Sample Course Menus
The course menus shown below are aimed at helping students identify courses relevant to their interests. It is for reference only, and students should feel free to design a course of study that suits their career goals while meeting MS program requirements.

Biomaterials and Nanotechnology
42-611 Engineering Biomaterials
42-613 Molecular and Micro-Scale Polymeric Biomaterials in Medicine
42-641 Bio-Inspired Robotics
42-670 Biomaterial Host Interactions in Regenerative Medicine
42-772 Applied Nanoscience and Nanotechnology
03-620 Techniques in Electron Microscopy
09-707 Nanoparticles
24-757 Nano / Micro Manufacturing
27-715 Applied Magnetism and Magnetic Materials
27-718 Soft Materials
27-565 Special Topics: Nanostructured Materials

Tissue Engineering
42-611 Engineering Biomaterials
42-620 Engineering Molecular Cell Biology
42-341/24-334 Introduction to Biomechanics
42-612 Tissue Engineering
42-613 Molecular and Micro-Scale Polymeric Biomaterials in Medicine
42-623 Cellular and Molecular Biotechnology
42-645 Cellular Biomechanics
42-670 Biomaterial Host Interactions in Regenerative Medicine
42-673 Stem Cell Engineering
02-730 Cell and Systems Modeling
03-534 Biological Imaging and Fluorescence Spectroscopy
03-620 Techniques in Electron Microscopy
03-741 Advanced Cell Biology
27-718 Soft Materials

Computational Neural Engineering
42-631 Neural Data Analysis
42-632/18-698 Neural Signal Processing
42-640/24-658 Computational Bio-Modeling and Visualization
42-672 Special Topics: Fundamentals of Biomedical Imaging and Image Analysis
42-675 Fundamentals of Computational Biomedical Engineering
15-686 Neural Computation
15-883 Computational Models of Neural Systems
16-725 Medical Image Analysis
42-302 Systems Modeling and Analysis for Biomedical Engineering
02-730 Cell and Systems Modeling
06-462 Optimization Modeling and Algorithms
10-601 Introduction to Machine Learning (Master's)
10-702 Statistical Machine Learning
10-708 Probabilistic Graphical Models
10-725 Convex Optimization
18-751 Applied Stochastic Processes

18-752 Estimation, Detection, and Identification
18-771 Linear Systems – Neural/Image Core
36-705 Intermediate Statistics

General Neural Engineering
42-447 Rehabilitation Engineering
42-631 Neural Data Analysis
42-632 Neural Signal Processing
42-641 Bio-Inspired Robotics
42-661 Surgery for Engineers
42-744 Medical Devices
42-737 Biomedical Optical Imaging
02-750 Automation of Biological Research: Robotics and Machine Learning
03-762 Advanced Cellular Neuroscience
03-763 Advanced Systems Neuroscience
03-815 Magnetic Resonance Imaging in Neuroscience
15-883 Computational Models of Neural Systems
16-711 Kinematics, Dynamic Systems and Control
16-720 Computer Vision
16-868 Biomechanics and Motor Control
18-612: Neural Technology: Sensing and Stimulation
24-674 Design of Biomechatronic Systems for Humans
86-675 Computational Perception

Computational Biomechanics and Transport
42-647 Continuum Biomechanics: Solid and Fluid Mechanics of Physiological Systems
42-640 Computational Bio-Modeling and Visualization
42-643 Microfluidics
42-648 Cardiovascular Mechanics
24-703 Numerical Methods in Engineering
24-650 Applied Finite Element Analysis
24-623 Molecular Simulation of Materials
24-618 Special Topics: Computational Analysis of Transport Phenomena
24-755 Finite Elements in Mechanics I
24-718 Computational Fluid Dynamics
06-663 Analysis and Modeling of Transport Phenomena
24-787 Machine Learning and Artificial Intelligence for Engineers
24-788 Machine Learning and Artificial Intelligence for Engineers - Project
24-780 Engineering Computation
24-783 Special Topics: Advanced Engineering Computation

General Biomechanics (see Computational Biomechanics as well)
42-341 Introduction to Biomechanics
42-647 Introduction to Continuum Biomechanics
42-447 Rehabilitation Engineering
42-641 Bio-Inspired Robotics
42-643 Microfluidics
42-645 Cellular Biomechanics
42-646 Molecular Biomechanics
42-648 Cardiovascular Mechanics

42-661 Surgery for Engineers
42-744 Medical Devices
02-750 Automation of Biological Research: Robotics and Machine Learning
16-711 Kinematics, Dynamic Systems and Control
16-868 Biomechanics and Motor Control
24-614 Microelectromechanical Systems
24-674 Design of Biomechatronic Systems for Humans
24-757 Nano / Micro Manufacturing
06-610 Rheology and Structure of Complex Fluids

Biomedical Engineering for Students with BS in Biological Sciences
42-302 Biomedical Engineering Systems Modeling and Analysis
42-675 Fundamentals of Computational Biomedical Engineering – highly recommended
42-611 Engineering Biomaterials
42-620 Engineering Molecular Cell Biology
42-341 Introduction to Biomechanics
42-612 Tissue Engineering
42-640 Computational Bio-modeling and Visualization
42-645 Cellular Biomechanics
42-646 Molecular Biomechanics
42-648 Cardiovascular Mechanics
42-661 Surgery for Engineers
42-670 Biomaterial Host Interactions in Regenerative Medicine
42-671 Precision Medicine for Biomedical Engineers
42-673 Stem Cell Engineering
42-674 Special Topics: Engineering for Survival: ICU Medicine
42-744 Medical Devices
02-730 Cell and Systems Modeling

Design of Medical Devices
42-775 Special Topics: Graduate Biomedical Engineering Design
42-302 Biomedical Engineering Systems Modeling and Analysis
42-341 Introduction to Biomechanics
42-611 Engineering Biomaterials
42-447 Rehabilitation Engineering
42-641 Bio-Inspired Robotics
42-661 Surgery for Engineers
42-670 Biomaterial Host Interactions in Regenerative Medicine
42-674 Special Topics: Engineering for Survival: ICU Medicine
42-678 Medical Device Innovation
42-679 Medical Device Realization
42-744 Medical Devices
16-720 Computer Vision
16-868 Biomechanics and Motor Control
18-612 Neural Technology: Sensing and Stimulation
24-614 Microelectromechanical Systems
24-674 Design of Biomechatronic Systems for Humans

Biomedical Imaging
42-302 Biomedical Engineering Systems Modeling and Analysis
42-698C Introduction to Biomedical Signal Processing

42-431 Introduction to Biomedical Imaging and Image Analysis
42-640 Computational Bio-modeling and Visualization
42-672 Fundamentals of Biomedical Imaging and Image Analysis
42-675 Fundamentals of Computational Biomedical Engineering
42-731 Bioimage Informatics
42-732 Wavelets and Multiresolution Techniques in Bioimaging
42-735 Medical Image Analysis
42-744 Medical Devices
42-737 Biomedical Optical Imaging
03-534 Biological Imaging and Fluorescence Spectroscopy
03-620 Techniques in Electron Microscopy
03-712 Computational Methods for Biological Modeling and Simulation
03-815 Magnetic Resonance Imaging in Neuroscience
16-725 Medical Image Analysis
18-491 Digital Signal Processing
18-792 Advanced Digital Signal Processing
15-862 Computational Photography