

MATH EDUCATION (MTED)

365. Experiences in School Mathematics, I. Credit 2 hours. Prerequisite: Math 360 or 370 or 380 or concurrent enrollment in any one of these courses. Applications of topics in algebra to the 7-12 school curriculum. Significant field experiences which will include educational interactions with students. Grading on Pass/Fail basis only. One hour lecture; 1-2 hours field experience per week.

375. Experiences in School Mathematics, II. Credit 2 hours. Prerequisite: Math 360 or 370 or 380 or concurrent enrollment in any one of these courses. Applications of topics in analysis, probability and statistics to the 7-12 school curriculum. Significant field experiences which will include educational interactions with students. Grading on Pass/Fail basis only. One hour lecture; 1-2 hours field experience per week.

611. Topics in Algebra for Teachers, Grades 1-8. Credit 3 hours. Prerequisite: Regular admission to Graduate School. A course designed to relate the algebraic concepts and processes taught and discussed in grades 1-8 to the mathematically unifying concept of algebraic structure, the properties and operations of the natural numbers, integers, rational, and real numbers, patterns, relations, and functions; analysis of mathematical situations and structures using algebraic symbols; and analysis of change in various contexts. Students will be expected to become familiar with the research in the teaching and learning of algebra and the implications of this research to the teaching of algebra in grades 1-8.

612. Topics in Geometry and Measurement for Teachers, Grades 1-8. Credit 3 hours. Prerequisite: Regular admission to Graduate School. A course designed to study various mathematical approaches to the geometric concepts and measurement processes taught and discussed during grades 1-8. Concepts will include coordinate geometry, transformations, symmetry, modeling, measurement, the development of the educational structure of the van Heile levels and its application to the teaching of geometry and measurement, the research in the teaching and learning of geometry and measurement, and the implications of this research to the teaching of geometry and measurement in grades 1-8.

615. Topics in Number Theory for Elementary and Middle School Teachers. Credit 3 hours. Prerequisite: Regular admission to Graduate School. A course designed to study properties and patterns of natural numbers with emphasis on prime numbers, divisibility, and congruences. Students will be exposed to number theoretic results from a historical perspective, the connection between number theory, algebra and patterns, how the concepts of number theory can appear in mathematics curriculum, in grades 1-8, and the research in the teaching and learning of number theoretical concepts in grades 1-8.

616. Topics in Data Analysis and Probability for Teachers, Grades 1-8. Credit 3 hours. Prerequisite: Regular admission to Graduate School. An introduction to informal comparing, classifying, and counting activities that provide the mathematical beginnings for developing young learners' understanding of data, analysis of data, and statistics. Probability will be approached as the study of activities that underlie experimental probability. Statistics will be approached as both a descriptive and predictive science. Students will be expected to become familiar with the concepts of data analysis and probability that appear in the mathematics curriculum, in grades 1-8, and the research in the teaching and learning of data analysis and probability concepts in grades 1-8.

622. Topics in Geometry for Teachers, 7-14. Credit 3 hours. Prerequisite: Regular admission to graduate school and completion of Math 200 with a grade of C or better. A course designed to study various mathematical approaches to the geometric concepts and processes taught and discussed during grades 7-12 and in the community colleges. Topics include geometric concepts and processes through axiomatics, coordinate geometry, vectors, and groups of transformations, the historical development of the educational structure of the van Heile levels. The students will be expected to become familiar with the research in the teaching and learning of geometry and the implications of this research to the teaching of geometry in grades 7-14.

623. Topics in Calculus for Teachers, 7-14. Credit 3 hours. Prerequisite: Regular admission to graduate school and completion of Math 200 with a grade of C or better. A study of the concepts of calculus with an emphasis on the concepts of limit, continuity, derivative and integral, real world problems, the appropriate use of technology including computer algebra systems in the teaching and learning of calculus, the research in the teaching and learning of calculus, and the implications of this research to the teaching of the concepts of calculus in grades 7-14.

625. Topics in Number Theory for Teachers, 7-14. Credit 3 hours. Prerequisite: Regular admission to graduate school and completion of Math 200 with a grade of C or better. A course designed to study properties of natural numbers with emphasis on prime numbers, divisibility, and congruences. Topics include number theoretic results from a historical perspective and the connection between number theory and algebra. Students will be expected to become familiar with how the concepts of number theory can appear in the mathematics curriculum, in grades 7-14, and the research in the teaching and learning of number theoretical concepts in grades 7-14.

626. Topics in Probability and Statistics for Teachers, 7-14. Credit 3 hours. Prerequisite: Regular admission to graduate school and completion of Math 200 with a grade of C or better. An introduction to the study of probability and statistics with an emphasis on the mathematical theories of both. Probability will be approached as the study of specific functions with certain properties. Statistics will be approached as both a descriptive and predictive science. Statistical packages will be utilized as well as studied for their impact on the teaching of statistics. Students will be expected to become familiar with the concepts of probability and statistics that appear in the mathematical curriculum, in grades 7-14, and the research in the teaching and learning of probability and statistical concepts in grades 7-14.