MATHEMATICS MAJOR (BA/BS) (38 units)
Effective beginning Fall 2023
An approved minor is required for this major

For students interested in any area of mathematics wishing to prepare for a career in industry, business, scientific research, or further study in graduate school. For additional information, please visit www.ams.org, www.maa.org, and www.siam.org.

COURSES			OFFERED*	PRE-REQUISITE
Major Requirements:				
MATH 200	1 unit	Mathematics: Form and Function	S	Corequisite: MATH 253
MATH 253	5 units	Calculus and Analytic Geometry I (GQ)	E	MATH 152 or (MATH 142 and 151) with C or better
MATH 254	4 units	Calculus and Analytic Geometry II	E	MATH 253 or (MATH 250 and 151) or (MATH 250 and 152) with C or better
MATH 255	4 units	Calculus and Analytic Geometry III	E	MATH 254 with C or better
MATH 280	3 units	Discrete Mathematics	E	MATH 250 with B or better or MATH 253 with C or better
MATH 301	3 units	Introduction to Analysis	E	MATH 254 with C or better and MATH 280
MATH 355	3 units	Matrices and Linear Algebra	E	MATH 253 or (MATH 250 and (MATH 151 or MATH 152)) with C or better
MATH 452	3 units	Introduction to Abstract Algebra	F	MATH 280
Select courses from the following to reach 38 units:				
Categories are given for informational purposes only. There is no distributional requirement.				
MATH 281	1 unit	Putnam Competition and Problem Solving	F	MATH 253 and Corequisite: MATH 280
MATH 375	3 units	History of Math	S	MATH 152 or (MATH 142 and 151) with C or better
MATH 498R	1-3 units	Independent Study — Undergraduate Research		
STAT 498R	1-3 units	Independent Study — Undergraduate Research		
Abstract Thinking				
MATH 417	3 units	Number Theory	R	MATH 280 or MATH 415
MATH 431	3 units	Topology	R	MATH 255 and MATH 280
MATH 450	3 units	Graph Theory	R	MATH 280 or COMPSCI 215
MATH 453	3 units	Abstract Algebra	R	MATH 355 and MATH 452
MATH 463	3 units	Complex Variables	R	MATH 255
MATH 464	3 units	Advanced Calculus	R	MATH 301
Mathematical Modeling				
MATH 361	3 units	Differential Equations	F	MATH 254 with C or better
MATH 381	3 units	Mathematical Modeling and Simulation	R	MATH 254 with C or better and MATH 355
MATH 450	3 units	Graph Theory	R	MATH 280 or COMPSCI 215
MATH 458	3 units	Applied Mathematical Analysis	R	MATH 361
MATH 459	3 units	Partial Differential Equations	R	MATH 361
MATH 463	3 units	Complex Variables	R	MATH 255
MATH 471	3 units	Numerical Analysis	R	MATH 355 and one of (CS170, CS172, CS174, CS220, CS222, or CS347)
MATH 474	3 units	Dynamical Systems & Chaos	R	MATH 361 with C or better
Statistics and Probability				
MATH 343	3 units	Applied Probability Theory	F	MATH 250 or MATH 253 with C or better
MATH 442	4 units	Mathematical Statistics	S	MATH 255 and MATH 343 both with C or better
STAT 263	1 unit	Introduction to R	E	Corequisite: MATH 250 or MATH 253
STAT 342	3 units	Applied Statistics	E	MATH 250 or MATH 253 with C or better and (STAT 263 or CS172 or CS174)
STAT 362	3 units	Applied Nonparametric Statistics	R	STAT 342 or MATH 343 with C or better
STAT 420	3 units	Applied Regression Analysis	F	STAT 342
STAT 423	3 units	Experimental Design and Analysis of Variance	R	STAT 342 with C or better
STAT 430	3 units	Sampling, Design, and Analysis of Survey Data	R	STAT 342 with C or better
Unique Computer Science Requirement (3 units) — select one of the following:				
COMPSCI 170	3 units	Introduction to Python Programming		
COMPSCI 172	3 units	Introduction to JAVA (GM)		
COMPSCI 174	3 units	Introduction to C++ (GM)		
COMPSCI 220	3 units	Intermediate JAVA		
COMPSCI 221	3 units	Intermediate Programming in C#		
COMPSCI 222	3 units	Intermediate C++		
COMPSCI 347	3 units	Scientific Computing		
Unique Writing Requirement (3 units) — select one of the following:				
ENGLISH 370	3 units	Advanced Composition		
PWP 371	3 units	Writing in the Sciences		
PWP 372	3 units	Technical and Professional Writing		

* E = Every Semester
  S = Every Spring
  F = Every Fall
  R = On Rotation; semester offerings will vary