Computational Medicine Focus Area -
Upper-Level Engineering Courses – updated January, 2023

EN.520.315	Introduction to Bio-Inspired Processing of Audio-Visual Signals	3
EN.520.385	Signals, Systems and Machine Learning	3
EN.520.432	Medical Imaging Systems	3
EN.520.439	Machine Learning for Medical Applications	3
EN.520.601	Introduction to Linear Systems Theory	3
EN.530.343	Design & Analysis of Dynamical Systems	3
EN.530.410	Biomechanics of the Cell	3
EN.530.676	Locomotion in Mech. & Bio. Systems	3
EN.540.432	Project in Design: Pharmacokinetics	3
EN.540.421	Project in Design: Pharmacodynamics	3
EN.553.361	Introduction to Optimization	4
EN.553.386	Scientific Computing: Differential Equations	4
EN.553.391	Dynamical Systems	4
EN.553.420	Introduction to Probability	4
EN.553.426	Introduction to Stochastic Processes	4
EN.553.430	Introduction to Statistics	4
EN.553.436	Intro Data Science	4
EN.553.450	Computational Molecular Medicine	4
EN.580.430	Systems Pharmacology & Personalized Medicine	3
EN.580.431	Introduction to Computational Medicine: Imaging	2
EN.580.433	Introduction to Computational Medicine: The Physiome	2
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.580.446	Physical Epigenetics	3
EN.580.447	Computational Stem Cell Biology	3
EN.580.460	Epigenetics at the Crossroads of Genes and the Environment	1.5
EN.580.462	Representations of Choice	3
EN.580.464	Advanced Data Science for Biomedical Engineering	4
EN.580.480	Precision Care Medicine I	4
EN.580.481	Precision Care Medicine II	4
EN.580.488	Foundations of Computational Biology & Bioinformatics	3
EN.580.491	Learning, Estimation, and Control	3
EN.601.350	Introduction to Genomic Research	3
EN.601.447	Computational Genomics: Sequences	3
EN.601.448	Computational Genomics: Data Analysis	3
EN.601.455	Computer Integrated Surgery I	4
EN.601.456	Computer Integrated Surgery II	3
EN.601.461	Computer Vision	3
EN.601.475	Introduction to Machine Learning	3
EN.601.476	Machine Learning: Data to Models	3

EN.601.482	Machine Learning: Deep Learning	3
EN.601.496	Computer Integrated Surgery II – Teams	3
EN.601.723	Adv Topics in Data-Intensive Computing	3

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.580.212	BME Design Group	3
EN.580.298	Advanced Focus Area Research	3
EN.601.226	Data Structures	3/4
EN.601.229	Computer System Fundamentals	3
EN.601.231	Automata & Computation Theory	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)

EN.580.112	BME Design Group	3
EN.660.304	Action Lab	3

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