

Mathematics (MAT)

Courses

MAT-006. Elements of Algebra. 0 Credits.

RECI 1 hr LECT 2 hrs

Elements of Algebra integrates the fundamental operations of arithmetic and introductory Algebra. It is intended for students whose placement examination indicates a need for a review of arithmetic and basic Algebra skills. Topics include operations on whole numbers, fractions, decimals, percent and signed numbers, linear equations and inequalities in one variable, operations on polynomials, factoring, integer exponents, and graphing. The course incorporates a Support Lab where students will receive personal assistance with problems or questions assigned as homework to supplement the lectures.

Prerequisites: Appropriate score on a placement test or High School transcript evaluation (Multiple Measures) for recent graduates - Must be completed prior to taking this course.

Additional Fees: Course fee applies.

MAT-007. Foundations of Algebra. 0 Credits.

LECT 2 hrs

This course integrates selected topics of arithmetic and introductory algebra, including operations on whole numbers, fractions, decimals, percent and signed numbers, linear equations and inequalities in one variable, operations on polynomials, factoring, integer exponents, and graphing. Students are required to complete a series of laboratory assignments, which are designed to reinforce concepts based on the placement test results.

Prerequisites: Enrollment based on college's placement criteria.

MAT-009. Basic Mathematics Ia. 0 Credits.

LECT 1 hr

Three (3) hours per day for one week. This is an intensive one-week review of topics typically found on the computation placement test. A passing grade satisfies the Basic Mathematics requirement.

Prerequisites: Appropriate score on a placement test.

MAT-00B. Prereq Albegra 1A. 3 Credits.

LECT 3 hrs

Awardrd by taking college placement test.

MAT-00R. Prereq Elem Alg. Recitation. 0 Credits.

LECT hrs

Awarded by taking the college placement test.

MAT-010. Basic Algebra 1A. 0 Credits.

LECT 1 hr

This is an intensive review of topics typically found on the basic algebra placement test. A passing grade satisfies the Basic Algebra requirement.

Prerequisites: Appropriate score on a placement test.

MAT-016. Intermediate Algebra. 0 Credits.

LECT 3 hrs

A second-level preparatory algebra course designed to prepare students for credit-level mathematics courses. Covered are selected topics, including systems of linear equations, polynomials, factoring, rational expressions, radicals and solving quadratic equations.

Prerequisites: MAT-007 or equivalent Minimum grade P.

MAT-026. Intermediate Algebra Express. 0 Credits.

RECI 1 hr LECT 1 hr

This is an intensive review of Intermediate Algebra in an express format (an alternative to MAT-016) designed for students who require a second-level preparatory Algebra before taking college level Mathematics courses. Covered are selected topics including systems of linear equations, polynomials, factoring, rational expressions, radicals and solving quadratic equations

Prerequisites: Appropriate score on a placement test or appropriate multiple measures placement.

MAT-110. College Algebra. 3 Credits.

LECT 3 hrs

An intensive course designed to prepare students for mathematics courses such as Calculus with Applications to Business and Economics and Precalculus. It covers selected algebra topics including exponents; rational expressions; polynomials, radicals, relations and functions; exponential and logarithmic functions, systems of equations.

Prerequisites: MAT-016, MAT-026 (grade C or better) or equivalent - Must be completed prior to taking this course.

MAT-113. Applied Calculus. 4 Credits.

LECT 4 hrs

A study of topics which provides a basis for continuing courses in mathematics and the physical sciences. This course includes trigonometric, exponential and logarithmic functions; analytic geometry; differentiation and integration.

Prerequisites: MAT-110 or MAT-123 or equivalent.

MAT-114. Introduction to Data Science. 3 Credits.

LECT 3 hrs

Introduction to Data Science will provide students with data literacy skills in order to understand techniques in data manipulation, visualization and interpretation. This project based course will allow students to utilize a toolkit of statistical software to perform data science methods. Ethical issues related to data privacy, authenticity and security will be addressed alongside an introduction to artificial intelligence.

Prerequisites: MAT-016 or MAT-120 or equivalent.

MAT-117. Mathematical Analysis for Business and Economics. 3 Credits.

LECT 3 hrs

Mathematical topics used in business and economics with emphasis on applications. Covered are polynomials, linear and quadratic models, systems of equations, matrix algebra, and linear programming including the Simplex Method.

Prerequisites: MAT-016, MAT-060 (grade of C or better) or equivalent.

MAT-118. Calculus With Application to Business And Economics. 3 Credits.

LECT 3 hrs

A course covering functions, derivatives and integration, with special consideration of applications to the business and economics areas. Partial differentiation is introduced.

Prerequisites: MAT-110 (grade of C or better) or equivalent.

MAT-120. Mathematics for Liberal Arts. 4 Credits.

LECT 4 hrs

A course addressed to liberal arts students. Topics include the history of mathematics, probability, statistics, geometry, number theory, algebra, graphs and functions, and a choice of selected topics.

Prerequisites: MAT-006, MAT-007, MAT-014, MAT-050 or equivalent.

MAT-123. Precalculus. 4 Credits.

LECT 4 hrs

An intensive one-semester course to prepare students for Analytic Geometry and Calculus, including absolute values; relations; functions; equations; inequalities; polynomial, rational, trigonometric, inverse trigonometric, exponential and logarithmic functions; trigonometric equations and identities; and graphs.

Prerequisites: MAT-110 (grade of C or better) or equivalent.

MAT-124. Statistics. 3 Credits.

LECT 3 hrs

The fundamental principles of statistical methods. Descriptive statistics, correlation, regression, probability, binomial and normal distributions, sampling, elementary hypothesis testing, confidence intervals and ethical issues in statistics are included.

Prerequisites: MAT-016, MAT-060, MAT-120 or equivalent.

MAT-130. Probability and Statistics. 4 Credits.

LECT 4 hrs

The fundamental principles of statistical methods. Descriptive statistics, correlation, regression, probability, binomial and normal distributions, sampling, hypothesis testing, confidence intervals and ethical issues in statistics are included. An introduction to the use of statistical software to analyze data will be emphasized.

Prerequisites: MAT-016, MAT-060 or MAT-120 or equivalent.

MAT-131. Analytic Geometry and Calculus I. 4 Credits.

LECT 4 hrs

The first semester of a three-semester sequence. Analytic geometry in the plane, differentiation and applications, and integration are covered.

Prerequisites: MAT-123 (grade of C or better) or equivalent.

MAT-132. Analytic Geometry and Calculus II. 4 Credits.

LECT 4 hrs

A continuation of Analytic Geometry and Calculus I, which covers the calculus of inverse trigonometric functions, methods of integration, analytic geometry in the plane including polar coordinates and conic sections, hyperbolic functions, sequences and series, and parametric equations.

Prerequisites: MAT-131 (grade of C or better) or equivalent.

MAT-140. Math for Radiographers. 1 Credit.

LECT 1 hr

This course discusses the math skills that are crucial in the healthcare environment. It teaches the basis measurements, calculations, percents, ratios, and proportions, scientific notation, metric conversions, basis algebraic principles and basic geometric principles used in Radiology. It reviews whole numbers, fractions, decimals and exponents. Radiology units and numeric prefixes are also discussed.

Prerequisites: MAT-016 or MAT-026 and admission to the Radiography program - Must be completed prior to taking this course.

Corequisites: RAD-100, RAD-104 and RAD-107.

MAT-183. Honors Probability and Statistics. 4 Credits.

LECT 4 hrs

An introduction to the principles of statistical methods. The course will integrate spreadsheet software to cover such topics as descriptive statistics, correlation, regression, probability, binomial and normal distributions, sampling, elementary hypothesis testing and confidence intervals. This course will also cover ethical issues in statistics. Comprehensive case studies will be covered throughout the semester. An introduction to the use of statistical software to analyze large data sets will be emphasized.

Prerequisites: Permission of department chair or honors advisor.

MAT-210. Probability and Statistics II. 4 Credits.

LECT 4 hrs

This course is a continuation of statistical analysis from Probability and Statistics. Techniques for collection and analysis of data emphasizing estimation and hypothesis testing, analysis of variance and regression analysis are included. Also included are nonparametric testing and an introduction to multiple regression. A focus on analyzing large data sets using statistical software.

Prerequisites: MAT-124 or MAT-130 or MAT-183 or equivalent (grade of C or better).

MAT-221. Internship Experience - Quantitative analysis (45-100 Hours). 1 Credit.

COOP 1 hr

This course provides students with job training and practical experience in a work environment prior to permanent employment, amounting to between 45-100 hours in duration. Students will gain experience working with industry partners and developing both technology and soft skills required to work in a quantitative discipline such as a mathematician, statistician, or data scientist. Students will engage in the data science process that should consist of quantitative or statistical analysis in an industry setting. Students desiring to participate in this experience should make their intention known to the Department Chairperson or the Faculty Coordinator prior to the beginning of semester.

Prerequisites: CMP-131 or MAT-114 or MAT-130 or permission from department Chairperson.

MAT-222. Internship Experience - Quantitative analysis (90-200 Hours). 2 Credits.

COOP 2 hrs

This course provides students with job training and practical experience in a work environment prior to permanent employment, amounting to between 90-200 hours in duration. Students will gain experience working with industry partners and developing both technology and soft skills required to work in a quantitative discipline such as a mathematician, statistician, or data scientist. Students will engage in the data science process that should consist of quantitative or statistical analysis in an industry setting. Students desiring to participate in this experience should make their intention known to the Department Chairperson or the Faculty Coordinator prior to the beginning of semester.

Prerequisites: CMP-131 or MAT-114 or MAT-130 or permission from department.

MAT-223. Internship Experience - Quantitative Analysis (135-300 Hours). 3 Credits.

COOP 3 hrs

This course provides students with job training and practical experience in a work environment prior to permanent employment, amounting to between 135-300 hours in duration. Students will gain experience working with industry partners and developing both technology and soft skills required to work in a quantitative discipline such as a mathematician, statistician, or data scientist. Students will engage in the data science process that should consist of quantitative or statistical analysis in an industry setting. Students desiring to participate in this experience should make their intention known to the Department Chairperson or the Faculty Coordinator prior to the beginning of semester.

Prerequisites: CMP-131 or MAT-114 or MAT-130 or permission from department.

MAT-225. Discrete Mathematics. 4 Credits.

LECT 4 hrs

This is a 4-credit course in discrete mathematics. It is offered to math & computer science majors in their first two years of study. The course outline shows it is an exposition of real-world and modern mathematics. Discrete Mathematics covers a breadth of unique topics in number theory, graph theory, set theory, probability and statistics, and propositional logic.

Prerequisites: MAT-131.

MAT-228. Linear Algebra. 3 Credits.

LECT 3 hrs

Selected topics including matrices and determinants, vectors and vector spaces, linear transformations, eigenvalues and eigenvectors, with applications from a variety of disciplines.

Prerequisites: MAT-132 (grade of C or better) or equivalent.

MAT-230. Calculus III. 4 Credits.

LECT 4 hrs

A continuation of Analytic Geometry and Calculus II which includes analytic geometry in three dimensions, functions of several variables, partial derivatives, multiple integrals, vectors and an introduction to vector analysis.

Prerequisites: MAT-132 (grade of C or better) or equivalent.

MAT-232. Differential Equations. 3 Credits.

LECT 3 hrs

Ordinary differential equations and methods of solution. Introduction to classical equations and their solutions, with some applications to geometry, physics and engineering.

Prerequisites: MAT-132 (grade of C or better) or equivalent.

MAT-244. Ordinary Differential Equations. 4 Credits.

LECT 4 hrs

A course in methods for solving ordinary differential equations. Introduction to classical equations and their solutions, physical applications, Laplace Transforms, numerical solutions, and Fourier Series.

Prerequisites: MAT-132 (grade of C or better) or equivalent.

MAT-ELE. Mathematics Elective. 3-4 Credits.

LECT 3 hrs

Pseudo course holder for Stu Planner.