Mathematics (B.S.)

2024-2025 catalog

Student Name: _____ **ID Number:** _____

Major Requirements

All classes must be completed with a C- grade or better. Each course may count only once towards the major. No more than 4 credits of internship may count towards the major. Students completing a major in Mathematics are not eligible for a minor in Mathematics. At least two MAT courses numbered 300 or above must be taken at Augsburg.

Term Completed/Planned	Grade	Credit	Course #	Title
Complete **both** Calculus I and Calculus II				
		4	MAT145 and 145L: Calculus I (NSM)	
		4	MAT146 and 146L: Calculus II (NSM)	
Complete **one (1)** data analysis course				
		4	DST164	Introduction to Statistics (with R) (NSM) (recommended)
		4	DST234	Introduction to Data Science (and R) (recommended)
		4	MAT163	Introductory Statistics (*offered infrequently*)
		4	Both PHY395 and PHY396: Comprehensive Laboratory I and II	
		4	PSY215	Research Methods and Statistics I
Complete **one (1)** computational reasoning course				
		4	CSC165 and 165L: Introduction to Computer Programming (Python) (recommended)	
		5	CHM280 and 280L: Quantitative Analytical Chemistry	
		4	PHY327	Special Functions of Mathematical Physics
Complete **one (1)** geometric perspective course				
		4	MAT255	Multivariable Calculus
		4	MAT335	Exploring Geometry
Complete **both** advanced discrete mathematics and linear algebra				
		4	MAT302	Discrete Mathematical Structures
		4	MAT315	Linear Algebra
Complete **one (1)** theoretical structures course				
		4	MAT350	Graph Theory
		4	MAT360	Dynamical Systems
		4	MAT370	Real Analysis
		4	MAT380	Abstract Algebra
Complete **one (1)** applied projects course				
		4	DST475	Machine Learning
		4	DST490	Data Visualization for Social Justice (KC)
		4	MAT455	Numerical Mathematics and Computation
		4	MAT465	Modeling and Differential Equations in Biological and Natural Sciences
		4	MAT485	Visualizing Mathematics with 3D Printing
Complete **one (1)** advanced mathematics elective numbered 350 or above, chosen from:				
		4	MAT350	Graph Theory
		4	MAT360	Dynamical Systems
		4	MAT370	Real Analysis
		4	MAT373	Probability Theory
		4	MAT380	Abstract Algebra
		4	MAT395	Topics
		4	MAT399	Internship (or 4 credits of MAT 396, 397, 398)
		4	MAT455	Numerical Mathematics and Computation
		4	MAT465	Modeling and Differential Equations in Biological and Natural Sciences
		4	MAT485	Visualizing Mathematics with 3D Printing
		4	MAT499	Independent Study

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AUGSBURG UNIVERSITY

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Complete **one (1)** advanced elective, chosen from:

		5	BIO369 and 369L: Biochemistry	
		4	CHM362	Physical Chemistry: Macroscopic Theory
		4	CHM368	Physical Chemistry: Microscopic Theory
		5	CHM369 and 369L: Biochemistry	
		4	CSC391	Programming Languages
		4	An additional DST elective numbered 300 or above	
		4	ECO416	Mathematical Economics
		4	An additional MAT elective numbered 300 or above	
		4	PHY327	Special Functions of Mathematical Physics
		4	PHY351	Classical Mechanics
		4	PHY365	Electricity and Magnetism

Complete one additional supporting course, chosen from:

		4	ACC221	Introduction to Financial Accounting
		5	BIO369 and 369L: Biochemistry	
		5	BIO444 and 444L: Genomics and Biotechnology	
		5	BIO481 and 481L: Ecology	
		4	CHM362	Physical Chemistry: Macroscopic Theory
		4	CHM368	Physical Chemistry: Microscopic Theory
		5	CHM369 and 369L: Biochemistry	
		4	CSC170 and 170L: Introduction to Object-Oriented Programming (Java)	
		4	CSC341	Data Structures
		4	DST234	Introduction to Data Science (and R)
		4	ECO112	Principles of Macroeconomics
		4	ECO113	Principles of Microeconomics
		3	ESE330	5-12 Methods: Mathematics
		4	MIS270	Data Management for Business
		4	MKT352	Marketing Research and Analysis
		5	PHY121 and 121L: General Physics I	
		4	PSY315	Research Methods and Statistics II
		4	POL483	Political Statistics and Methodology
		4	SOC363	Research Methods
		4	SWK401	Social Work Research and Evaluation
		4	URB295	Topics: Geographic Information Systems (*this topic only*)

Pass MAT491 in your final semester

		0	MAT491	Mathematics Colloquium

Complete **one (1)** Speaking skill course

		2	MAT201	Communicating Mathematics
		4	COM111	Public Speaking (HUM)
		4	COM115	Scientific and Technical Public Speaking (HUM)
			Speaking skill course from another major:	

Abbreviation Key: ML = Modern Language; SC = Signature Curriculum; EM = Engaging Minneapolis; AE = Augsburg Experience; KC = Senior Keystone Course; NSM = Natural Science & Mathematics - no lab; NSM-L = Natural Science & Mathematics-with lab; SBS = Social & Behavioral Science; FA = Fine Arts; HUM = Humanities