

Course Number	Course Name	Biomedical Data Science	Imaging & Medical Devices	Computational Medicine	Immuno-engineering	Genomics & Systems Biology	Neuro-engineering	Translational Cell & Tissue Engineering
510.311	Structure of Materials							
510.312	Thermodynamics/Materials							
510.313	Mechanical Properties of Materials							
510.314	Electronic Properties of Materials							
510.315	Physical Chemistry of Materials II							
510.316	Biomaterials I							
510.407	Biomaterials II: Host response and biomaterials application							
510.415	The Chemistry of Materials Synthesis							
510.422	Micro and Nano Structured Materials & Devices							
510.426	Biomolecular Materials I- Soluble Proteins and Amphiphiles							
510.430	Biomaterials Lab							
510.435	Mechanical Properties of Biomaterials							
510.436	Cell Engineering for Biomaterials							
510.442	Nanomaterials Lab							
510.443	Chemistry and Physics of Polymers							
510.453	Materials Characterization (previously 510.403)							
520.315	Intro to Bio-Inspired Processing of Audio-Visual Signals							
520.344	Digital Signal Processing							
520.349	Microprocessor Lab I							
520.353	Control Systems							
520.412	Machine Learning for Signal Processing							
520.414	Image Processing & Analysis I							
520.415	Image Processing & Analysis II							
520.418	Modern Convex Optimization							
520.420	Bioelectricity from Neurons to Semiconductors							
520.424	FPGA Synthesis Lab							
520.427	Design of Biomedical Instruments and Systems							
520.432	Medical Imaging Systems							

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520.433	Medical Image Analysis							
520.439	Machine Learning for Medical Applications							
520.440	Machine Intelligence on Embedded Systems							
520.445	Audio Signal Processing							
520.447	Information Theory							
520.448	Electronics Design Laboratory							
520.450	Advanced Micro-Processor Lab							
520.453	Advanced ECE Engineering Design Team							
520.454	Control Systems Design							
520.483	Bio-Photonics Laboratory							
520.491	CAD Design of Digital VLSI Systems I							
520.492	Mixed-Mode VLSI Systems							
520.495	Microfabrication Laboratory							
520.601	Introduction to Linear Systems Theory							
520.631	Ultrasound and Photoacoustic Beamforming							
520.636	Feedback Control of Biological Signaling Pathways							
520.646	Wavelets & Filter Banks							
520.651	Random Signal Analysis							
530.327	Introduction to Fluid Mechanics							
530.381	Engineering Design Process							
530.343	Design & Analysis of Dynamical Systems							
530.410	Biomechanics of the Cell							
530.414	Computer-Aided Design							
530.420	Robot Sensors and Actuators							
530.421	Mechatronics							
530.424	Dynamics of Robots and Spaceflight							
530.430	Finite Element Analysis							
530.436	Bioinspired Science and Technology							

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530.441	Biophotonics							
530.445	Introduction to Biomechanics							
530.448	Biosolid Mechanics							
530.468	Locomotion Mechanics: Fundamentals							
530.473	Molecular Spectroscopy and Imaging							
530.474	Effective & Economic Design for BME Instrumentation							
530.646	Robot Devices, Kinematics, Dynamics, and Control							
530.672	Biosensing & BioMEMS							
530.676	Locomotion in Mechanical and Biological Systems							
530.691	Haptic Interface Design for Human-Robot Interaction							
540.301	Kinetic Processes							
540.303	Transport Phenomena I							
540.304	Transport Phenomena II							
540.306	Chemical & Biomolecular Separations							
540.402	Metabolic Systems Biotechnology (also 540.602)							
540.403	Colloids and Nanoparticles							
540.409	Dynamic Modeling and Control							
540.414	Computational Protein Structure Prediction and Design							
540.421	Project in Design: Pharmacodynamics							
540.422	Introduction to Polymeric Materials							
540.432	Project in Design: Pharmacokinetics							
540.440	Micro/Nanotech: The Sci and Eng of Small Structures							
540.465	Engineering Principles of Drug Delivery							
553.361	Introduction to Optimization							
553.362	Optimization II							
553.371	Cryptology and Coding							
553.385	Scientific Computing: Linear Algebra							
553.391	Dynamical Systems							

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553.400	Mathematical Modeling and Consulting							
553.401	Introduction to Research							
553.413	Applied Statistics and Data Analysis							
553.420	Introduction to Probability and 553.421							
553.426	Introduction to Stochastic Processes							
553.430	Introduction to Statistics							
553.433	Monte Carlo Methods							
553.436	Intro to Data Science							
553.450	Computational Molecular Medicine							
553.463	Network Models in Operations Research							
553.472	Graph Theory							
553.492	Mathematical Biology							
553.493	Mathematical Image Analysis							
553.630	Statistical Theory							
553.720	Probability Theory I							
553.721	Probability Theory II							
553.730	Statistical Theory I							
553.731	Statistical Theory II							
553.761	Nonlinear Optimization I							
553.762	Nonlinear Optimization II							
553.764	Modeling, Simulation, and Monte Carlo							
580.418	Principles of Pulmonary Physiology							
580.420	Immunomodulatory Biomaterials							
580.424	Neuroengineering and Lab: Neural Encoding							
580.425	Radiology for Engineers							
580.427	Microphysiological Systems and Laboratory							
580.428	Genomic Data Visualization							
580.430	Systems Pharmacology & Personalized Medicine							

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580.431	Introduction to Computational Medicine: Imaging							
580.432	Genomic Systems Eng and Synthetic Biology							
580.433	Introduction to Computational Medicine: Physiome							
580.435	Applied Bioelectrical Engineering I							
580.437	Neuro Data Design I							
580.438	Neuro Data Design II							
580.439	Models of the Neuron							
580.441	Cellular Engineering							
580.442	Tissue Engineering							
580.444	Biomedical Applications of Glycoengineering							
580.447	Computational Stem Cell Biology							
580.448	Computational Genomics: Data Analysis							
580.452	Cell and Tissue Engineering Lab							
580.453	Immunoengineering Principles and Applications							
580.454	Methods in Nucleic Acid Sequencing							
580.456	Introduction to Rehabilitation Engineering							
580.458	Computing the Transcriptome							
580.460	Epigenetics at the Crossroads of Genes & the Env							
580.462	Representations of Choice							
580.464	Adv Data Science for Biomedical Engineering							
580.468	Practical Humann Neuroengineering							
580.471	Principles of Design of BME Instrumentation							
580.479	X-ray Imaging and Computed Tomography							
580.480	Precision Care Medicine I							
580.481	Precision Care Medicine II							
580.488	Foundations of Computational Biology & Bioinformatics							
580.491	Learning, Estimation and Control							
580.493	Imaging Instrumentation							

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580.494	Build an Imager							
580.571	Honors Biomedical Instrumentation							
580.625	Structure and Function of the Auditory and Vestibular Systems							
580.643	Advanced Orthopaedic Tissue Engineering							
580.646	Molecular Immunoengineering							
580.678	Biomedical Photonics							
580.689	Modern Optical Microscopy: Theory and Practice							
580.709	Sparse Reps in Computer Vision and Machine Learning							
580.742	Neural Implants and Interfaces							
580.752	Adv Topics in Regenerative and Immune Engineering							
601.315	Databases (or 601.415)							
601.318	Operating Systems							
601.320	Parallel Programming							
601.350	Introduction to Genomic Research							
601.402	Digital Health and Biomedical Informatics							
601.433	Introduction to Algorithms							
601.434	Randomized and Big Data Analysis							
601.443	Security and Privacy Computing							
601.446	Sketching and Indexing for Sequences							
601.447	Computational Genomics: Sequences							
601.449	Computational Genomics: Applied Comp Genomics							
601.454	Augmented Reality							
601.455	Computer Integrated Surgery I							
601.456	Computer Integrated Surgery II (also 601.496)							
601.457	Computer Graphics							
601.461	Computer Vision							
601.463	Algorithms for Sensor-Based Robotics							
601.464	Artificial Intelligence							

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601.465	Natural Language Processing							
601.466	Information Retrieval and Web Agents							
601.468	Machine Translation							
601.474	Machine Learning Theory							
601.475	Introduction to Machine Learning							
601.476	Machine Learning: Data to Models							
601.477	Casual Inference							
601.482	Machine Learning: Deep Learning							
601.491	Human-Robot Interaction							