Program Goals and Student Learning Outcomes

B.S. in Mathematics, Pure Mathematics Concentration
Department of Mathematics and Statistics
University of New Mexico

1 Broad Program Goals

Upon graduation the students of the Pure concentration will have the following competencies:

A. Demonstrate proficiency in calculus and linear algebra, as well as areas of modern, proof-based mathematics.

B. 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.

C. Translate the undergraduate degree into a viable career path or graduate school.

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

A.1 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.

B.1 Write rigorous and well written proofs which show comprehension of formal mathematical definitions, recognize hypotheses, and form logical conclusions.

B.2 Work with the fundamentals of logic, including mathematical statements and their converses and contrapositives.

B.3 Construct counterexamples to mathematical statements and understand the importance of hypotheses.

C.1 Demonstrate sufficient preparation for courses in real and complex analysis, algebra, topology, and geometry at the graduate level.

C.2 Demonstrate effective written mathematical communication.