Neuroengineering Focus Area –
Upper-Level Engineering Courses – updated January 2023

EN.520.315	Introduction to Bio-Inspired Processing of Audio-Visual Signals	3
EN.520.344	Digital Signal Processing	3
EN.520.349	Microprocessor Lab I	3
EN.520.353	Control Systems	3
EN.520.385	Signals, Systems, and Machine Learning	3
EN.520.412	Machine Learning for Signal Processing	3
EN.520.424	FPGA Synthesis Lab	3
EN.520.432	Medical Imaging Systems	3
EN.520.445	Audio Signal Processing	3
EN.520.448	Electronics Design Lab	3
EN.520.450	Advanced Micro-Processor Lab	3
EN.520.454	Control Systems Design	3
EN.520.491	CAD Design of Digital VLSI Systems I	3
EN.520.492	Mixed-Mode VLSI Systems	3
EN.520.495	Microfabrication Lab	4
EN.530.414	Computer-Aided Design	3
EN.530.420	Robot Sensors/Actuators	4
EN.530.421	Mechatronics	3
EN.530.445	Biomechanics	3
EN.530.446	Experimental Methods in Biomechanics	3
EN.530.468	Locomotion Mechanics: Fundamentals	3
EN.530.646	Robot Devices, Kinematics, Dynamics, and Control	3
EN.530.672	Biosensing & BioMEMS	3
EN.540.403	Colloids and Nanoparticles	3
EN.540.440	Micro/Nanotechnology: The Science and Eng. of Small Structures	3
EN.553.492	Mathematical Biology	3
EN.580.424	Neuroengineering and Lab: Neural Encoding and Sensation	3
EN.580.426	Neuroengineering and Lab: Neural Control of Movement	3
EN.580.435	Applied Bioelectrical Engineering	3
EN.580.437	Neuro Data Design I	4
EN.580.438	Neuro Data Design II	4
EN.580.439	Models of the Neuron	4
EN.580.441	Cellular Engineering	3
EN.580.442	Tissue Engineering	3
EN.580.452	Cell and Tissue Engineering Lab	3
EN.580.456	Introduction to Rehabilitation Engineering	3
EN.580.457	Rehabilitation Engineering Design Lab	3
EN.580.462	Representations of Choice	3
EN.580.468	Practical Human Neuroengineering	3
EN.580.471	Biomedical Instrumentation	4

EN.580.488	Foundations of Computational Biology & Bioinformatics	3
EN.580.491	Learning, Estimation, and Control	3
EN.580.493	Imaging Instrumentation	4
EN.580.494	Build an Imager	3
EN.580.571	Honors Instrumentation	2
EN.580.625	Structure & Function of the Auditory and Vestibular Systems	3
EN.580.688	Foundations of Computational Biology & Bioinformatics	3
EN.580.689	Modern Optical Microscopy: Theory and Practice	3
EN.580742	Neural Implants and Interfaces	3
EN.601.455	Computer Integrated Surgery I	4
EN.601.456	Computer Integrated Surgery II (or EN.601.496)	3
EN.601.475	Machine Learning	3
EN.601.482	Machine Learning: Deep Learning	4

Contact the department advising office for course additions.

200-Level Engineering Courses

(maximum of 3 credits from this list may count in focus area)

EN.520.214	Signals & Systems I	3/4
EN.520.216	Introduction to VLSI	3
EN.520.230	Mastering Electronics	2
EN.520.231	Mastering Electronics Laboratory	2
EN.530.254	Manufacturing Engineering	3
EN.580.298	Advanced Design Team	3

Non Upper-Level Focus Area Courses

(maximum of 3 credits from this list may count in focus area)
(courses used from this category cannot be double-counted)

AS.080.321	Computational Neuroscience	3
EN.580.112	BME Design Group	3

Students may use a maximum of 3 research credits as a non-upper-level engineering course.