

ECE491-605/606

Biomedical Instrumentation

Fall 2007

Lecture: MW, 1:50 2:40, 1257 Anthony Hall

Lab: T/Th 11:30-2:30, EB 3241; additional open lab sessions as necessary

Instructor: Dr. Andrew Mason, EB 1217, mason@egr.msu.edu

Dr. Shantanu Chakrabarty, EB 3530, shantanu@egr.msu.edu

Office Hrs.: Mason: M/W 10-11; Chakrabarty: T/Th 3-4; email for additional appointments

410 Lab TA: Zeyong Shan, shanzeayo@egr.msu.edu

Office Hrs.: To be posted on class website; email for additional appointments

Course Website: <http://www.egr.msu.edu/classes/ece491/shantanu/>

A significant amount of material for this class will be posted on the course website, including assignments, lab tutorials, and lecture notes. Please check regularly throughout the semester.

Preferred Prerequisite: ECE 302/303

Reference Text:

J. Webster, *Medical Instrumentation: Applications and Design*, John Wiley & Sons, 1998. ISBN 0-471-15368-0

Reference Texts:

To be posted on the class website.

Course Description:

Fundamentals of biomedical measurements; sensor instrumentation electronics; biomedical devices; applications and case studies; hands-on experience with sensors, instrumentation electronics, and biomedical devices.

Attendance and Conduct in Class:

Students are expected to attend and participate in class. Attendance will not be taken, but a portion of your grade will be based on participation, and you can't participate if you're not there! It is the student's responsibility to get notes and handouts for any missed class. For excused absences (illness, professional travel, etc.) please notify Dr. Mason (mason@msu.edu) before class.

Grading:

30%	2 Midterm Exams
15%	Homework
5%	Participation
25%	Lab Assignments
25%	Project

Tentative dates for the two midterm exams are shown on the Course Topic Outline (also posted on the web). Exams will be take home design-oriented problems. There is no final exam, only a final project. 2-3 homework assignments will be given between each exam, typically due a week after assigned. Participation will be determined qualitatively by the instructors.

Lab Assignments:

Students must complete 4-6 lab assignments. Labs will typically include a pre-lab portion, which must be completed before attending lab, and an in-lab portion to be completed within the lab session. The lab will only be open during the designated lab section times when a TA will be available, so please come prepared or you will not have time to complete the lab.

Project

Teams of 2 students will be assigned a biomedical instrument/application research and analysis project. Teams will study their selected topic, gain an understanding of the relevant technology and what companies are currently involved in that market. They will also research up and coming technology and make an analysis of existing and near-future solutions. In some cases, students may wish to propose a new instrument to address a vacancy in the commercial market. Projects will be summarized into a written report and an illustrated presentation to be delivered to the class.

40% Project Quality 30% Report 30% Presentation

Other Policies:

- Cheating in any form will not be tolerated! This includes copying homework, copying labs, cheating on exams, or any other form of unethical behavior. Direct copying of homework will result in a zero-point score for all people involved.
- Homework must be turned in at the beginning of class on the date it is due. ***No late homework will be accepted.***
- Lab check offs and reports must be completed by their due date. Extensions for extreme situations should be arranged with the instructor.
- Makeup exams will only be allowed for excused absences and only when the instructor is informed before the exam.