

Math Department BA/BS Program Assessment Maps

BA Math

BA Math Preparation for Secondary Teaching.

Goals 1-4 are assessed for these two programs

BS Applied Math Concentration in Statistics

BS Applied Math Concentration in Economics and Actuarial Science

BS Applied Math Concentration in Applied and Computational Math

Goals 2-5 are assessed for these two programs

Goal 1 Ability to Use and Construct Logical Arguments

The ability to reason logically to conclusions, including the ability to use precise definitions and to use various forms of logical argument. Assessment point, Math 108, BA Math, Assessed in Fall 2010. Specific LOs to be assessed are

- 1) Ability to give direct proofs
- 2) Ability to give proofs by contradiction.
- 3) Ability to give proofs by mathematical induction.
- 4) Ability to apply definitions to give proofs.
- 5) Ability to give proofs and disproofs involving quantified statements.

		Math 115	Math 175	
		Math 128A	Math 128B	
Math 42	→	Math 129A	→	Math 129B
		Math 131A	Math 131B	
		Math 142	Math 179	
Introduced	Developed	Enhanced	Mastered	

Goal 2 Ability to Communicate Mathematics Effectively

The ability to read mathematics with understanding and to communicate mathematical ideas with clarity and coherence. Assessment point, Math 104 for BA Math, Math 161B for BS Applied Math, last assessed in Spring 2007, next scheduled assessed in Fall 2012. Specific LOs to be assessed are

- 1) Ability to state a problem accurately, articulate assumptions, and describe a method of solution.
- 2) Ability to conduct independent investigation of mathematical concepts at the undergraduate level.
- 3) Ability to give written reports and oral presentations that include mathematical context which is mathematically accurate yet accessible to classmates.

		Math 104	Math 128B					
Math 30W,31W, 32W		Math 108	Math 129B	capstone?				
Eng 1A,1B	→	Math 100W	→	Math 161B	→	Math 131B	→	Math 203
				Math 178		Math 175		
Introduced	Developed		Enhanced			Mastered		

Goal 3 Ability to Perform Standard Mathematical Computations

Assessment point, Math 138, BA Math and BS Applied Math, last assessed in Spring 2008, next scheduled assessment in Spring 2012.

Specific LOs to be assessed are

- 1) Ability to evaluate limits.
- 2) Ability to calculate derivatives and integrals.

- 3) Ability to determine regions of convergence.
- 4) Ability to apply properties of algebraic and transcendental functions.

	Math 112,113,115,175	geometry/topology
	Math 126,128AB,129AB	linear algebra/algebra/number theory
	Math 142,177,179	discrete math
Math 30,31,32,42 →	Math 131A,131B,132,138	analysis
	Math 133A,133B,134	differential equations/dynamical systems
	Math 143C,143M	numerical analysis
	Math 161A,161B,163,164	probability/statistics
Introduced	Enhanced/Developed	

Goal 4 The ability to use technology to solve mathematical problems.

Assessment Point, Math 143C/M, BA Math and BS Applied Math, last assessed in Spring 2009, next scheduled assessment in Fall 2011. Specific LOs to be assessed are

- 1) Ability to write programs to solve mathematical problems.
- 2) Ability to use a mathematical programming environment such as MATLAB or Maple.
- 3) Ability to interpret numerical results.
- 4) Ability to understand that there are limits to numerical accuracy.

		Math 178	
	Math 109	Math 129A,177	applied math modeling project/internship
Math 30,31,32 →	prog course →	Math 143C/M →	Math 203
	Math 167	Math 142,179	statistical consulting project/internship
		Math 161AB,163	
Introduced	Developed	Enhanced	Mastery

Goal 5 The ability to use mathematical models to solve practical problems. Assessment Point, Math 178, BS Applied Math, Assessed in Spring 2011. Specific LOs to be assessed are

- 1) The ability to extract relevant information from a practical problem and give a mathematical formulation of the problem.
- 2) The ability to use numerical results to validate (or modify) a model and to understand the limitation of a model.
- 3) The ability to clearly describe models including an analysis of the strengths and weaknesses of models and their relationship to the underlying problem.

		Math 112	
		Math 129A,177	applied math modeling project/internship
Math 30,31,32 →	Math 178 →	Math 133AB	→ Math 203
		Math 142,179	statistical consulting project/internship
		Math 161AB,163	
Introduced	Developed	Enhanced	Mastered