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Course Syllabi

Spring 2-1-2018

PHSX 330.01: Communicating Physics

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Course Information

- Instructor: Dr. David A. Macaluso
- Office: C.H. Clapp Building, room 119
- Telephone: (406) 243-6641
- Email: david.macaluso@umontana.edu
- Lectures: T, Tr 11:00 AM – 12:20 PM, CHCB 230/231
- Office Hours: M,W 3:00 PM – 4:30 PM
- Course Website: Moodle

Textbook

Required

The Craft of Scientific Writing, 3rd Edition

By Michael Alley

ISBN-10: 0387947663

ISBN-13: 978-0387947662

Suggested

Scientific Writing and Communication: Papers, Proposals, and Presentations, 2nd Edition

By Angelika Hofmann

ISBN-10: 0199947562 | ISBN-13: 978-0199947560

Course Fees

Poster Printing

All students will be responsible for printing their own poster presentation. The Paw Print in the Mansfield library does large format printing and the least expensive option, *Economy Print*, is \$2.00/sq. ft. = \$24 for a 3' x 4' poster.

Overview

This course covers the concepts and techniques of **effective scientific communication**. We will cover several topics, with emphasis on the most effective communication techniques for your **intended audience**:

1. Fellow scientists
 - a. of related background (scientific peers)
 - b. of general background (scientists from another discipline or mixed disciplines)
2. The general public (i.e. non-scientists)
3. Prospective employers
4. Admissions departments
5. Scholarship committees
6. Grant agencies
7. Students
8. Peers/colleagues

Learning Outcomes

1. An understanding of the *mechanics* of writing: grammar, sentence structure, punctuation, and diction (Dry? Yes. Important? VERY. We're spending about 2 weeks on it, so be ready)
2. Improved written communication skills, with emphasis on *concise scientific communication*.
3. Experience composing scientific journal articles, and a deeper understanding of the peer review process in general (what it is, why it is the way it is, and what it means to science – all of which are significant).
4. An appreciation for the importance of science conferences and experience with the two primary conference presentation formats: oral presentations and poster presentations.
5. Experience writing proposals (grant and scholarship) and applications (graduate school and job).
6. Experience writing a professional laboratory research report.

7. Experience creating a resume and a curriculum vitae, or CV (meaning “course of life” in Latin).
8. An understanding of the responsibility all scientists have in communicating science to the public.
9. Experience teaching science. In a classroom. In front of actual students. At Sentinel High School.
10. Experience with LaTeX.
11. Experience criticizing *and* being criticized by your peers. Put your judgy pants on and grow a thick skin!

Projects and assignments will include:

- a journal article (i.e. *scientific writing*)
- an original composition of *science writing* (science fiction, flesh out a writing prompt, etc.)
- an oral presentation
- a poster presentation
- proposals (grant & scholarship)
- a resume and a CV
- job and graduate school applications
- a lab report
- teaching & outreach
- daily writing on a new prompt to start each class that will be submitted and graded
- daily activities that will be submitted and graded

Add/Drop/Withdraw

Please refer to the University policy on adding, dropping, and withdrawing from the course at <http://www.umt.edu/registrar/students/dropadd.php>.

From the 16th through the 45th instructional day, all classes must be dropped using Drop forms (instructor signature required, advisor signature required for undergraduates). **\$10 fee applies.**

From the 46th to the last instructional day prior to finals week, classes must be dropped using the Drop form (instructor and Dean signatures required, advisor signature required for undergraduates). **\$10 fee applies.**

Websites

Grades and other materials will be posted on Moodle.

Our textbook, *The Craft of Scientific Writing*, has a companion website: <http://writing.engr.psu.edu/index.html>

Course Expectations

This is an upper division course intended for physics majors. The expectations are appropriate for advanced undergraduate students who are familiar with the concepts of personal responsibility, accountability, and academic honesty. For example:

Attendance: Papers and presentations will be based on lectures, in-class discussions, and in activities. Participation in in-class activities also accounts for a large portion of the course grade. Daily writing prompts are also a significant portion of your grade. Thus regular attendance is mandatoryish.

Reading Assignments: Students are expected to read the assigned material before class, and by that I mean *before class*. Occasional quizzes (your only quantitative assessments in this class) will be given based on the assigned reading and topics previously covered in lecture.

Original Work (a BIG DEAL in this class): I strongly encourage students to work together, to use all available resources, to read as much as possible, and to seek assistance from me whenever necessary. However, written work submitted in this class must be the original work of the student. For specific information regarding the University policy on academic misconduct, please refer to the last page of this syllabus.

Due Dates and Times (another BIG DEAL in this class): Get your work in on time! Scientific writing classes traditionally have significantly more issues with late submissions and requests for deadline extensions than traditional quantitative science classes. It seems to be how our scientist brains work (or don't).

Grading

Grade breakdown:

| | |
|--|-----|
| Projects (papers, proposals, posters, presentations, etc.) | 70% |
| Homework and in-class activities | 10% |
| Quizzes | 10% |
| Daily writing prompts | 10% |

All assignments will be due at the beginning of class.

Late assignments will receive 50% of whatever grade is earned.

Academic Honesty

University policy statement on academic honesty: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code: (http://www.umt.edu/vpsa/policies/student_conduct.php).

Students with Disabilities:

Whenever possible, and in accordance with civil rights laws, The University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the Disability Services for Students website at <http://life.umt.edu/dss/>.

Final Exam

I apologize, there will be no final exam in this course.

Tentative Course Schedule

| | | |
|----|--------|---|
| T | Jan 23 | Syllabus, course intro, writing basics (words & structure) |
| Tr | Jan 25 | LaTeX, writing basics (words & structure) |
| T | Jan 30 | Writing basics (words, sentences, paragraphs) |
| Tr | Feb 01 | Introduction to peer review journal articles |
| T | Feb 06 | Plagiarism, references, literature searches, figures, and tables |
| Tr | Feb 08 | Manuscripts |
| T | Feb 13 | Manuscripts |
| Tr | Feb 15 | Resume & CV |
| T | Feb 20 | Poster presentations (overview, content, format, organization) |
| Tr | Feb 22 | Poster preparation |
| T | Feb 27 | Posters Session I |
| Tr | Mar 01 | Posters Session II |
| T | Mar 06 | Oral presentations (content & organization, data formats) |
| Tr | Mar 08 | Oral presentations (PPT, delivery, timing) |
| T | Mar 13 | Presentations |
| Tr | Mar 15 | Presentations |
| T | Mar 20 | Presentations |
| Tr | Mar 22 | <i>Science Writing vs Scientific Writing</i> (Science Writing assignment over break) |
| T | Mar 27 | <i>Spring Break</i> |
| Tr | Mar 29 | <i>Spring Break</i> |
| T | Apr 03 | Laboratory Research Reports |
| Tr | Apr 05 | Laboratory Research Reports |
| T | Apr 10 | Teaching, Physics Education Research (PER) and Active Learning Classrooms |
| Tr | Apr 12 | Teaching, Physics Education Research (PER) and Active Learning Classrooms, W. Pereira |
| T | Apr 17 | Group Presentation prep and practice talks |
| Tr | Apr 19 | Group Presentation prep and practice talks |
| T | Apr 24 | <i>Team teaching practicum</i> |
| Tr | Apr 26 | <i>Team teaching practicum</i> |
| T | May 01 | <i>Team teaching practicum</i> |
| Tr | May 03 | Final Course Review & Evaluations |