Program Goals and Student Learning Outcomes
B.S. in Mathematics, Applied Mathematics Concentration
Department of Mathematics and Statistics
University of New Mexico

1 Broad Program Goals

Upon graduation the students of the Applied Mathematics concentration will have the following competencies:

A. Mathematics knowledge

- Demonstrate understanding of the foundations of calculus and linear algebra.
- Demonstrate the ability to think logically and critically. Specifically the student will be able to differentiate assumptions from conclusions, and be able to construct logical arguments.

B. Problem solving skills

- Demonstrate how to formulate, analyze, and solve problems in applied mathematics both through analytical and computational techniques.
- Demonstrate scientific judgment and the ability to apply mathematics to problems in other fields.

C. Employment and technical skills

- Translate the undergraduate degree into a viable career path or graduate degree.
- Demonstrate oral and written communication skills.

2 List of Student Learning Outcomes (SLOs) for this Degree

A.1 Effectively perform essential computations in linear algebra, including solving linear systems, computing the eigenvalues of a matrix, and determining linear independence.

A.2 Compute limits and derivatives using their definitions, and use the fundamental theorem of calculus to compute definite and indefinite integrals.

A.3 Construct rigorous proofs.

B.1 Use techniques from calculus to design analytical and numerical methods to solve applied problems, and understand the accuracy and limitations of the methods.

B.2 Understand simple differential equations models and their applicability.

B.3 Use numerical techniques, and judge their accuracy, for solving mathematical problems.

C.1 Demonstrate sufficient preparation for courses in differential equations, numerical analysis, complex analysis, and real analysis at the graduate level.

C.2 Communicate well, orally and in writing, in an applied mathematics context.