

COURSE DESCRIPTIONS - Mathematics

MTH 151 College Algebra (3) A first course in college algebra including the following topics: polynomial equations and inequalities, mathematical modeling and problem solving, rational functions, other functions and relations. Students who enjoy math, students who need MTH 151 for their major, students who are going on and taking higher level math courses, and/or students who are majoring in math but need to strengthen their algebra skills are the only students for whom this course is recommended. Prerequisite: Two years of high school algebra. Offered every semester.

MTH 152 Precalculus: Elementary Functions (3) A preparation for calculus covering polynomial and rational functions, exponential and logarithmic functions, trigonometric functions, applications and systems of linear equations. A graphing calculator is required. Prerequisite: Two years of high school algebra or MTH 151. Offered every semester.

MTH 271, Calculus I (5) A first study of real functions and some of their applications. Topics include limits, continuity, differentiation and integration. A graphing calculator is required. Prerequisite: High school algebra and trigonometry OR C or better in MTH 152 and permission of department. Offered fall and spring semester.

MTH 272 Calculus II (5) A continuation of the study of real functions of one variable. Topics include integration, applications of integrations, methods of integration, infinite series, and vectors. A graphing calculator is required. Prerequisite: C or better in MTH 271 . Offered fall and spring semester.

MTH 290 Introduction to Advanced Mathematics (3) A transition course from elementary to advanced mathematics. Topics covered include logic, proof techniques, set theory, discrete math, the natural numbers, induction, functions, relations and the foundations of number systems. Prerequisite: MTH 271 or taken concurrently by the mathematically mature.

MTH 303 Calculus III (5) The study of real functions of more than one variable. Topics include partial derivatives, gradient, potential functions, line integral, multiple integration, and Taylor's formula. A graphing calculator is required. Prerequisite:MTH 272. Offered fall semester.

MTH 311 Differential Equations (3) Course in ordinary differential equations and some applications, including first order equations, linear differential equations, Laplace Transform, and series solutions. Prerequisites: MTH 272. Recommended: MTH 303.

MTH 315, 316 Linear Algebra I, II (3) (3) A study of the finite dimensional vector spaces, linear mappings between them and applications to differential equations and geometry. Topics include solution of linear equations, matrices, determinants, bilinear mappings and forms, diagonalisation. Prerequisite: MTH 271. MTH 315 is offered spring semester.

MTH 320 Algebraic Structures (3) Course in the main structures of abstract algebra. Groups, rings and fields will be studied together with applications to geometry, and number theory. Prerequisite:MTH 315. Offered fall semester of even numbered years.

MTH 321 Discrete Mathematics (3) This course will briefly review logic, sets, functions and relations, and methods of proof before using these concepts to study discrete (rather than continuous) mathematics. Topics covered may include combinatorics, graph theory, algorithms and their analysis, Boolean algebra, finite state machines, finite difference equations and applications of these topics. Prerequisite: MTH 271. Offered fall semester.

MTH 330 Geometry (3) A careful review of Euclidean geometry of the plane and space, and an introduction to non-Euclidean geometry. Prerequisites: MTH 290., MTH 303., MTH 315.. Offered in fall semester of odd-numbered years.

MTH 341, 342 Probability and Mathematical Statistics I, II (3) (3) A calculus-based sequence on these subjects, including: combinatorics, probability spaces, conditional distribution functions, the central limit theorem, hypothesis testing, and regression analysis. Prerequisites: MTH 272. MTH 341 offered in the spring.

Program Course Requirements - Computer Science

CSC 100 Introduction to Computer Science (3) This course provides students with a general orientation to computer science, including a basic understanding of the components of a computer and how they function. It will introduce the student to the process of program development and provide the student with an overview of computer operations to include the operating system, basic networking, and telecommunications. Other topics covered include number systems, file management, data organization, and an introduction to the C++ programming language.

CSC 144, Computer Science I (4) Introduction to problem solving using the C++ programming language. Topics include algorithm and program development, syntax of C++, input/output statements, assignment operations, program control structures, functions, and single dimensional array processing. Additional topics may be added if time permits. Emphasis is placed on structured program design techniques and program modularity. Prerequisite: Credit or concurrent enrollment in CSC 100 .

CSC 184, Computer Science II (4) This course is a continuation of CSC 101. Topics include multidimensional array processing, character data manipulation, elementary searching and sorting techniques, structures, classes to include overloading, pointers and data abstraction. Prerequisite: CSC 144 with a grade of C or better.

Program Course Requirements - Physics

PHY 251, Introductory Physics I (4) An algebra-based treatment of mechanics including kinematics, vectors, Newton's laws, and conservation of energy and linear momentum. Other topics include rotational motion, moments of inertia, rotational energy and angular momentum. This course also treats solids, fluids, waves, sound, and thermodynamics. Lab work is included. This course is available for honors credit. Prerequisite: high school algebra and trigonometry. Lab fee required.

PHY 252, Introductory Physics II (4) An algebra-based treatment of thermodynamics, electricity, and magnetism, including electric fields, Gauss's law, voltage capacitors, inductors, Kirchhoff's laws, AC and DC circuits, and geometric and physical optics. Lab work is included. This course is available for hours credit. Prerequisite: PHY 251. Lab fee required.

PHY 301, General Physics I (4) A calculus-based treatment of mechanics for scientists and engineers, including kinematics, vectors, Newton's laws, and conservation laws for energy, linear momentum, and angular momentum. Other topics include equilibrium and elasticity, gravitation, fluids, simple harmonic oscillations, waves and thermodynamics. Lab work is included. This course is available for honors credit. Prerequisite: MTH 271. Lab fee required .

PHY 302, General Physics II (4) A calculus-based treatment of electromagnetism for scientists and engineers, including electric fields, Gauss's law, scalar potential fields, Maxwell's equations, electromagnetic oscillations, electromagnetic waves, and optics. Lab work is included. This course is available for honors credit. Prerequisite: PHY 301. Lab fee required