

# Mathematics BA Curriculum Mapping

The department has identified five student learning outcomes (SLOs) as being essential for all majors in mathematics.

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## Student Learning Outcomes

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A graduate of the mathematics program should be able to:

1. **Proofs** Understand and construct mathematical proofs.
2. **Communication** Communicate mathematics in written and oral forms.
3. **Problem Solving** Use mathematics to solve problems.
4. **Preparation** Be competitive in the job market and/or in pursuing graduate education.
5. **Technology** Utilize technology when doing mathematics.

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## Curriculum Maps

The department assessment committee developed a curriculum map (CM) for each of the five undergraduate concentrations assessing the extent to which each of these learning outcomes is:

**Introduced (I)**  
**Developed (D)**  
**Mastered (M)**

in the degree program. Please note that courses are listed in numerical order, not the order in which they are necessarily taken. Each concentration includes the core courses:

<b>Core Courses</b>	MATH 106	Calculus II
	MATH 107	Introduction to Computational Linear Algebra
	MATH 150A	Calculus I
	MATH 180	Strategies of Problem Solving
	MATH 207	Differential Equations and Linear Algebra
	MATH 250A	Calculus III
	MATH 280	Strategies of Proof
	MATH 307	Linear Algebra
	MATH 350	Advanced Calculus I
	MATH 380	History of Mathematics

## Actuarial Sciences Concentration

The Actuarial Sciences Concentration prepares a student for a career in actuarial sciences, giving them an interdisciplinary courseload consisting of mathematics and finance courses. In addition to the core courses, students must take MATH 335, MATH 338, MATH 435, MATH 437, MATH 460, MATH 461, as well as three Finance courses (FIN 320, FIN 360, and FIN 415). This CM is restricted to mapping the mathematics courses.

Course	Proofs	Comm.	Prob. Solving	Prep.	Tech.
106		I	I	I	
107			I	I	I
150A		I	I	I	
180	I	I	I		
207	I	D	D	D	D
250A		I	I	I	
280	D	D	D		
307	D	D	D	D	
335	D	D	D	D	D
338		D	D	D	D
350	M	M	M		
380	D	D			D
435, 437 460, 461	M	M	M	M	M

## Applied Mathematics Concentration

The Applied Mathematics Concentration is designed for students planning to use mathematics in a career in business, industry, or government, or to pursue graduate studies in applied mathematics. In addition to the core courses, students must take MATH 310, MATH 335, MATH 338, MATH 340, MATH 320, MATH 370, as well as three of the following courses: MATH 406, MATH 437, MATH 440, MATH 470.

Course	Proofs	Comm.	Prob. Solving	Prep.	Tech.
106		I	I	I	
107			I	I	I
150A		I	I	I	
180	I	I	I		
250A		I	I	I	
207	I	D	D	D	D
280	D	D	D		
307	D	D	D	D	
310		D	D	D	D
320			D	D	I
335	D	D	D	D	D
338		D	D	D	D
340	M	M	M	M	M
370	M	M	M	M	M
350	M	M	M		
380	D	D			D
406, 437 440, 470	M	M	M	M	M

## Probabililty and Statistics Concentration

The Probability and Statistics Concentration is designed to give students a sound preparation for graduate study in statistics or a career in statistics, actuarial science, or other statistics-based fields. In addition to the core courses, students must take MATH 320, MATH 335, MATH 338, MATH 435, MATH 437, MATH 438, MATH 439 and either MATH 340 or MATH 370.

Course	Proofs	Comm.	Prob. Solving	Prep.	Tech.
106		I	I	I	
107			I	I	I
150A		I	I	I	
180	I	I	I		
250A		I	I	I	
207	I	D	D	D	D
280	D	D	D		
307	D	D	D	D	
320			D	D	I
335	D	D	D	D	D
338		D	D	D	D
340	M	M	M	M	M
350	M	M	M		
370	M	M	M	M	M
380	D	D			D
435, 437 438, 439	M	M	M	M	M

## Pure Mathematics Concentration

The Pure Mathematics Concentration is designed primarily for students interested in pursuing a graduate degree in some area of pure mathematics. The concentration requires six 400-level classes, including MATH 414 and MATH 450. The curriculum map for this concentration shows that the concentration emphasizes fundamental components for theoretical mathematicians, including analytical thinking and proof construction. In addition to the core courses, students must take MATH 302, MATH 407, MATH 412, and four of MATH 306, MATH 406, MATH 414, MATH 450, MATH 425, MATH 430, MATH 471, one of which must be MATH 414 or MATH 450.

Course	Proofs	Comm.	Prob. Solving	Prep.	Tech.
106		I	I	I	
107			I	I	I
150A		I	I	I	
180	I	I	I		
250A		I	I	I	
207	I	D	D	D	D
280	D	D	D		
302	D	D	D	D	
306	D	D	D		
307	D	D	D	D	
350	M	M	M		
380	D	D			D
406, 407 412, 414 425, 430 450, 471	M	M	M	M	M

## Teaching Mathematics Concentration

The Teaching Mathematics Concentration is intended for the student planning to teach mathematics at the secondary or community college level. In addition to the core courses, students must take MATH 302, MATH 335, MATH 401, MATH 402, either MATH 338 or MATH 370, two of MATH 407, MATH 414, MATH 417, MATH 430, MATH 471, and two elective 400-level courses (not included in the CM below).

Course	Proofs	Comm.	Prob. Solving	Prep.	Tech.
106		I	I	I	
107			I	I	I
150A		I	I	I	
180	I	I	I		
250A		I	I	I	
207	I	D	D	D	D
280	D	D	D		
302	D	D	D	D	
307	D	D	D	D	
335	D	D	D	D	D
338		D	D	D	D
350	M	M	M		
370	M	M	M	M	M
380	D	D			D
401	M	M	M	M	
402	M	M	M	M	M
407, 414 417, 430 471	M	M	M	M	M