

Engineering Fundamentals: Biomedical Imaging & Optics

Use this list of engineering courses to fulfill your engineering fundamentals within this track. Courses are chosen with the assistance of the student's advisor, with final approval by the Graduate Committee.

Required Engineering (2 of the following):

- BMED 6210: MRI
- BMED 6780: Medical Image Processing
- BMED 6786: Medical Imaging Systems
- ECE 6500: Fourier Tech & Signal Analysis
- MP 6101: Nuclear Medicine Physics
- MP 8803: Imaging Principles in Medical Physics

Other recommended engineering (any of the above courses or those listed below):

- BMED 6710: Rational Design of Biomaterials
- BMED 6720: Biotransport
- BMED 6740: Living System Modeling & Analysis
- BMED 7310: Stem Cell Engineering
- BMED 6700: Biostatistics (if not available, then ISYE 6420)
- BMED 7413: Biochemical Systems Analysis
- BMED 8823: Bioinformatics
- CHBE 6120: Molecular Modeling
- CHBE 6500: Math Model-Chem Process
- CSE 6140: Computational Science & Engineering Algorithms
- CSE 6730: Modeling & Simulation: Fundamentals & Implementation
- CSE 6740: Computational Data Analysis
- CS 6505: Computability & Algorithms
- CS 6520: Computational Complexity
- CS 6550: Design & Analysis of Algorithms
- ECE 6200: Biomedical Applications of MEMS
- ECE 6500: Fourier Tech & Signal Analysis
- ECE 6552: Nonlinear Systems
- ECE 6250: Advanced Digital Signal Processing
- ECE 6254: Statistical Digital Signal Processing & Modeling
- ECE 6255: Digital Processing of Speech Signals
- ECE 6258: Digital Image Processing
- ECE 6260: Data Compression & Modeling
- ECE 6501: Fourier Optics & Holography
- ECE 6510: Electro-Optics
- ECE 6520: Integrated Optics
- ECE 6522: Nonlinear Optics
- ECE 6787: Quantitative Electrophysiology
- EVE 7252: Advanced Signal Processing Theory
- ISYE 6401: Stat Models & Dsgn Expts
- ISYE 6402: Time Series Analysis

- ISYE 6404: Nonparametric Data Analysis
- ISYE 6413: Dsgn & Analy-Experiments
- ISYE 6414: Regression Analysis
- ISYE 6416: Computational Statistics
- ISYE 6644: Simulation
- ISYE 6650: Probabilistic Models
- ISYE 6739: Statistical Methods
- MSE 6405: Advanced Nanomaterials
- MSE 6751: Phys Chem-Poly Solutions
- MSE 6752: Polymer Characterization
- MSE 6407: Biological Properties
- MATH 6266: Linear Statistical Models
- MATH 6267: Multivariate Statistical Analysis
- MATH 6640: Numerical Methods: Partial Differential Equations
- MATH 6643: Numerical Methods: Linear Algebra
- MATH 6644: Iterative Methods: Systems of Equations
- MATH 6646: Numerical Methods: Ordinary Differential Equations
- MATH 6647: Numerical Methods for Dynamical Systems
- MATH 6705: Modeling & Dynamics
- MATH 6761: Stochastic Processes I
- MATH 6762: Stochastic Processes II
- ME 6743: Tissue Mechanics
- ME 8803: Applied Optics
- ME 6403: Monte Carol in Med Physics
- PHYS 6567: Ultrafast Optics
- PHYS 7222: Quantum Optics I
- PHYS 7223: Quantum Optics II