

MATHEMATICS (MATH)

MATH 111 - Basic College Mathematics (3 Credits)

Basic college algebra; linear and quadratic equations, inequalities, functions and graphs of functions, exponential and logarithm functions, systems of equations.

Prerequisites: placement through Algebra version of the Mathematics Placement Test.

MATH 1111 - Intensive Basic College Mathematics (4 Credits)

An intensive treatment of the topics covered in MATH 111.

Prerequisites: placement through Algebra version of the Mathematics Placement Test.

MATH 112 - Trigonometry (2 Credits)

Topics in trigonometry specifically needed for MATH 141, MATH 142, MATH 241. Circular functions, analytic trigonometry, applications of trigonometry. Credit may not be received for both MATH 112 and MATH 115.

Prerequisites: C or better in MATH 111 or MATH 1111, or placement through Algebra version of the Mathematics Placement Test.

MATH 115 - Precalculus Mathematics (4 Credits)

Topics in algebra and trigonometry specifically needed for MATH 141, MATH 142, MATH 241. Subsets of the real line, absolute value; polynomial, rational, inverse, logarithmic, exponential functions; circular functions; analytic trigonometry.

Prerequisites: C or better in MATH 111 or MATH 1111, or placement through Precalculus version of the Mathematics Placement Test.

MATH 122 - Calculus for Business Administration and Social Sciences (3 Credits)

Derivatives and integrals of elementary algebraic, exponential, and logarithmic functions. Maxima, minima, rate of change, motion, work, area under a curve, and volume.

Prerequisites: C or better in MATH 111, MATH 1111 or MATH 115 or placement through Algebra version of the Mathematics Placement Test.

Carolina Core: ARP

MATH 141 - Calculus I (4 Credits)

Functions, limits, derivatives, introduction to integrals, the Fundamental Theorem of Calculus, applications of derivatives and integrals. Four classroom hours and one laboratory hour per week.

Prerequisites: C or better in Math 112, MATH 115, or MATH 116, or placement through Precalculus version of the Mathematics Placement Test.

Carolina Core: ARP

MATH 142 - Calculus II (4 Credits)

Methods of integration, sequences and series, approximations. Four classroom hours and one laboratory hour per week.

Prerequisites: C or better in MATH 141.

Carolina Core: ARP

MATH 151 - Calculus Workshop I (2 Credits)

Small study group practice in applications of calculus. For elective credit only.

Corequisite: MATH 141.

MATH 152 - Calculus Workshop II (2 Credits)

Small study group practice in applications of calculus. For elective credit only.

Corequisite: MATH 142.

MATH 170 - Finite Mathematics (3 Credits)

Elementary matrix theory; systems of linear equations; permutations and combinations; probability and Markov chains; linear programming and game theory.

Prerequisites: C or better in MATH 111 or MATH 1111 or MATH 122, or placement through Algebra version of the Mathematics Placement Test.

Carolina Core: ARP

MATH 172 - Mathematical Modeling for the Life Sciences (3 Credits)

Biological modeling with differential and difference equations; techniques of model modifications; analytic, numerical, and graphical solution methods; equilibria, stability, and long-term system behavior; geometric series; vectors, matrices, eigenvalues, and eigenvectors. Applications principally to population dynamics and compartment models.

Prerequisites: C or better in MATH 122 or MATH 141.

Carolina Core: ARP

MATH 174 - Discrete Mathematics for Computer Science (3 Credits)

Logic, number theory, sequences, series, recursion, mathematical induction, set theory, enumeration, functions, relations, graphs and trees. Connections to computers and to programming are emphasized when possible.

Prerequisites: C or better in MATH 115, MATH 116, MATH 122, or MATH 141, or placement through the pre-calculus version of the Mathematics Placement Test.

Carolina Core: ARP

MATH 198 - Introduction to Careers and Research in the Mathematical Sciences (1 Credit)

An overview of different areas of mathematical research and career opportunities for mathematics majors. Pass/fail only.

Prerequisites: C or better in MATH 141.

Graduation with Leadership Distinction: GLD: Research

MATH 221 - Basic Concepts of Elementary Mathematics I (3 Credits)

The meaning of number, fundamental operations of arithmetic, the structure of the real number system and its subsystems, elementary number theory. Open only to students in elementary or early childhood teacher certification.

Prerequisites: C or better in MATH 111 or MATH 1111 or placement through Algebra version of the Mathematics Placement Test.

MATH 222 - Basic Concepts of Elementary Mathematics II (3 Credits)

Informal geometry and basic concepts of algebra. Open only to students in elementary or early childhood teacher certification.

Prerequisites: C or better in MATH 221.

MATH 241 - Vector Calculus (3 Credits)

Vector algebra, geometry of three-dimensional space; lines, planes, and curves in space; polar, cylindrical, and spherical coordinate systems; partial differentiation, max-min theory; multiple and iterated integration, line integrals, and Green's theorem in the plane.

Prerequisites: C or better in MATH 142.

MATH 242 - Elementary Differential Equations (3 Credits)

Ordinary differential equations of first order, higher order linear equations, Laplace transform methods, series methods; numerical solution of differential equations. Applications to physical sciences and engineering.

Prerequisites: C or better in MATH 142.

MATH 374 - Discrete Structures (3 Credits)

Propositional and predicate logic; proof techniques; recursion and recurrence relations; sets, combinatorics, and probability; functions, relations, and matrices; algebraic structures.

Prerequisites: C or better in both MATH 142 and CSCE 146.

MATH 399 - Independent Study (3-9 Credits)

Contract approved by instructor, advisor, and department chair is required for undergraduate students.

Graduation with Leadership Distinction: GLD: Research