to be a hands-on course with active participation in discussion and peer review. One of my goals is to foster collaboration (which not only helps to improve communication, but is much more fun than working solo). Consequently, part of your grade will come from participation in class activities (peer reviews, etc).

Late Submissions

You are expected to complete all assigned work in a timely manner. Late submissions will not be accepted or evaluated.

Technology

You are welcome to bring your laptop, tablet, ipad, or other technology to class. However, during class please do not use these for any non class-related computer use (e.g., e-mail, texts, Facebook, etc.)

Counseling and Disability Services

Reasonable Accommodations:

New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office of Counseling and Disability Services (OCDS) as soon as possible. To schedule an appointment, please call 835-6619.

Counseling Services:

New Mexico Tech offers mental health and substance abuse counseling through the Office of Counseling and Disability Services. The confidential services are provided free of charge by licensed professionals. To schedule an appointment, please call 835-6619.

Academic Honesty:

New Mexico Tech's Academic Honesty Policy for undergraduate students (which also holds for graduate students) is found starting on page 64 of the NMT Undergraduate Catalog, http://www.nmt.edu/images/stories/registrar/2015-2016_UNDERGRADUATE_Catalog_FINAL.pdf

Respect Statement:

New Mexico Tech supports freedom of expression within the parameters of a respectful learning environment. As stated in the New Mexico Tech Guide to Conduct and Citizenship: "New Mexico Tech's primary purpose is education, which includes teaching, research, discussion, learning, and service. An atmosphere of free and

open inquiry is essential to the pursuit of education. Tech seeks to protect academic freedom and build on individual responsibility to create and maintain an academic atmosphere that is a purposeful, just, open, disciplined, and caring community.”