

# Applied Math Electives

## **Biomedical Engineering**

BME 4001 Biotransport/Biomolecular  
BME 4250 Biomechanics I  
BME 5005 Computational Neuroscience  
BME 5433 Biological Statistical Signal Processing  
BME 6002 Molecular Biophysics  
BME 6250 Biomechanics II

## **Chemical Engineering**

CH EN 3353 Fluid Mechanics  
CH EN 3453 Heat Transfer  
CH EN 4253 Process Design  
CH EN 5203 State Space Control

## **Computer Science**

CS 3200 Introduction to Scientific Computing and Data Computing  
CS 4150 Algorithms  
CS 5150 Advanced Algorithms  
CS 5310 Robotics  
CS 5320 Computer Vision  
CS 5610 Interactive Computer Graphics  
CS 5630 Visualization for Data Science

## **Electrical and Computer Engineering**

ECE 3300 Fundamentals of Electromagnetics and Transmission Lines  
ECE 3500 Fundamentals of Signals and Systems  
ECE 3510 Introduction to Feedback Systems  
ECE 3740 Introduction to Quantum Theory and Relativity  
ECE 5340 Numerical Techniques in Electromagnetics  
ECE 5510 Random Processes  
ECE 5520 Digital Communication Systems  
ECE 5530 Digital Signal Processing  
ECE 5670 Control of Electric Motors

## **Geology and Geophysics**

GEO 5060 Global Geophysics  
GEO 5210 Seismology I: Tectonophysics and Elastic Waves  
GEO 5220 Seismology II: Exploration and Engineering Seismology  
GEO 5240 Electromagnetic Methods  
GEO 5250 Inversion Theory and Applications  
GEO 5320 Signal and Image Processing in the Geosciences  
GEO 5330 Earthquake Seismology and Hazard Assessment  
GEO 5360 Fluid Dynamics of Earth Materials

**Mechanical Engineering**

ME EN 3650 Heat Transfer  
ME EN 5200 Classical Control Systems  
ME EN 5210 State Space Methods  
ME EN 5300 Advanced Strength of Materials  
ME EN 5400 Vibrations  
ME EN 5410 Intermediate Dynamics  
ME EN 5500 Engineering Elasticity  
ME EN 5510 Introduction to Finite Elements  
ME EN 5600 Intermediate Thermodynamics  
ME EN 5700 Intermediate Fluid Dynamics  
ME EN 5710 Aerodynamics  
ME EN 5810 Thermal Systems Design

**Metallurgical Engineering**

MET E 5610 Proton Exchange Membrane Fuel Cells  
MET E 5670 Mineral Processing I  
MET E 5680 Mineral Processing II  
MET E 5710 High-Temperature Chemical Processing  
MET E 5750 Rate Processes  
MET E 5760 Process Synthesis, Design, and Economics

**Mining Engineering**

MG EN 5050 Mine Ventilation and Air Conditioning  
MG EN 5060 Heat Energy Systems  
MG EN 5150 Mechanics of Materials  
MG EN 5160 Rock Mechanics Applications  
MG EN 5290 Introduction to Finite Element and other Numerical Models in Geomechanics

**Physics**

PHYS 3740 Introduction to Quantum Theory and Relativity  
PHYS 3760 Principles of Thermodynamics and Statistical Mechanics  
PHYS 4410 Classical Physics I  
PHYS 4420 Classical Physics II  
PHYS 5010 Theoretical Classical Mechanics and Quantum Mechanics  
PHYS 5020 Theoretical Electricity and Magnetism and Statistical Physics  
PHYS 5110 Introduction to Nuclear and Particle Physics  
PHYS 5450 Introduction to Quantum Mechanics  
PHYS 5460 Quantum Mechanics and Statistical Mechanics  
PHYS 5510 Solid-State Physics I  
PHYS 5520 Solid-State Physics II  
PHYS 5580 Cosmology