MAE - MATHEMATICS EDUCATION

MAE 5100 Geometry for Middle School Teachers Cr. 3
Development of Euclidean geometry as a mathematical system; related historical topics; introduction to other geometries; selected topics such as transformations and tessellations. No credit toward a major or minor for secondary mathematics teaching. Offered Yearly.
Prerequisites: MAT 1110 or MAT 1120
Equivalent: MAT 5180

MAE 5110 Number Theory for Middle School Teachers Cr. 3
Topics from elementary theory of numbers which underlie middle school mathematics curriculum; historical connections; role of abstraction and proof in mathematics. No credit toward a major or minor for secondary mathematics teaching. Offered Yearly.
Prerequisites: (MAT 5060) AND (MAT 1120) AND (MAT 1800)
Equivalent: MAT 5190

MAE 5120 Abstract Algebra for Middle School Teachers Cr. 3
Topics from elementary abstract algebra underpinning middle school mathematics curriculum; historical connections; role of abstraction and proof in mathematics. No credit toward major in mathematics or secondary mathematics. Offered Yearly.
Prerequisites: (MAT 5060) AND (MAT 1120 or MAT 1800)
Equivalent: MAT 5120

MAE 5130 Problem Solving for Middle School Teachers Cr. 3
Development of mathematical problem solving in middle grades mathematics education; study of non-routine problems; problem solving strategies; historical connections; connections to selected mathematics content and to topics in other disciplines. No credit towards a mathematics major or secondary mathematics education major. Offered Yearly.
Prerequisites: (MAT 5060) AND (MAT 1120 or MAT 1800)
Equivalent: MAT 5130

MAE 5150 Methods and Materials of Instruction: Secondary School Mathematics Cr. 3
Mathematics in secondary school; major concepts of secondary school mathematics; methods and instructional materials; classroom administration; modern trends. Offered Yearly.
Restriction(s): Enrollment limited to students in the College of Education.

MAE 5160 Teaching Mathematics in the Middle Grades Cr. 3
Creative use of resources and materials for improving the mathematics competencies of middle school and junior high school students; organizing the mathematics classroom for effective instruction; promising trends; related research. Offered Yearly.
Restriction(s): Enrollment limited to students in the College of Education.

MAE 6150 Special Topics Cr. 1-6
Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in Schedule of Classes. Offered Irregularly.
Repeatable for 12 Credits

MAE 6200 Teaching Arithmetic, Algebra and Functions from an Advanced Perspective Cr. 3
Students gain profound understanding of K-12 mathematics. Concepts underlying topics and procedures; their connections to higher mathematics. Teaching with Simplify; application of mathematical understanding to teaching practices. Offered Yearly.
Prerequisites: (MAT 5120) AND (MAT 6170) AND (MAT 6180)
Equivalent: MAT 6200

MAE 6210 Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective Cr. 3
Historical perspectives, common conceptions and misconceptions, applications, technology, and mathematical connections relative to teaching geometry (including trigonometry), probability and statistics, and discrete mathematics in secondary school. Offered Yearly.
Equivalent: MAT 6210

MAE 6400 Elementary School: Mathematics Curriculum and Assessment Cr. 3
Developing competence in school mathematics programs: objectives, procedures, materials, organizational patterns, evaluation. Offered Every Term.

MAE 6450 Integrating Lit&Math:Elem Scl Cr. 3
Offered Spring/Summer.

MAE 7150 Advanced Studies in Teaching Discrete Mathematics Cr. 3
Nature of discrete mathematics and its applications, incorporating discrete topics in school mathematics. Offered Annually.
Restriction(s): Enrollment is limited to Graduate level students.

MAE 7200 Advanced Studies in Teaching Statistics and Probability Cr. 3
Techniques for teaching statistics and probability in grades K-12; promising materials and activities; research on the learning and teaching of statistics and probability; related resources; review of basic concepts. Offered Annually.
Restriction(s): Enrollment is limited to Graduate level students.

MAE 7250 Advanced Studies in Teaching Algebra Cr. 3
Fundamental concepts of algebra for a modern secondary school mathematics program; current trends and experimental programs; related research; methods and materials of instruction. Offered Annually.
Restriction(s): Enrollment is limited to Graduate level students.

MAE 7300 Advanced Studies in Teaching Geometry Cr. 3
Role of geometry and trigonometry in secondary school mathematics; selection of major concepts; development of postulational thinking; teaching procedures emphasizing modes of thinking in mathematics; modern trends. Offered Annually.
Restriction(s): Enrollment is limited to Graduate level students.

MAE 7400 Seminar in Mathematics Education Cr. 3
Recent research in mathematics education; implications for learning and teaching, K-12. Topics to be announced in Schedule of Classes. Offered Yearly.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 9 Credits

MAE 8400 Technology in Mathematics Learning and Teaching Cr. 3
Recent research on the use of technology in mathematics education; implications for learning and teaching mathematics, K-12. Offered Annually.
Restriction(s): Enrollment is limited to Graduate level students.
MAE 8550 Theoretical Perspectives on Learning Mathematics Cr. 3
Survey of various perspectives on the learning and teaching of mathematics; underlying psychological bases; implications for teaching. Offered Biannually.
Restriction(s): Enrollment is limited to Graduate level students.