

Bioengineering 6061 Proposal Writing and Presentation

Spring Semester, 2015

Rob MacLeod

February 21, 2015

Designation: Bioengineering PhD program required course.

Description

This is the second semester of course, the goal of which is to prepare PhD students for relevant forms of scientific communication, especially written proposals and oral proposal presentations and defenses. The core elements of scientific writing will, of course, be useful in a broader range of settings, however, the course will include limited coverage of scientific papers but will rather focus on the preparation of a grant or thesis proposal. Similarly, the course will include many general concepts and practices of oral presentation but rather than conference presentations, will focus on the unique setting of the proposal and thesis defense.

The course will be practice oriented with many opportunities to develop, present, and receive feedback and constructive criticism. Students will also participate in the review process and thus develop the skills of evaluating written and oral presentations. We will use examples from a range of disciplines with the recurring goal of identifying the elements that make presentations great.

The target audience for the course are PhD students who are in at least their second year of training and thus should be preparing for the PhD proposal and proposal defense. Undergraduate students take the Thesis Writing and Presentation course to begin the development of presentation skills and it will be rare for undergraduates to receive permission to take this course. MS students who are pursuing the research degree (*i.e.*, not course only MS options) are also rarely admitted and if so, the course expectations change somewhat to align with the program and future careers as engineers.

Course Goals

To be effective in science and engineering, graduate students must develop communication skills in all forms of scientific exchange. The pursuit of those skills is a long term task that continues throughout a professional career. The general goal of this class is to improve those skills and to create a framework for ongoing improvement well beyond the class.

Specific Aims

A major component of the PhD program is the preparation of a research proposal, which includes both a written document and an oral presentation. The specific aims of this course support achieving these requirements through:

1. Developing general presentation and writing skills for scientific communication.
2. Learning the specific features, components, and style of a written research proposal.
3. Creating oral presentations that support the presentation of the research proposal and the ability to defend it in a public setting.
4. Establishing and refining constructive criticism skills in order to evaluate communication and suggest approaches to its improvement.

Requirements

PhD Students must be in their second year of the graduate program. MS students must be in the research MS track and should take the course in their final year of study. Students must have completed BE6060.

Class time and venue

Class times: Thursday, 9:10–10:30 AM
 Classroom: SMBB 2660 (across from main auditorium)
 Credits: 2 credit-hours

Instructors

Name	Phone	Email	Office	Hours
Rob MacLeod (RM)	5-7596	macleod@sci.utah.edu	WEB 4602	by appointment
Heather Palmer (HP)	5-3651	heather.j.palmer@utah.edu	SMBB 3221	by appointment

Learning objectives

1. Review and refine general skills in scientific writing.
2. Develop and practice specific skills in writing proposals, both in the context of the Bioengineering qualifying exam thesis research proposal and more generally in the context of proposals for funding of scientific research.
3. Review and refine general skills in the oral presentation of scientific results.
4. Develop and practice specific presentation strategies for the context of proposing and defending research ideas and results, in the context of the Bioengineering qualifying exam and the PhD thesis defense.
5. Develop and practice reviewing skills for both written the oral presentations.

Text Books

- **Required**
 - **Scientific Writing and Communication 2nd Edition**, by Angelika Hofmann, Oxford University Press.
 - **Style: Lessons in Clarity and Grace** by Joseph Williams and Joseph Bizup, Pearson, 2014.

- **Recommended supplements for presentation**, roughly in order of value.
 - **The Naked Presenter: Delivering Powerful Presentations With or Without Slides** by Garr Reynolds, New Riders, 2011.
 - **Presentation Zen: Simple Ideas on Presentation Design and Delivery** by Garr Reynolds, New Riders, 2008.
 - **Presentation Zen Design: Simple Design Principles and Techniques to Enhance Your Presentations** by Garr Reynolds, New Riders, 2010.
 - **slide:ology: The Art and Science of Creating Great Presentations** by Nancy Duarte, O'Reilly Media, 2009.
 - **How to be a Presentation God** by Scott Schwertly, Wiley, 2011.
 - **The Power of Visual Storytelling** by Ekaterina Walter and Jessica Gioglio, McGraw Hill, 2014.
 - **The Presentation Secrets of Steve Jobs** by Carmine Gallo, McGraw Hill, 2010.
 - **The Craft of Scientific Presentation** by Michael Alley, Springer Verlag, 2003.
 - **A PhD is Not Enough** by Peter Feibelman, revised edition, Basic Books, 2011. (This one is obviously most relevant for PhD students.)

- **Recommended supplements for writing**, roughly in order of value.
 - **Revising Prose Fifth Edition** by Richard Lanham, Pearson, 2007.
 - **The Art of Scientific Storytelling** by Rafael Luna, Amado, 2013.
 - **The Craft of Scientific Writing Third Edition** by Michael Alley, Springer, 1996.

Grading

The grade for the course will be based on writing assignments, review assignments, and practice presentations.

Schedule, Lectures, and Assignments

See the schedule on the Canvas course website (<https://utah.instructure.com/courses/323942>) for the latest additional information.