Bioengineering 7070, Presentations Class: Proposal Writing and Presentation Fall Semester, 2017
Version: August 13, 2017

1 Essentials

1.1 Requirements/prerequisites:

PhD students must usually be in at least their second year of the graduate program. This course is a requirement for students in the PhD program but not meant for MS students. Any MS student who does decide to participate must be in the Thesis MS program (rather than Course Option) and in the last year of their program. They must be prepared to propose a project that reflects their MS research project. MS Students in the Course-option MS program are not permitted in the class. Students enrolled in PhD programs outside of Bioengineering are also welcome to take this class.

1.2 Class time and venue:

Class times: Wednesdays, 3:00-4:30
Classroom: HSEB 5100B

1.3 Instructors:

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<tr>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
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1.4 Text books:

- **Required**

- **Recommended supplements**, roughly in order of value.

1.5 Grading:

The grade for the course will be based on writing assignments, review assignments, and practice presentations. See the Canvas page for details of the assignments and their weights.
1.6 Lectures and assignments:

The Canvas website is the central location for course materials, assignments, announcements, and grades. Please check there often.

2 Background Information

2.1 Description:

This is the first semester of a two-semester course, the goal of which is to prepare PhD students for relevant forms of scientific communications, especially written proposals and oral proposals 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 writing scientific papers but will rather focus on the preparation of a proposal, typically the PhD research proposal. Bioengineering MS programs do not require a research proposal and MS students should come prepared to create such a proposal for this class. The course will include many general concepts and practices of oral presentation but rather than conference presentations will focus on the unique setting of a proposal or 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 audiences for the course include the following:

- PhD students who are in at least their second year of training and thus preparing for the PhD proposal and proposal defense.

2.2 Course Goals:

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

2.3 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 writing and presentation skills for scientific communication. Scientific language is a different language from typical daily speech and, like all second languages, is challenging to master.
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. Develop constructive criticism skills in order to evaluate communication and suggest approaches to improvement, both those of others and ourselves.

2.4 Learning objectives:

1. Review and, through active practice, 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.