

Mathematics (MATH) Courses

MATH0010 Pre-Algebra

Students are assigned to this course based on placement tests given prior to taking MATH1020 or MATH1002. The course is designed to teach students the basic mathematical concepts and methods that will prepare them for studying college-level mathematics. Topics include a review of basic arithmetic, an introduction to algebra, and problem-solving techniques. Offered at Charlotte, Online, Providence
1.5 Semester Credits

MATH1002 A Survey of College Mathematics

This course is designed to teach students the basic mathematical concepts and methods that will assist them in using mathematics in both their personal and professional lives. Topics include problem solving, sets, probability, statistics, consumer mathematics, and the rudiments of college algebra. Prerequisite(s): MATH0010 or math placement. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH1020 Fundamentals of Algebra

This course provides students with a working knowledge of the basic elements of algebra. Topics covered include graphing, inequalities, exponents and roots, logarithms, and factoring, and the solution of linear, quadratic, logarithmic, rational and radical equations, as well as systems of linear equations. Prerequisite(s): MATH0010 or math placement. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH1030 Precalculus

This course features the concepts and techniques essential for the study of calculus. Topics include functional notation; algebraic, trigonometric, exponential and logarithmic functions; analytic trigonometry; and matrix algebra. Prerequisite(s): MATH1020 or math placement. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH1035 Quantitative Analysis I

This is a business-oriented mathematics course that features applications in algebra and differential calculus. Topics include linear, quadratic, exponential and logarithmic functions as well as matrices, linear programming, and derivatives. Prerequisite(s): MATH1020 or math placement. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH1040 Calculus I

This course provides students with an introduction to the basic elements of differential and integral calculus. Topics include functions and limits, continuity, differentiation and its applications, relative extrema, and an introduction to integration. Prerequisite(s): MATH1030 or math placement. Offered at Charlotte, Providence
3 Semester Credits

MATH2001 Statistics I

This course is designed to provide students with the basic statistical concepts and techniques that will assist them in both their personal and professional lives. Topics include measures of central tendency and dispersion, probability distributions of both discrete and continuous random variables, sampling distributions, estimation theory, and an introduction to hypothesis testing. Prerequisite(s): MATH1002 or higher (minimum grade of C in MATH1002 or MATH1020 required for hybrid sections of MATH2001). Offered at Charlotte, Online, Providence
3 Semester Credits

MATH2002 Statistics II

This course is a continuation of Statistics I. It is designed to provide students with the statistical concepts and techniques of inferential statistics. Topics include hypothesis testing; testing the difference between two means, two proportions and two variances; correlation and regression; Chi-square tests; analysis of variance; and nonparametric statistics. Prerequisite(s): MATH2001 or MATH2010. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH2010 Introduction to Biostatistics

This course is an introductory statistics course with a focus on applications to biomedical and related fields such as nutrition, pharmacology, ecology, genetics, health and physiology. Topics include descriptive statistics, correlation and regression, statistical studies, elementary probability theory, probability and sampling distributions, estimation theory, and hypothesis testing. Prerequisite(s): MATH1002 or MATH1020. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH2015 Honors Seminar: Experimental Design and Statistics

This course provides students with statistical concepts and techniques that assist them in both their academic and professional lives. Basic concepts such as measures of central tendency and dispersion, probability distributions of both discrete and continuous random variables, sampling distributions and estimation theory are covered, and techniques such as hypothesis testing and correlation are introduced. The course culminates in the application of experimental design to a real-world situation. Prerequisite(s): MATH1002 or higher (minimum grade of C in MATH1002 or MATH1020 is required for hybrid sections of MATH2015), honors or SHARP status. Offered at Charlotte, Providence
3 Semester Credits

MATH2020 Discrete Mathematics

This course is designed to give students the basic mathematical concepts and methods that are prevalent in information science. Topics include logic, sets, relations, functions, algorithms, recurrence relations, elementary graph theory and trees. Prerequisite(s): MATH1020 or math placement. Offered at Charlotte, Online, Providence
3 Semester Credits

MATH2035 Quantitative Analysis II

A continuation of MATH1035, this course further examines the applications of the derivative such as maxima and minima, and marginal analysis. Both indefinite and definite integration are discussed along with their application to business and economics. Partial differentiation and functions of several variables are also presented. Prerequisite(s): MATH1035. Offered at Providence
3 Semester Credits

MATH2040 Calculus II

This course is a continuation of MATH1040. Topics include a detailed treatment of the calculus of transcendental functions, formal integration methods, improper integrals, infinite series, and further topics in analytic geometry. Prerequisite(s): MATH1040. Offered at Providence
3 Semester Credits

MATH2043 Ordinary Differential Equations

This course introduces the student to the field of ordinary differential equations. Topics include methods for solving linear differential equations and their applications, Laplace Transform Methods, and the solution of systems of linear differential equations along with their applications. Prerequisite(s): MATH2040. Offered at Providence
3 Semester Credits

MATH2220 Linear Algebra

Linear algebra is a branch of mathematics that studies systems of linear equations, vector spaces, linear transformations, and the properties of matrices. Main topics covered include linear systems and their solutions, linear transformations, matrix and vector algebra, vector spaces, determinants, eigenvalues and eigenvectors. Students study a variety of interdisciplinary applications and related strategies throughout the course.

Prerequisite(s): MATH1035 or MATH1040.

Offered at Providence

3 Semester Credits

MATH3040 Calculus III

This course is a continuation of MATH2040. It is designed to provide students with a detailed treatment of the calculus of functions of several variables and vectors. Topics include vector algebra, vector-valued functions, partial derivatives, vector differential calculus, and the integration of vector fields including the Divergence Theorem and Stokes' Theorem.

Prerequisite(s): MATH2040.

Offered at Providence

3 Semester Credits

MATH4900 Applied Statistics

In this capstone course, students have the opportunity to apply knowledge obtained in statistics courses to further develop their research and analytical thinking skills. Students take part in three research projects: (1) critical analysis of existing professional statistical papers, (2) data collection in an attempt to support a personal hypothesis, and (3) collaborative research to support one side of an argument in a debate format.

Prerequisite(s): MATH1035 or MATH1040, MATH2002, senior status.

Offered at Providence

3 Semester Credits

MATH5100 Statistical Methods

This course provides the student with an understanding of concepts in experimental design and the connection of these concepts to research validity. Emphasis is placed on the knowledge and skills necessary for the critical evaluation and application of statistical methodology. Topics include but are not limited to experimental design, descriptive statistics, probability distributions, hypothesis testing, and regression.

Offered at Online, Providence

3 Semester Credits