



Mathematics (7-12 . Puerto Rico)

• CIP code 131311 • 30 credits, 4 terms full-time

• **Program approved** by the Puerto Rico Board of Postsecondary Institutions and offered in compliance with the recertification regulations of the Puerto Rico Department of Education (DEPR).

Program Description — The Mathematics program prepares students to teach mathematics at the secondary level (7-12). Students learn the concepts, language, and procedures of mathematics and develop competence in mathematics as well as an interest in applying the discipline to the world around them. The program is based on the successful student-focused curriculum which links theory and practice in a cooperative learning environment. Graduates are career-ready, technologically savvy, and culturally competent to advance social justice causes.

Learning Outcomes — Teacher candidates will understand and apply mathematical problem-solving processing and construct rigorous mathematical arguments. They will understand how mathematics is learned and taught effectively, supporting positive attitudes towards the discipline. They will establish connections between ideas in mathematics and other fields. They will use diverse representations to communicate mathematical ideas and deepen students' understanding. They will use technology as an essential resource for mathematics. They will develop fluency in mathematical computations, understand the relationships between amounts, and will use measurement tools and concepts, spatial visualization, and geometric modeling. They will understand data analysis, statistics, and probability. For intermediate and upper levels, they will also be able to understand the concepts, techniques, and applications of calculus and discrete mathematics. Learning is personalized through independent projects that help to prepare the educator for the profession.

Careers — The program is ideal for: a) Adults who want to work with and help youngsters and adults learn the language of mathematics; b) current teachers who want to add mathematics as a new area of study; c) those who want to become National Board Certified mathematics teachers, specialist trainers, and mathematics coordinators/directors; d) non-mathematics majors who want to earn a highly qualified title to their academic experience to enhance and broaden their teaching careers; and e) career changers who want to pursue a more meaningful career working with youngsters and adults. Mathematics teachers at all school levels continue to be in high demand nationally, and individuals coming from careers in business, engineering, finance, and the military are successful when relating mathematics to the real world where they worked for many years.

First Required Course

According to the student's academic background in mathematics, the student will begin the master's program with one of the following courses. The academic director will decide which course each student will take.

MAT 603 Arithmetic to Algebra: Developing Patterns and Ideas

or MAT 607 College Algebra

or MAT 613 Discrete Mathematics

Subsequent Courses 30 credits

All courses are offered in Spanish

MAT 604 Teaching Mathematics for the Secondary Level

MAT 605 Technology in Mathematics Learning & Teaching

MAT 611 Calculus I

MAT 625 Number Theory (preq. MAT611)

MAT 627 Abstract Algebra

MAT 629 Non-Euclidean Geometry

MAT 631 Calculus II (preq. MAT611)

MAT 633 Probability & Statistics

MAT 635 Applied Math (preq. MAT611 & MAT633)

Program for recertification by the Puerto Rico Department of Education. Prior valid Puerto Rico teacher certification in another area required.

Program and courses subject to change.

All courses 3 credits except as noted.