Attention!

This is a *representative* syllabus.

The syllabus for the course when you enroll may be *different*.

Use the syllabus provided *by your instructor* for the most up-to-date information. Please refer to your instructor for more information for the specific requirements for a given semester.
Autumn 2014 New Course Announcement

ECE 5194.03: Neuroengineering and Neuroprosthetics

General Information

Level: Graduate, Undergraduate
Course No.: ECE 5194.03
Course Title: Neuroengineering and Neuroprosthetics (Neur Eng & Prosth)
Credits: 3
Professor: Liang Guo, PhD, Dept of Electrical & Computer Engineering, Dept of Neuroscience
Course Description: This course gives an overview of the broad field of Neuroengineering for graduate and senior undergraduate students with engineering or neuroscience backgrounds. Focusing on neural interfaces and prostheses, this course covers from basic neurophysiology and computational neuronal models to advanced neural interfaces and prostheses currently being actively developed in the field.

Offering Information

Meeting Dates: 8/27/2014 - 12/9/2014
Days & Times: MoWeFr 9:10AM - 10:05AM
Room: Caldwell Lab 0133
Grading Basis: Letter Grade

Prerequisites

Prerequisites: ECE 3050 or NS 3010 or BME 3703 or graduate standing in engineering or neuroscience
Intended Rank: Junior, Senior, Masters, and Doctoral

Registration Information

- Graduate students should sign up under catalog number 5194.03 and class number 33104.
- Undergraduates should sign up under catalog number 5194.03 and class number 33099.
The course will appear as “group studies.”
Course Details

Course Goals: Learn how engineering principles are integrated with neuroscience foundations in the development of advanced neuroprostheses

Course Topic List:
• Overview of Neuroengineering
• Neuroscience Basics
• Computational Neuronal Models
• Neural Interfacing Technologies
• Overview of Neuroprosthetics
• Brain Computer Interface
• Deep Brain Stimulation
• Retinal Prosthesis
• Functional Electrical Stimulation
• Optogenetics
• Neural Imaging
• Neural Tissue Engineering
• Regulatory and Ethic Issues

Grades

Homework: 20%
Midterm 1: 20%
Midterm 2: 20%
Final Project: 40%

Representative Textbooks and Other Course Materials

Lecture notes