

MATHEMATICS REQUIREMENTS IN AERO/ASTRO

Each Aero/Astro degree has a math requirement, for which courses on the following list are pre-approved. (Other advanced courses may also be acceptable.) Students should consult with their advisors in selecting the most appropriate classes for their field. M.S. candidates select 2 courses. Engineers select 3 courses. Ph.D. candidates select 4 courses, with at least 6 units from courses numbered above 200.

Note: Courses with the same "footnote" cannot be combined, e.g., both Math 113 (*) and ME 300A (*)

<u>Course Number</u>	<u>Course Name</u>
AA 212	Analysis and Design of Multivariable Feedback Systems
AA 214A	Numerical Methods
AA 214B	Numerical Methods
AA 214C	Numerical Computation of Viscous Flow
AA 215A (CME 215A)	Advanced Computational Fluid Dynamics
AA 215B (CME 215B)	Advanced Computational Fluid Dynamics
AA 218	Introduction to Symmetry Analysis
AA 222	Introduction to Multidisciplinary Design Optimization
AA 228 (CS 238)	Decision Making under Uncertainty
AA 229 (CS 239)	Advanced Topics in Sequential Decision Making
AA 242B (ME 242B)	Mechanical Vibrations
CEE 281	Mechanics and Finite Elements
CME 108 (MATH 114)	Introduction to Scientific Computing
CME 302	Numerical Linear Algebra
CME 303 (MATH 220)	Partial Differential Equations of Applied Mathematics
CME 304 (MS&E315)	Numerical Optimization
CME 306 (MATH 226)	Numerical Solution of Partial Differential Equations
CME 308 (MATH 228)	Stochastic Methods in Engineering
CME 326	Numerical Methods for Initial Boundary Value Problems
CS 221	Artificial Intelligence: Principles and Techniques
CS 229	Machine Learning
ENGR 207B	Linear Control Systems II
ENGR 209A	Analysis and Control of Nonlinear Systems
EE 261	Fourier Transform and its Applications
EE 263	Introduction to Linear Dynamical Systems
EE 264	Digital Signal Processing
EE 278	Introduction to Statistical Signal Processing
EE 363	Linear Dynamical Systems
EE 364A	Convex Optimization
MS&E 201	Dynamic Systems
MS&E 207 (107)	Interactive Management Science
MS&E 211	Linear and Nonlinear Optimization
MS&E 221	Stochastic Modeling
MS&E 311	Optimization
MS&E 312 (CME334)	Advanced Methods in Numerical Optimization
MS&E 313	Vector Space Optimization
* MATH 113	Linear Algebra and Matrix Theory
MATH 115	Functions of a Real Variable
MATH 120	Groups and Rings
# MATH 132	Partial Differential Equations II
MATH 2xx	All Math courses over 200 will qualify (except seminars)
* ME 300A (CME 200)	Linear Algebra with Application to Engineering Computations
# ME 300B (CME 204)	Partial Differential Equations in Engineering
ME 300C (CME 206, AA 214A)	Introduction to Numerical Methods for Engineering
ME 335A	Finite Element Analysis
ME 335B	Finite Element Analysis
ME 335C	Finite Element Analysis
ME 408 (CME 322)	Spectral Methods in Computational Physics
ME 469	Computational Methods in Fluid Mechanics
PHYSICS 211	Continuum Mechanics
STATS 110	Statistical Methods in Engineering and the Physical Sciences
STATS 116	Theory of Probability (not recommended as Ph.D. math - take 110)
STATS 217	Introduction to Stochastic Processes