Florida International University

Academic Learning Compact

Name of the Undergraduate Degree Program

Bachelor of Science in Mathematics

Mission Statement

The mission of the Department of Mathematics is to provide excellent teaching, perform high quality research in several different subfields of mathematics and serve the university, discipline, community, state and beyond. We aim to provide our students with a sound education in mathematics providing a unique opportunity to make a significant contribution to the welfare of our contemporary society.

Purpose of the major: The Bachelor of Science in Mathematics emphasizes a deeper study of pure Mathematics in the traditional mode. The central goal is to move and broaden the student's perspective, knowledge and acquired skills in Mathematics from a merely algorithmic and computational position to one focused actively on using the language, logic, fundamental structures, and proof techniques of pure mathematics effectively. By accomplishing this, it is expected that the graduate will be prepared for further study at the graduate level in Mathematics or a career where a deeper knowledge of Mathematics is essential.

Student Learning Outcomes

FIU Bachelor of Science in Mathematics graduates should be able to achieve the following:

Content/Discipline Knowledge

1. Demonstrate deep mastery of the basic theoretical knowledge of Advanced Calculus and Abstract Algebra.
2. Apply a deep theoretical knowledge and computation techniques from the core areas of Elementary Ordinary Differential Equations, their applications, and their solutions by several well-understood techniques.
3. Demonstrate deep mastery of the basic theoretical knowledge, including the basic structures and computation techniques of Linear Algebra.
4. Demonstrate deep mastery of the basic theoretical knowledge and the applications of Probability Theory.

Critical Thinking

1. Use effectively a knowledge of logic that formally includes the Propositional Calculus and the Predicate Calculus to construction correct and persuasive solutions to mathematical problems and/or rigorous mathematical proofs.
2. Apply general mathematical models and theories and abstract reasoning to find solutions to concrete problems or to formulate mathematical proofs.
3. Analyze and critique proofs and solutions to problems for correctness.
4. Apply technology to solve concrete problems or aid in doing research when it is appropriate to do so.

Oral and Written Communication

1. Write mathematical ideas precisely using complete sentences and appropriate, well-accepted notation correctly.
2. Explain mathematics orally while using visual aids appropriate to the subject and audience.