

MATH 1000 Principles of Mathematics.* This course is designed to prepare students for college-level mathematics courses. Topics will include basic computation with positive and negative integers, fractions, ratios and proportions, conversions, percentages of increase and decrease, scientific notation, and basic algebra. 4 s.h.
 *Not designed for transfer

MATH 1010 (D) Basic Algebra. This course focuses on algebra skills and basic analytic geometry 2 s.h.

MATH 1220 College Algebra. Primarily a service course for education students, topics in this course will include functions and their graphs, linear equations, polynomials, exponential and logarithmic functions, and applications involving exponential growth and decay. 4 s.h.

MATH 1230 (F/S) Pre-Calculus. Designed for the student who intends to take calculus but has not had sufficient preparation. Pre-Calculus focuses on analytic geometry with emphasis on the transcendental functions 4 s.h.

MATH 1500 (S) Cryptology. The Science of Secret Writing. A study of the classic methods of encryption and decryption, focusing on several historical methods of encryption and simple techniques involving transposition ciphers, modular arithmetic, and matrices 4 s.h.

MATH 1560 (F/S) Introduction to Statistics. A study of the fundamentals of probability and statistics, including regression analysis and correlation. Particular focus is placed on probability distributions and their application to confidence intervals and hypothesis testing for data samples 4 s.h.

MATH 2100 (S) Programming with Graphics, Symbols, and Text. An introduction to a computer algebra system and a symbolic word processing system, in particular, *Mathematica* and *Latex*, both of which are standard software used by mathematicians and physicists. This course includes the basics of producing graphical objects and syntactically correct algebraic and symbolic expressions, along with ideas such as recursion, looping, data structures, file manipulation, as well as producing print-ready copy whose elements are text, graphics, and any manner of convoluted mathematical expression..... 2 s.h.

MATH 2200 (F/S) Mathematics for Elementary Teachers. This course is designed to deepen the content understanding of mathematics needed for teaching elementary and middle school mathematics and to do so in such a way that emphasizes a study, from a problem-solving standpoint, of concepts and knowledge outlined in the Tennessee elementary mathematics curriculum standards and national guidelines. Students should expect to interact in groups, present problem solutions with justification, and demonstrate problem-solving techniques during class throughout the semester. Open only to elementary education candidates 4 s.h.

MATH 2350 (F/S) Calculus I. A study of limits, the derivative and its applications, and an introduction to the integral 4 s.h.
Prerequisite: MATH 1230 or equivalent

MATH 2360 (F/S) Calculus II. A study of the integral and its applications, including series 4 s.h.
Prerequisite: MATH 2350 or equivalent

MATH 2370 (F) Vector Calculus. Continuous mapping from \mathbb{R}^n to \mathbb{R}^m , vector analysis, line integrals, surface integrals, the divergence theorem and Stokes' theorem 4 s.h.
Prerequisite: MATH 2360

MATH 2410 (F) Discrete Mathematics. A mathematical foundations course including logic, set theory, binary relations, mathematical induction, recursion, and counting arguments. This course is intended to be a bridge course, transitioning the student from algorithmic procedures to proof construction 4 s.h.

MATH 2450 (S) Linear Algebra. A study of linear transformations of vector spaces, including matrices, orthogonality, least-squares approximations, determinants, eigenvalues, and diagonalization 4 s.h.
Prerequisite: MATH 2350 or consent of instructor

MATH 2480 (D) History of Mathematics. This course is a broad overview of the history of mathematics ranging from the origin of mathematics in early civilizations to advancements in the 21st century, focusing on interesting personalities and outstanding achievements 2 s.h.
Prerequisite: MATH 2360

MATH 3100 (D) Graph Theory. Basic theory, trees, planar graphs, hamiltonicity, vertex colorings, search algorithms, and Ramsey theory 4 s.h.

MATH 3110 (D) Combinatorics. A study of enumeration techniques applied to arrangements, patterns, and designs, including general counting methods, generating functions, recurrence relations, and the inclusion-exclusion principle 2 s.h.

MATH 3120 (D) Number Theory. A study of the integers, congruence relations, prime distributions, Diophantine equations, number theoretic functions 2 s.h.

MATH 3150 (D) Mathematical Statistics. Probability theory, distributions and densities, sampling theory 4 s.h.
Prerequisite: MATH 2360

MATH 3250 (D) Geometry. Topics selected from Euclidean constructions, transformations, projective plane geometry, non-Euclidean geometry, tilings and other geometrical patterns 4 s.h.
Prerequisite: MATH 2350

MATH 3430 (S) Differential Equations. Linear first and second order differential equations and their applications 4 s.h.
Prerequisite: MATH 2360

MATH 3470 (D) Applied Mathematics. Selected concepts and techniques of mathematics which are useful in science and engineering: stability of systems; predator-prey equations; interacting oscillators; calculus of variations; linear algebraic formulation of systems of linear differential equations; introduction to partial differential equations; Fourier series2-4 s.h.
Prerequisite: MATH 3430 or consent of instructor

MATH 3510 (A/F-O) Abstract Algebra. Finite groups, rings, ideals, and fields.....4 s.h.
Prerequisites: MATH 2410 and one of 2370, 2450, 3430

MATH 3520 (A/S-E) Further Studies in Abstract Algebra. Designed for the junior/senior major intending to proceed to graduate school in mathematics 2 s.h.
Prerequisite: MATH 3510

MATH 3610 (A/F-E) Analysis. Elementary point-set theory, sequences, limits, continuity, derivatives, and integrals. Emphasis is on concepts and rigor 4 s.h.
Prerequisite: MATH 2370 and MATH 2410

MATH 3620 (A/S-O) Further Studies in Analysis. Designed for the junior/senior major intending to proceed to graduate school in mathematics..... 2 s.h.
Prerequisite: MATH 3610

MATH 3800/3830 (D) Internship/Cooperative Education. For a complete description of Internships and Cooperative Education, see the Off-Campus Internship section under Experiential Learning.

MATH 3900 (D) Special Topics. For Junior and Senior majorscredit to be arranged
Prerequisite: MATH 2360

MATH 4800 Research in Mathematics. This course will consist of research or independent study in mathematics under the direction of a faculty member. A GPA of 3.50 in mathematics courses at or above the 2100-level and permission of the instructor are required. 2 s.h.

MATH 4930 Mathematics Capstone.* This course is designed to help students prepare for the Major Field Achievement Test in mathematics (MFAT) or the PRAXIS in mathematics by reviewing the mathematics content from their four years of study. Although this course is optional, for a degree in mathematics students must earn a passing score on either the MFAT in mathematics or the PRAXIS in mathematics..... 1 s.h.
*Not designed for transfer

MATH 4990 Comprehensive Assessment. Undergraduate level. All candidates for a degree from King are required to demonstrate competency in their major field. Students with more than one major must demonstrate competency in each of their major fields. For a degree in mathematics students must earn a passing grade on either the MFAT—Major Field Achievement Test in mathematics or the PRAXIS if they are pursuing secondary education licensure 0 s.h.