

Typical *Concentration Area Elective* courses for **Neural Engineering**

Important: The courses listed below are *typical* of Concentration Area Elective (CAE) courses chosen by Neural Engineering students. This is NOT a complete list of appropriate courses. Specific course choices should be made in consultation with the advisor. Appropriate CAE courses will provide depth in the discipline of Neural Engineering *and* help to make the student competitive for the position or program that will be entered after the B.S. CAE courses must comply with the guidelines listed on the Concentration Area Elective form, available in the BioE office or under the Forms link on the BioE web site. Be sure to use the CAE form for the curriculum you are following.

Course	Relevance
BioE 472 – <i>Models of the Nervous System</i>	Prerequisite for BioE 475 (<i>required for all Neural Engineering students</i>)
BioE 410 – <i>FDA and ISO Requirements for the Development and Manufacturing of Medical Devices*</i>	Regulatory requirements for neural interface technology (<i>for all students on the F10 – Present curriculum, this course is required and therefore may not be taken as a CAE</i>)
ME 250 – <i>Introduction to Engineering Design and Graphics*</i>	Mechanical design of neural interface devices
BioE 407 – <i>Pattern Recognition I</i>	Analyzing neural signals
BioE 415 – <i>Biomechanics</i>	Development of neuromuscular prostheses
BioE 421 – <i>Biomedical Imaging</i>	Functional imaging of neural systems
BioE 452 – <i>Biocontrol</i>	Neuromuscular systems and neuromuscular prostheses
BioS 483 – <i>Neuroanatomy</i>	Neuroscience fundamentals – anatomical constraints on designing neural interfaces
BioS 485 – <i>Neuroscience II</i>	Neuroscience fundamentals - sensory and motor systems, learning, memory, pathology
BioS 489 – <i>Cellular Neurobiology Laboratory</i>	Traditional neural recording and neural stimulation techniques
BioS 486 – <i>Animal Behavior and Neuroethology</i>	Neuroscience fundamentals – neural control of behavior

* These courses are recommended for students seeking industry placement with the B.S. degree