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.

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.

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

Introduce  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 109  →  Math 178
Math 30,31,32  →  prog course  →  Math 143C/M  →  Math 203
Math 167  →  Math 142,179  →  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 30,31,32  →  Math 178  →  Math 133AB  →  Math 203
Math 112  →  Math 129A,177  →  Math 142,179  →  Math 161AB,163

Introduced  Developed  Enhanced  Mastery