Math Courses for MS/PhD in Bioengineering

*Please note that not all courses will be offered every year/semester and it is up to the student to confirm they have the appropriate background/prerequisites for the course.
*Please also note that there may be alternative courses that will meet the requirement, they should be 500-level or greater and should generally be taught outside of SEAS.

AMCS 601	Algebraic Techniques for Applied Mathematics and Computational Science I
AMCS 602	Algebraic Techniques for Applied Mathematics and Computational Science II
AMCS 608	Analytic Techniques for Applied Math and Computational Science I
AMCS 609	Analytic Techniques for Applied Mathematics and Computation Science II
BE 504	Epigenomics
BE 510	Biomechanics and Biotransport
BE 518	Optical Microscopy
BE 530	Theoretical and Computational Neuroscience
BE 559	Multiscale Modeling of Biological Systems
BE 566	Network Neuroscience
BE 567	Mathematical Computation Methods for Modeling Biological Systems
BE 584	Mathematics of Medical Imaging and Measurements
BIOL 556	Advanced Statistics
BIOM 520	Concepts and Methods in Biostatistics - Basic
BIOM 521	Concepts and Methods in Biostatistics – Intermediate
BSTA 620	Probability I
BSTA 621	Statistical Inference I
BSTA 622	Statistical Inference II
BSTA 630	Statistical Methods for Data Analysis I
BSTA 631	Statistical Methods for Data Analysis II
BSTA 651	Introduction to Linear Models and Generalized Linear Models.
BSTA 774	Statistical Methods for Evaluating Diagnostic Tests.
CBE 508	Probablity and Statistics for Biotechnology
CBE 520	Modeling, Simulations, and Optimization of Chemical Processes
CBE 522	Polymer Rheology and Processing
CBE 617	Control of Nonlinear Systems
CHEM 521	Statistical Mechanics 1
CIS 536	Computational Biology
CIS 537	Biomedical Image Analysis
ENM 502	Numerical Methods and Modeling
ENM 503	Introduction to Probability and Statistics
ENM 510	Foundations of Engineering Mathematics I
ENM 511	Foundations of Engineering Mathematics II
ENM 520	Theory and Computation for ODE/PED-constrained optimization
ENM 520	Topics in Computational Science and Engineering
ENM 600	Functional Analysis
ENM 601	Special Topics in Engineering Mathematics - Nonlinear Dynamics and Chaos
ESE 500	Linear Systems Theory
ESE 502	Introduction to Spatial Analysis
ESE 504	Introduction to Optimization Theory

ESE 505	Control of Systems
ESE 530	Elements of Probability Theory and Random Processes
ESE 531	Digital Signal Processing
ESE 603	Simulation Modeling and Analysis
ESE 632	Random Process Models and Optimum Filtering
ESE 674	Information Theory
MATH 584	Mathematics of Medical Imaging
MATH 512	Advanced Linear Algebra
MEAM 522	Fundamentals of Sensor Technology
MEAM 527	Finite Element Analysis
MEAM 528	Advanced Kinematics
STAT 500	Applied Regression and Analysis of Variance.
STAT 510	Probability
STAT 511	STATISTICAL INFERENCE
STAT 512	Mathematical Statistics.
STAT 530	Probability
STAT 541	Statistical Methods
STAT 542	Bayesian Methods and Computation
STAT 550	Mathematical Statistics
STAT 571	Modern Data Mining