MG 5010 Seminar in Mathematics Education (1-4)
The topic for the course is selected by the professor from current developments and issues in mathematics education, such as Mathematics for Exceptional Children, Piaget’s Research, Mathematics Assessment, and Algebra in the K-12 Curriculum. Course may be repeated on a different topic with permission of the department chair.

MG 5320 Middle/Secondary Pedagogy for Number, Quantity, and Algebra (4)
This course focuses on algebraic thinking and concepts central to the Common Core State Standards in Mathematics [CCSSM]. Specifically, the mathematical content of the course aligns with the CCSSM standards (gr. 5-12) in number, quantity, and algebra. Classroom activities explore this mathematical content and the Standards for Mathematical Practice in CCSSM deepening students’ understanding. The activities also demonstrate how mathematical practices can be integrated in the everyday learning experiences of every student. Building on this knowledge students design lesson plans to achieve clear content and process objectives. Classroom discussions focus on thinking processes, mathematical concepts, habits of mind, conceptual understanding, and dispositions that students need in order to develop a deep, flexible, and enduring understanding of mathematics.

MG 5330 Middle/Secondary Pedagogy for Functions and Modeling (4)
This course focuses on functions and modeling concepts central to the Common Core State Standards in Mathematics [CCSSM]. Specifically, the mathematical content of the course aligns with the CCSSM standards (gr. 5-12) in functions and modeling. Students will develop conceptual understanding and confidence working with functions and modeling. Activities are designed to demonstrate how the Standards for Mathematical Practice in CCSSM can be integrated in the everyday learning experiences of every student. Class discussions are centered on thinking processes, habits of mind, conceptual understanding, and dispositions that students need in order to develop a deep, flexible, and enduring understanding of mathematics.

MG 5340 Middle/Secondary Pedagogy for Geometry (4)
This course focuses on Euclidean geometry concepts central to the Common Core State Standards in Mathematics [CCSSM]. The mathematical content of the course aligns with the CCSSM standards (gr. 5-12) in geometry. Students will develop conceptual understanding of geometric properties and relationships, applying and analyzing concepts, procedures, and proofs. Activities are designed to demonstrate how the Standards for Mathematical Practice in CCSSM can be integrated in the everyday learning experiences of every student. Class discussions are centered on thinking processes, habits of mind, conceptual understanding, and dispositions that students need in order to develop a deep, flexible, and enduring understanding of mathematics.

MG 5350 Middle/Secondary Pedagogy for Statistics and Probability (4)
This course focuses on statistics and probability concepts central to the Common Core State Standards in Mathematics [CCSSM]. The mathematical content of the course aligns with the CCSSM standards (gr. 5-12) in statistics and probability. Students will develop conceptual understanding and fluency in statistical concepts, data analysis, and probability. Activities are designed to demonstrate how the Standards for Mathematical Practice in CCSSM can be integrated in the everyday learning experiences of every student. Class discussions are centered on thinking processes, habits of mind, conceptual understanding, and dispositions that students need in order to develop a deep, flexible, and enduring understanding of mathematics.

MG 5760 Topics in Mathematics for Elementary/Middle School Teachers (1-4)
Topics for this course can vary, but may focus on one or more of the following ideas: problem solving, logic and proof, set theory and Venn diagrams, calculus notions, number systems, and mathematical modeling. A standard text on the topic will be used when appropriate. Students may repeat the course with a different topic as its focus with the permission of the department chair.

MG 5840 Topics in Geometry for Middle/Secondary School Teachers (2-4)
Topics for this course can vary, but may focus on one or more of the following: history of Euclidean and non-Euclidean geometry, Euclidean geometries, non-Euclidean geometries, Euclidean geometries in the plane, polyhedra, analytic and transformational geometry, projective geometry, fractals, geometry in the real world, and topology. Investigations may use computer software and internet resources. Students may repeat the course with a different topic as its focus with the permission of the department chair.