

MIDDLE AND SECONDARY MATHEMATICS CONCENTRATION FORM

Name \_\_\_\_\_ Phone \_\_\_\_\_ Email \_\_\_\_\_

Advisor \_\_\_\_\_ Phone \_\_\_\_\_ Email \_\_\_\_\_

*Only six credit hours may be transferred from another institution.*

<b>EDCI 597 Special Topics in Education</b> Provides advanced study in a selected topic or emerging educational issue.	Sem. Hrs. 3	Course Offerings Fall	Completed Sem./Year
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Middle School (Grades 6-8)	Sem. Hrs.	Course Offerings	Completed Sem./Year
<b>MATH 601 Analysis I for Teachers</b> Develops the continuous ideas of calculus with particular emphasis on concepts as opposed to computational aspects of calculus. Specific topics to be covered include decimal representation of the real numbers, sequences, series, limits; differentiation to find speed, slopes of curves, and tangents; integration to find volumes and distances, area under curves. Optimization problems including maximization of area and volume and the modeling of these concepts. Graphing techniques will be supported by both the theory of calculus and graphing utilities such as the TI-83 calculator or if possible, computer software such as Maple.	3	Alt. Spring Even Years	
<b>MATH 604 Geometry for Teachers</b> Covers standard topics from Euclidean geometry including a discussion of non-Euclidean geometrics. The course will emphasize an informal and explorative approach to geometry and make use of the geometer sketchpad. Other topics will include geometric constructions and the role of proof in geometry.	3	Alt. Spring Odd Years	
<b>MATH 605 Discrete/Finite Mathematics for Teachers</b> Discusses finite mathematics in juxtaposition to the continuous ideas of calculus. Specific topics may be chosen from a variety but might consist of elementary counting and combinatorics including recursion, difference equations and their analogy to calculus. A different emphasis beginning with counting might lead to a more thorough discussion of probability and central measures of statistics. Other topics may include graph theory and its connection to geometry. The audience for whom the course is intended will to some extent guide the choice of topics.	3	Alt. Fall Odd Years	
<b>MATH 607 Algebraic Structures for Teachers</b> Expands upon the customary operations on the integers and rationals to discuss systems that mimic these operations thereby enhancing ones understanding of the former. Emphasis will be places on the concepts of multiplicative and additive inverses and their corresponding identities as they occur in other systems. Topics might include the integers module and their connections to elementary number theory, permutation groups, rigid transformations, groups of symmetry of the plane and their connection to geometry, matrices treated as linear transformations and their connection to solutions of systems of equations.	3	Alt. Fall Even Years	
<b>MATH 608 Problem Solving in Mathematics</b> Introduces a variety of challenging mathematics problems appropriate for middle school students for the purpose of analyzing and solving the problems, perhaps in a variety of ways, using the mathematics learned in the previous courses. In addition, students will be asked to search for such problems and orally present their solutions. The specific topics to be covered in such problems might be any of the topics covered in Math 601, 604, 605, and 607.	3	Alt. Summer Even Years	

(Over)

Secondary (Grades 9-12)	Sem. Hrs.	Course Offerings	Completed Sem./Year
MATH 601 Analysis I (Described above)	3	Alt. Sp. Even Yrs.	
MATH 602 Analysis II Advanced Study of Math 601 (Described Above)	3	Alt. Su. Even Yrs.	
MATH 604 Geometry for Teachers (Described Above)	3	Alt. Sp. Odd Yrs.	
MATH 605 Discrete/Finite Mathematics for Teachers (Described Above)	3	Alt. Fall Odd Yrs.	
MATH 607 Algebraic Structures (Described Above)	3	Alt. Fall Even Yrs.	