

# MATHEMATICS FOR TEACHERS (MTCH)

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## Mathematics for Teachers Graduate Courses

### **MTCH 8010 STATISTICAL RESEARCH FOR MATHEMATICS TEACHERS (3 credits)**

This course is designed for graduate students in the MAT program who select the statistics option to complete their degree. The student will do a literature review, design a study involving mathematics education, gather and analyze the data, and prepare a manuscript for submission to a refereed journal. (The course will not count toward a major in the MA or MS program.) To prepare for the course, interested students should contact the instructor of the course several months before (8 is the norm) to have time to do the groundwork for the study.

**Prerequisite(s):** STAT 8015 and TED 8010.

### **MTCH 8020 MATHEMATICAL MODELING FOR SECONDARY TEACHERS (3 credits)**

This course will examine the mathematics underlying several problem situations found in a variety of societal settings. Mathematical models of problems in current literature will be examined and other models will be constructed based on data collected through course activities. Topics relevant to these problems will include function analysis, algebra, geometry, trigonometry and probability and statistics. The role of mathematics in society will be evidenced as problems considered will be timely and sources utilized will include original documentation whenever possible (i.e. recent research reports, government reports and publications). (Cross-listed with STEM 8020).

### **MTCH 8030 ALGEBRA FOR ALGEBRA TEACHERS (3 credits)**

This course will use study interesting mathematical systems related to key algebraic ideas and study habits of mind that are key to effective problem solving. The properties about numbers and operations discovered will connect to the same properties taught in school algebraic course. Special attention will be paid to linear, quadratic, exponential, and logarithmic, polynomial functions in connection to their importance in school algebra.

**Prerequisite(s):** Admission to the Graduate Program

### **MTCH 8040 TOPICS IN MATHEMATICAL COMPUTING (3 credits)**

This course focuses on the current state-of-the-art technology that is either designed for or is uniquely suitable for teaching mathematics. (Cross-listed with STEM 8040)

**Prerequisite(s):** MATH 2200 or equivalent or approval of instructor.

### **MTCH 8880 ADVANCED PLACEMENT INSTITUTE: CALCULUS (3 credits)**

A workshop for teachers planning to offer an advanced placement course in calculus. Objectives include increasing teacher competencies in single-variable calculus, discussion and study of AP calculus exams, implementations of AP courses in calculus, and development and presentation of projects for graduate credit. (This course will not count toward the M.A. or M.S. degrees in Mathematics, or the Secondary Mathematics Specialist Graduate Certificate.)

**Prerequisite(s):** Graduate in mathematics or mathematics education.