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### PHSX 330.01: Communicating Physics

David A. Macaluso

*University of Montana - Missoula*, david.macaluso@umontana.edu

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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.umd.edu/registrar/students/dropadd.php>.

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

From the 46<sup>th</sup> 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](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