MTHC - Mathematics for Educators

MTHC 5230 Discrete Mathematics (3)

This course covers mathematical structures pertinent to an understanding of computers, including graphs, Boolean algebra, and finite state machines.

MTHC 5250 Vector Geometry (3)

Basic concepts pertaining to vectors in the plane are developed. Proofs of theorems of plane geometry, using a synthetic approach, an analytic approach, and a vector approach are compared. The class introduces vector spaces.

MTHC 5260 Algebra for Secondary Teachers (3)

Students examine and extend topics in secondary school algebra. Techniques and materials for teaching algebra are also discussed.

MTHC 5280 Calculus for Teachers (3)

The course reviews the basic concepts of differential and integral calculus, with special focus on central ideas,theory, and applications. Computers and/or graphing calculators are used to help investigate ideas. Students enrolling in this course are assumed to have completed the undergraduate calculus sequence with grades of B or higher.

MTHC 5300 History of Mathematics (3)

This course is based on selected readings that examine the history and philosophy of mathematics. An important goal is to provide students with a perspective on the relationship between mathematics and culture as well as an insight into how and why mathematical ideas have evolved. May be repeated for credit if content differs.

MTHC 5310 Geometry for Secondary Teachers (3)

This course deals with areas of geometry relevant to high school teachers. Content varies according to the interests of the faculty and students. May be repeated for credit if content differs.

MTHC 5320 Topics in Mathematics (3)

Typically this course introduces areas of mathematics not covered in other courses. Content depends upon the interests of the faculty and students. May be repeated for credit if content differs.

MTHC 5330 Probability (3)

Participants study probability on finite sample spaces along with applications to gambling and game theory.

MTHC 5350 Logic (3)

This course includes propositional and predicate logic, with the objective of increasing students' understanding of what constitutes valid reasoning, as well as increasing their ability to express formal mathematical arguments.

MTHC 5360 Algebraic Structures (3)

Students examine the algebra of various mathematical structures with the goal of gaining a broader and more sophisticated understanding of ordinary algebra. Relevant theory is developed.

MTHC 5370 Linear Algebra (3)

Concepts and techniques of linear algebra are developed.

MTHC 5390 Statistics (3)

This course covers the basic concepts (including applications) of the binomial and normal distributions, the chi-square test, analysis of variance, and nonparametric statistics. Emphasis is placed on educational applications as well as the abuses and misuses of statistical ideas. Computers and/or graphing calculators are used to investigate ideas.

MTHC 5430 The Real Number System (3)

The course covers the algebraic and topological properties of the real number system and several of its subfields and subrings.

MTHC 5450 Topics in Number Theory (3)

This course covers selected topics in number theory, such as modular systems, quadratic reciprocity, number-theoretic functions, Pythagorean Triples, and perfect numbers. Specific topics to be determined by instructor. Relevant theory will be developed.

MTHC 5480 Problem-Solving Strategies in Mathematics (3)

The primary objective of this course is to help students develop reasoning strategies that are powerful tools in solving problems.

MTHC 5500 Studies in Mathematics (1-6)

Courses in this category are offered on an irregular basis. May be repeated for credit if content differs.

MTHC 5900 Final Reflections (0)

All math students are required to register for this zero-credit hour course during their penultimate semester. Students write an essay describing how they have changed as a result of their participation in the math program. For specific guidelines see the math coordinator. This course is graded on a credit/no credit basis only.

MTHC 5995 Independent Study (1-6)

Students with special interests or needs that are not met by existing curricula may request that a member of the faculty supervise an independent study. Together the student and faculty member decide the content of the independent study and the criteria for evaluation. In no case may an independent study be set up when an existing course already covers the subject. May be repeated for credit if content differs.