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Spring 2-1-2022

PHSX 330.01: Communicating Physics

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Course Information

- Instructor: Dr. David A. Macaluso
- Office: CHCB-119
- Office Telephone: (406) 243-6641
- Email: david.macaluso@umontana.edu
- Lectures: T, Tr 9:30 AM – 10:50 AM, CHCB 230/231
- Office Hours: MTW 11:00 AM-noon. I'm happy to help students outside my scheduled office hours
- Course Website: Moodle

Textbooks

Required

Scientific Writing and Communication: Papers, Proposals, and Presentations, 4th Edition

By Angelika Hofmann

ISBN-10: 0190063289 | ISBN-13: 978-0190063283

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 a professional laboratory research report.
6. Experience creating a resume and a curriculum vitae, or CV (meaning "course of life" in Latin).
7. Experience creating original examples of *science writing* (i.e. *not* scientific writing)

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 on your judgy pants and grow a thick skin!**

Projects will include...

- an original composition of *scientific writing* (i.e. a journal article)
- a resume and a CV
- a poster presentation
- an oral presentation
- an original composition of non-fiction *science writing* (magazine or children's book)
- an original composition of fiction *science writing* (Sci-Fi story)
- a complete lab report
- teaching & outreach

In-class activities will include...

- daily writing on a new prompt to start each class that will be submitted and graded
- daily activities for each topic 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	15%
Daily writing prompts	15%

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 18	Syllabus, course intro, writing basics (words & structure), Introduce Sci-Fi Story
Tr	Jan 20	LaTeX, writing basics (words & structure)
T	Jan 25	Writing basics (words, sentences, paragraphs)
Tr	Jan 27	Introduction to peer review journal articles
T	Feb 01	Plagiarism, references, literature searches, figures, and tables
Tr	Feb 03	Journal Articles
T	Feb 08	Journal Articles
Tr	Feb 10	Journal Articles
T	Feb 15	Journal Articles
Tr	Feb 17	Poster prep
T	Feb 22	Posters Session I
Tr	Feb 24	Posters Session II
T	Mar 01	Oral presentations (content & organization, data formats)
Tr	Mar 03	Oral presentations (PPT, delivery, timing)
T	Mar 08	Talks
Tr	Mar 10	Talks
T	Mar 15	Talks
Tr	Mar 17	Talks
T	Mar 22	Spring Break
Tr	Mar 24	Spring Break
T	Mar 29	Resume & CV
Tr	Mar 31	Cover Letters & Research Statements
T	Apr 05	Lab Research Reports (introduction & data)
Tr	Apr 07	Lab Reports due by 11:59 PM as a pdf via email
T	Apr 12	Scientific Writing vs. Science Writing: <i>Sci-Fi Story, Magazine Article, Children's Book</i>
Tr	Apr 14	Science Writing: Children's Book or Magazine Article due by 11:59 PM as a pdf via email
T	Apr 19	Teaching, PER & Active Learning Classrooms (Sci-Fi stories due by 11:59 PM)
Tr	Apr 21	Team Teaching Practicum Prep (PER summaries due by 11:59)
T	Apr 26	Team Teaching Practicum
Tr	Apr 28	Team Teaching Practicum
T	May 03	Team Teaching Practicum
Tr	May 05	Sci-Fi Story Discussion, Final Course Review & Evaluations