MATHEMATICS EDUCATION (MED)

MED 200 FOUNDATIONS OF TEACHING MATHEMATICS 7-12 AND FIELD EXPERIENCE
3, 1.5/0
Prerequisites: MAT 161 or permission of instructor. Current policies and practices in the field of mathematics education including content and pedagogy, national and state standards, and psychological, social, cultural and gender factors that affect the teaching and learning of mathematics. Field experiences in secondary mathematics classrooms that feature racial and ethnic diversity, diversity in SES, and include students with diverse mathematical abilities as well as those identified as having special needs. Offered fall only.
Equivalent Course: SED 200

MED 300 FIELD EXPERIENCE: METHODS IN THE TEACHING OF SECONDARY SCHOOL MATHEMATICS
3, 2/0
Corequisite: MED 308. Supervised field experience at the middle and/or high school level. Emphasis on implementing pedagogical knowledge, understanding, and practice consistent with state and national mathematics teaching standards discussed in MED 308. Students design and deliver lessons and assessments in a variety of settings (i.e. small group, large group) during 30 hours of clinical experience at local schools. Offered spring only.

MED 307 USES OF TECHNOLOGY IN THE TEACHING OF MATHEMATICS
3, 3/0
Prerequisites: Upper division status and permission of instructor. 15 hours of field experience required. Equipment and software available for use in the mathematics classroom. Effective use of technology in exploration and development of concepts, problem solving, development of lessons, and assessment of educational potential of current and new technologies. Production and evaluation of projects for use in the mathematics classroom. Offered spring only.
Equivalent Course: SED 307

MED 308 METHODS IN THE TEACHING OF SECONDARY SCHOOL MATHEMATICS
3, 3/0; IN23, RE23
Prerequisite: Minimum of 30 hours of MAT courses completed with a GPA of 2.75. Minimum of 9 hours of Professional courses including MED 200 and MED 307 with a GPA of 2.5. Permission of instructor. Corequisite: MED 300. Introduction to research-based teaching practices that lead to success for all students; teaching practices that support learning in culturally responsive environments and respond to learners with unique needs; instruction that effectively integrates technology; national and state standards and standards-based curricula; national and international achievement data; assessment practices; lesson design. Offered as needed.

MED 309 TEACHING MATHEMATICS IN THE MIDDLE SCHOOL
3, 3/0
Prerequisites: Must be enrolled in 0524; a minimum of 24 hours of the math concentration completed with a GPA of 2.5 or higher; a minimum of 6 hours of professional education courses completed with a GPA of 2.5 or higher; permission of instructor. Preparation to teach mathematics in grades 5-9. Includes techniques and models used to teach mathematics at the middle-school level in the context of current research on how children learn mathematics. Offered spring only.

MED 383 LEARNING AND TEACHING PROBLEM SOLVING
3, 3/0
Prerequisites: CWP 102, MAT 162 or MAT 127, MAT 270, upper-division status. Experiences in mathematical problem-solving; learning through problem-solving; consideration of diverse perspectives and problem-solving approaches; strategies for teaching the use of a problem based approach; the historical and current roles of problem solving in secondary mathematics. Offered spring only.

MED 406 STUDENT TEACHING OF MATHEMATICS IN THE LOWER MIDDLE GRADES 5-6
6, 0/0
Prerequisites: Completion of MED 200, MED 307, MED 309, MED 383W, SPF 303, all required mathematics courses, and 6 credit hours of upper-division mathematics courses; minimum GPA of 2.5 in all mathematics and education coursework; senior status. Lower middle school laboratory experiences, goals of lower middle school education, psychological influences, teaching models, assessment techniques, classroom management, total involvement in lower middle school activities, practicum. Offered occasionally.

MED 407 STUDENT TEACHING OF MATHEMATICS IN JUNIOR HIGH/MIDDLE SCHOOL
6, 0/0
Prerequisites: Completion of MED 308 and MED 300 or MED 309 with a minimum grade of C; completion of all mathematics coursework; minimum cumulative GPA of 2.5 in all major mathematics courses; completion of all education courses with a minimum cumulative GPA of 2.5; senior status; and instructor permission. Supervised teaching experience five full days a week for approximately eight consecutive weeks in an early secondary mathematics classroom. Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required. Offered every semester.

MED 408 STUDENT TEACHING OF MATHEMATICS IN HIGH SCHOOL
6, 0/0
Prerequisites: MTS major; completion of MED 308 and MED 300 with a minimum grade of C; completion of all mathematics degree coursework; minimum cumulative GPA of 2.5 in all major mathematics courses; completion of all education courses with a minimum cumulative GPA of 2.5; senior status; and instructor permission. Supervised teaching experience five full days a week for approximately eight consecutive weeks in an early secondary mathematics classroom. Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required. Offered every semester.

MED 495 SPECIAL PROJECT
1-3, 0/0
Research project at the undergraduate level with a focus on mathematic education in middle/high schools.

MED 499 INDEPENDENT STUDY
3-12, 0/0
Offered every semester.

MED 500 PRACTICUM I: GRADUATE FIELD EXPERIENCE IN SECONDARY MATHEMATICS EDUCATION
3, 1/4
Current school mathematics practices; related mathematics teaching periodicals and policy documents; affective and societal issues surrounding teaching; reflective observation of teaching and learning and the classroom, school, and community contexts in which they occur.

MED 501 PRACTICUM II: PRACTICE TEACHING MATHEMATICS IN THE MIDDLE SCHOOL
3, 0/6
Prerequisites: Admission to the MS. Ed. Adolescence Education certification program; successful completion of all coursework preceding student teaching; Introduction to the practice of classroom teaching for the prospective middle school mathematics teacher. Eight weeks (40 days) of classroom practice including experiences with classroom discipline, instructional planning, curriculum, assessment and testing, field observation, peer presentations, construction and critique of lesson plans, unit designs, uses of technology and media, and research and use of successful teaching strategies for the mathematics classroom in early and middle adolescence.

MED 502 PRACTICUM III: PRACTICE TEACHING MATHEMATICS IN THE HIGH SCHOOL
3, 0/6
Prerequisites: Admission to the MS. Ed. Adolescence Education certification program; successful completion of all coursework preceding student teaching; Introduction to the practice of classroom teaching for the prospective high school mathematics teacher. Eight weeks (40 days) of classroom practice including experiences with classroom discipline, instructional planning, curriculum, assessment and testing, field observation, peer presentations, construction and critique of lesson plans, unit designs, uses of technology and media, and research and use of successful teaching strategies for the mathematics classroom for mid and late adolescence.

MED 524 MATHEMATICS INSTRUCTION AT THE SECONDARY LEVEL
1, 1/0
Prerequisite: Education major or mathematics education postbaccalaureate certification program major. Content, teaching methods, activities, and evaluation procedures typically used in mathematics instruction at the secondary level.

MED 588 TOPICS COURSE
3, 3/0

MED 590 INDEPENDENT STUDY
1-3, 0/0

MED 595 RESEARCH METHODS AND TECHINQUES IN MATHEMATICS EDUCATION
3, 3/0
Prerequisite: 9 credit hours of graduate-level coursework in mathematics. Nature of educational research; problem analysis; descriptive and inferential statistics; experimental design; strategy of historical, descriptive, and experimental studies.

MED 598 MICRO COURSE
1-3, 0/0
Examination of significant disciplinary issues, topics, or practices

MED 600 CONTEMPORARY MATHEMATICS CURRICULUM DEVELOPMENT
3, 3/0
Contemporary mathematics curricular developments in the United States and other countries, and the forces that shape these developments; historical background influencing current curricular developments; mathematics curricula and their relation to school and society.

MED 601 SEMINAR IN THE TEACHING OF MATHEMATICS
3, 3/0
This course provides an introduction to the theory and practice of classroom teaching for prospective secondary mathematics teachers. Topics include learning theory, construction and critique of lesson and unit plans, use of technology, research on teaching and learning that includes addressing the needs of students with diverse mathematical abilities and English Language Learners, assessment, classroom management, state and national standards, and curricular issues.

MED 602 MATHEMATICS FOR THE SECONDARY SCHOOL TEACHER: SELECTED TOPICS
3, 3/0
This selected topics course will focus on the classroom implementation of high quality mathematics materials that include assessment of prior knowledge, development of conceptual understanding and procedural knowledge, and provide ongoing opportunities for formative assessment through a problem- based approach to teaching and learning mathematics.

MED 604 TEACHING OF GEOMETRIC CONCEPTS
3, 3/0
Prerequisite: Acceptance to the mathematics master's degree program. Traditional Euclidean approach; transformational, computer-based, and integrated approaches to the teaching and learning of geometric concepts in high school; learning theory, pedagogy, mathematical models, and new developments specific to the teaching of geometric concepts in the high school curriculum.

MED 605 TEACHING OF ALGEBRAIC CONCEPTS
3, 3/0
Prerequisite: Acceptance to the mathematics master's degree program. Structuralist, intuitive, historical, and applied approaches to the teaching of concepts of algebra; learning theory, pedagogy, mathematical models, and new developments specific to the teaching of algebraic concepts in the high school curriculum.

MED 606 LOGO AND MATHEMATICS LEARNING
3, 3/0
History of LOGO language development; use of LOGO in the secondary and elementary schools; turtle graphs and the use of LOGO in problem solving. Appropriate for teachers of math and science, as well as teachers of other subjects.

MED 607 TECHNOLOGY IN MATHEMATICS EDUCATION
3, 3/0
Use and evaluation of equipment and software for the mathematics classroom: developing classroom lessons using technology for mathematics; investigating the uses of adaptive technology in mathematics. Student produce projects for use in their classrooms and learn how to assess accessibility in software design.

MED 683 PROBLEM SOLVING AND PROBLEM POSING
3, 3/0
Prerequisite: Acceptance to the mathematics master's degree program. Techniques of problem solving and problem posing in mathematics: role of teaching problem solving in the high school setting.

MED 690 MASTER'S PROJECT
1-9, 0/0
Study undertaken by one or more individuals, under the supervision of a member of the graduate mathematics faculty, on a problem of special interest submitted in acceptable form according to directions given by the Mathematics Department.

MED 721 THESIS/PROJECT CONTINUATION
0, 0/0

MED 722 THESIS/PROJECT EXTENDED
0, 0/0

MED 795 MASTER'S THESIS IN MATHEMATICS EDUCATION
3, 3/0
Individual investigation of original problem, conducted under the supervision of a member of the graduate mathematics faculty, submitted in acceptable form according to directions given by the Graduate School.