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# 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: Tu/Tr 9:40 – 11:00 AM, CHCB 230/231
- Office Hours: Monday & Wednesday 3-5.

### 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

### 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

### Learning Outcomes

Upon completing this course, students should have:

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

Projects and assignments will include:

- a journal article
- an oral presentation
- a poster presentation
- proposals (grant & scholarship)
- a resume and a CV
- job and graduate school applications
- 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 mandatory.

**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 26	Syllabus, course intro, writing basics (words & structure)
Tr	Jan 28	LaTeX, writing basics (words & structure)
T	Feb 02	Writing basics (words, sentences, paragraphs)
Tr	Feb 04	Putting it all together: planning an article
T	Feb 09	Introduction to peer review journal articles
Tr	Feb 11	Plagiarism, references, literature searches, figures, and tables
T	Feb 16	Manuscripts
Tr	Feb 18	Manuscripts
T	Feb 23	Applications and proposals (resume, CV, job, grant)
Tr	Feb 25	Applications and proposals (resume, CV, job, grant)
T	Mar 01	Poster presentations (overview, content, format, organization)
Tr	Mar 03	Posters
T	Mar 18	Posters
Tr	Mar 10	Posters
T	Mar 15	Oral presentations (content & organization, data formats)
Tr	Mar 17	Oral presentations (PPT, delivery, timing)
T	Mar 22	Presentations
Tr	Mar 24	Presentations
T	Mar 29	Presentations
Tr	Mar 31	Presentations
T	Apr 05	<i>Spring Break</i>
Tr	Apr 07	<i>Spring Break</i>
T	Apr 12	Teaching, Physics Education Research (PER) and Active Learning Classrooms
Tr	Apr 14	Teaching, Physics Education Research (PER) and Active Learning Classrooms
T	Apr 19	Group Presentations
Tr	Apr 21	Group Presentations
T	Apr 26	<i>Team teaching practicum</i>
Tr	Apr 28	<i>Team teaching practicum</i>
T	May 03	<i>Team teaching practicum</i>
Tr	May 05	Final Course Review & Evaluations