



2. Understand the technical issues associated with the safe and effective electrical stimulation of peripheral nerves and the central nervous system.
3. Understand the principles and limitations of various electrode systems used in neuroprosthetic devices.
4. Understand the complications and unanticipated problems commonly associated with neuroprosthetic design and application.
5. Understand the fundamental limitations of present systems and barriers to future development of neuroprosthetics.
6. Be able to read and critically review relevant literature in the field.
7. Be able to gather and concisely present in verbal and written format summaries of unfamiliar technical material.

*6. Topics covered (number of classes per topic, based on fifteen 2½ hour class meetings per semester):*

Introduction to neuroprosthetics and history of brain stimulation (1)  
Issues in biocompatibility and the effects and safety of electrical stimulation (1)  
Models of neural stimulation (1)  
Power and control of devices (1)  
Electrodes for central stimulation and recording (1)  
Electrodes for peripheral stimulation and recording (1)  
Auditory prostheses – cochlear and central (2)  
Vestibular prostheses (½)  
Visual prostheses – retinal and cortical (1)  
Upper motor prosthetics (1)  
Lower motor prosthetics (1)  
Bladder prosthetics (½)  
Respiratory prosthetics (½)  
Spinal stimulation for pain control (½)  
Deep brain stimulation (1)  
Brain computer interfaces (1)

*7. Class schedule:*

One two and one-half seminar-style meeting per week including presentations by enrolled students, the instructor and guest lecturers.

C.C. Finley, February 19, 2006