BIOEN 6464
Cardiac Electrophysiology and Biophysics Seminar
Fall 2008

LECTURE INSTRUCTORS:
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Office hours: By Appointment

See also http://www.cvrti.utah.edu/~poelzing/ for more information

DESIGNATION:
Elective course

CATALOG DESCRIPTION:
This course addresses professional and ethical responsibility associated with the development, testing, and implementation of cardiac electrophysiology and biophysics research. The course specifically will focus on understanding experimental model and protocol choices, with special emphasis on determining whether manuscripts rigorously follow the scientific process.

PREREQUISITE:
BIOEN 6000, 6003, 6460 or Instructor Approval. Recommended for second year and above graduate students. This course assumes the student is familiar with basic ion channel biophysics and cellular electrophysiology techniques. The purpose of the course is to critically evaluate scientific manuscripts. Students are responsible for background reading on topics in addition to the manuscript under discussion.

TEXTS (Suggested):
- Guyton & Hall, Textbook of Medical Physiology
- Zipes & Jalife, Cardiac Electrophysiology. From Cell to Bedside

LEARNING OBJECTIVES:
To produce students and future engineers who:
- Have fundamental knowledge of cardiac electrophysiological function and dysfunction
- Can analyze physiological systems from an engineering perspective
- Appreciate the ability of bioengineering to improve the quality of life
- Recognize the ethical issues associated with testing and implementation of biomedical devices and treatments
- Understand the need for life-long learning to maintain and enhance their technical skills, and to stay abreast of advances in understanding
- Demonstrate written and oral communication skills
- Are independent, critical, and creative thinkers who seek out new points of view and who can effectively evaluate assumptions, evidence, and conclusions and can distinguish between them

CLASS SCHEDULE: TBA
CONTRIBUTION TO PROFESSIONAL COMPONENT:

- The course covers graduate-level math and/or basic sciences.
- The course teaches biomedical engineering science.
- The course teaches biomedical design.
- The course teaches experimental design, the use and understanding of instrumentation, signal processing, and quantitative analyses of data.
- The course incorporates economic, ethical, health, social and political considerations of biomedical applications.

RELATIONSHIP TO PROGRAM OUTCOMES:

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*Percentage of time and effort of a course dedicated to a specific outcome

ASSESSMENT TOOLS:

- Attendance
- In-class participation
- Presentation
- Student evaluation of course

Attendance:  Students receive one point per class for attendance. (1/3 of grade)

In-Class Participation: Students must read all assigned material before class and demonstrate through oral communication that they understood the material. (1/3 of grade)

Presentation: Students will write no more than a 4 page manuscript review (single spaced, 11 point Arial or equivalent font, 1 inch margins). The subject of the manuscript will be chosen in class, and the manuscript will be the same one for the entire class. The rubric for the review will be handed during class. (1/3 of grade)

PLAGIARISM:
Plagiarism or undue reliance on another’s work may result in reduced grades and/or disciplinary action. For a more complete description of what does and does not constitute plagiarism, consult the University of Utah policies.
INSTRUCTOR AVAILABILITY:
Instructors will be available by appointment. We realize that many students’ schedules are highly constrained. We encourage you to arrange alternative times to meet with us to discuss any questions or issues associated with the course, or beyond.

WEB POSTINGS:
Links to current course materials will be posted on the web at: http://www.cvrtri.utah.edu/~poelzing/bioen6464.htm

COURSE GUIDELINES:
The course will be conducted according to the policies and procedures of the College of Engineering, which can be found on the College of Engineering website at http://www.coe.utah.edu/current/Guidelines.

CHANGES TO SYLLABUS:
The enclosed information represents a plan, not a contract. Topics, dates, and assignments and other content are subject to change at instructors’ discretion.

ACCOMMODATIONS POLICY:
The University’s Office of General Counsel recommends use of a disclaimer if a faculty member has reason to believe an accommodation request might arise. Accordingly, please note the following:

"Some of the writings, lectures, films, readings, activities, presentations, or other content in this course may include material that conflicts with the core beliefs of some students. Please review the syllabus carefully to see if the course is one that you are committed to taking. If you have a concern, please discuss it with the relevant faculty instructor at your earliest convenience."

According to the University, not all changes to course content trigger the use of the Accommodations Policy. For example, instructors continue to be able to make modifications to course content for pedagogical reasons, such as adding or substituting a new reading. Only student requests for accommodations based on conflict with sincerely-held core beliefs trigger the use of the policy.

The Bioengineering Department has adopted the following:

“None of the following, either singularly or in combination, is sufficient grounds for requesting a content accommodation:

a. personal disagreement with legitimate course content or its implications;

b. conflict between a student’s beliefs and legitimate course content or its implications;

c. any burden imposed on a student’s beliefs by legitimate course content or its implications.

Accommodations requested on such grounds, either singularly or in combination, will not be granted.”

SYLLABUS:
Links to current readings will be posted on the web at: http://www.cvrtri.utah.edu/~poelzing/bion6464.htm
Students are expected to read manuscripts before class and come prepared to discuss.