MATHEMATICS EDUCATION (MTED)

MTED 605 MIDDLE SCHOOL MATHEMATICAL METHODS AND PROBLEM SOLVING (3)
Best practices for delivery and assessment of mathematical concepts and skills relevant to the middle school level of instruction. Topics include problem solving, geometry and measurement, number sense, data analysis and probability, and algebra. Cannot be used for any other graduate program in the mathematics department. Prerequisites: Admission to the Master’s program in Mathematics Education or approval of the department.

MTED 611 ALGEBRA IN THE SCHOOL CURRICULUM (3)
A thorough and rigorous treatment of topics in algebra, including: patterns and sequences; functions (linear, quadratic, exponential, and others); expressions and equations; systems of equations; graphs and tables; and connections between algebra and other branches of mathematics. These topics will be investigated through a variety of models, representations, and contexts, as well as through solving non-routine problems. Attention to student thinking, potential misconceptions and how to address them, alignment to the Common Core State Standards for Mathematics, and use of technological and manipulative tools are integrated throughout. Prerequisite: program admission or approval of the department.

MTED 612 DATA ANALYSIS FOR MIDDLE SCHOOL TEACHERS (3)
Topics from statistics and probability, and recent methodologies and standards for data analysis in middle school level. The course also offers activities using Fathom—a computer learning environment for data analysis and statistics. Cannot be used for any other graduate program in the mathematics department. Prerequisites: Admission to the Master's program in Mathematics Education or approval of department.

MTED 613 MATHEMATICAL MODELING FOR MIDDLE SCHOOL TEACHERS (3)
The prerequisite topics needed in order to learn Calculus. Topics include the behavior of functions, fitting functions to data, sequences, and modeling. The appropriate use of handheld technologies is stressed throughout the course. Internet resources for students to access outside of class have been included. Prerequisite: Admission to the Masters Program in Mathematics Education or approval of the department.

MTED 614 CALCULUS THROUGH TECHNOLOGY FOR MIDDLE SCHOOL TEACHERS (3)
Intuitive calculus of one variable, modeling best practices. Topics include limits, differentiation, integration and applications of calculus. Graphing calculators and other computer-learning environments such as Mathematica are included. Cannot be used for any other graduate program in the Mathematics Department. Prerequisite: Math 613 or approval of the department.

MTED 615 GEOMETRY FOR MIDDLE SCHOOL TEACHERS (3)
Geometric vocabulary, relationships, concepts and skills in two and three dimensions; topics include a review of Euclidean Geometry, Coordinate and Transformational Geometries, Tessellation, Polyhedra, Measurement, and the use of appropriate technology in the classroom. Cannot be used for any other graduate program in the Mathematics Department. Prerequisite: Admission to Masters Program in Mathematics or approval of the department.

MTED 650 MATHEMATICS IN INTEGRATED STEM EDUCATION (3)
Students investigate standards-based mathematical practices and concepts, and consider how teachers teach and students learn about these practices and concepts in the context of thematic, integrated STEM (Science, Technology, Engineering & Mathematics) education in grades PreK-12.