

MATHEMATICS (MAT)

MAT-024 ELA Mathematics Vocabulary and Usage (1)

Prepares non-native English speakers for mathematics coursework. Emphasizes student interaction and discussions regarding terminology typically encountered in math courses. Arts & Sciences Elective Code: D
Hours per week: 1.0 lecture

MAT-043 Integrated Mathematics (2)

Supports success in MAT-115 through group instruction. Develops skills required for success in college-level mathematics, including algebra skills, proportional thinking, and quantitative reasoning. Arts & Sciences Elective Code: D
Hours per week: 2.0 lecture

Prerequisite: Take MAT-052 or equivalent placement test score.

Corequisite: Take MAT-115.

MAT-052 Pre-Algebra (3)

Introduces basic algebra concepts and reviews basic math. Includes fractions, decimals, proportions and percents. Introduces integers, exponents, simple equations and graphing. Arts & Sciences Elective Code: D
Hours per week: 3.0 lecture

MAT-059 Introduction to Technical Mathematics (2)

Prepares the student for the study of technical mathematics. Concentrates on algebraic skills and other related math skills. Arts & Sciences Elective Code: D
Hours per week: 2.0 lecture

MAT-076 Preparation for College Mathematics (3)

Emphasizes active computer-based learning supported by instructor guidance and small group lectures. Includes signed numbers, fractions, decimals and percents, geometry and measurement, and algebraic expressions and equations. May include linear equations and inequalities, polynomials and factoring. Arts & Sciences Elective Code: D
Hours per week: 3.0 lecture

Prerequisite: Take MAT-052

MAT-095 Personal Achievement Math (1)

Provides one-on-one and group supplemental instruction in any pre-college level mathematics course. Must be registered concurrently in a separate mathematics course. Arts & Sciences Elective Code: D
Hours per week: 2.0 lab

MAT-102 Intermediate Algebra (4)

Includes equations, inequalities, systems of equations, matrices, functions, graphs, polynomials, rational expressions, exponents, radicals and logarithms. Arts & Sciences Elective Code: B
Hours per week: 4.0 lecture

Prerequisite: MAT-707, MAT-076 through Module 8, or a qualifying placement test score

MAT-103 Applied Math for Manufacturing (1)

Provides practical application of math theory to the manufacturing sector. Serves as a technical math course taken in conjunction with emporium math. Introduces trigonometry as it relates to manufacturing, specifically targeting Computer Numeric Controlled Machining and processes that use precision CNC press brakes and manual press brakes. Arts & Sciences Elective Code: B
Hours per week: 1.0 lecture

Corequisite: Take MAT-232

MAT-115 Mathematics and Society (3)

Introduces selected areas of mathematics in familiar settings and develops conceptual and problem-solving skills. Includes a study of mathematical concepts selected from statistics, probability, game theory, growth patterns and coding information. Other topics may be included. Arts & Sciences Elective Code: A
Hours per week: 3.0 lecture

Prerequisite: Take MAT-607, MAT-707, or MAT-102, or a qualifying placement test score.

MAT-117 Math for Elementary Teachers (3)

Deepens understanding of the mathematics taught to elementary school children. Emphasizes problem-solving, communication, connections, and reasoning. Includes whole numbers, rational numbers, numeration systems, arithmetic operations, percent, sets, probability, and algebraic reasoning. Primarily for those planning to transfer into an education major at a 4-year institution. Arts & Sciences Elective Code: A
Hours per week: 3.0 lecture

Prerequisite: Take MAT-607, MAT-707, or MAT-102, or a qualifying placement test score.

MAT-120 College Algebra (3)

Uses a problem-solving approach to illustrate how algebra can model and solve real-world problems. Emphasizes linear, exponential and logarithmic functions. This liberal arts course is not preparation for calculus. Arts & Sciences Elective Code: A
Hours per week: 3.0 lecture

Prerequisite: Take MAT-102, MAT-707 or MAT-708, or a qualifying placement test score.

MAT-136 Trigonometry and Analytic Geometry (5)

Examines trigonometric functions, graphs, trigonometric identities, applications and equations. Includes polar form of complex numbers, conic sections, polar coordinates, parametric equations, vectors, and three-dimensional geometry. Arts & Sciences Elective Code: A
Hours per week: 5.0 lecture

Prerequisite: Take MAT-138 or a qualifying placement test score.

MAT-138 College Algebra with Limits (4)

Examines polynomial, rational, radical, exponential and logarithmic functions, and solutions to equations for those functions. Includes matrices, sequences, series and introduces limits. Intended as a calculus-track course. Arts & Sciences Elective Code: A
Hours per week: 4.0 lecture

Prerequisite: Take MAT-102, MAT-708 or a qualifying placement test score.

MAT-140 Finite Math (3)

Includes methods of solving linear equations and inequalities. Introduces linear programming, matrices, functions, graphs, counting techniques, probability, mathematics of finance and applications. Arts & Sciences Elective Code: A

Hours per week: 3.0 lecture

Prerequisite: Take MAT-102, MAT-707 or MAT-708, or a qualifying placement test score.

MAT-149 Linear Algebra (3)

Includes matrix and vector arithmetic, using matrices to solve systems of linear equations, eigenvalues and eigenvectors, diagonalization of matrices, and an introduction to subspaces of Euclidean space. Arts & Sciences Elective Code: A

Hours per week: 3.0 lecture

Prerequisite: Take MAT-210.

MAT-150 Discrete Math (3)

Introduces concepts in discrete mathematics as applied to computer science. Includes logic, methods of proof, sets, counting techniques, discrete probability, permutations and combinations, graphs and trees, mathematical induction, and recursion. Emphasizes connections between discrete math and programming concepts. Arts & Sciences Elective Code: A

Hours per week: 3.0 lecture

Prerequisite: Take MAT-102 or MAT-708, or a qualifying placement test score.

MAT-157 Statistics (4)

Focuses on descriptive statistics (mean, median, mode, standard deviation and variance) and introduces correlation and linear regression. Emphasizes inferential statistics and probability distributions as applied to confidence intervals, hypothesis testing of means and proportions, and applications to business and other fields. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-607, MAT-707, MAT-115, MAT-155 or MAT-102, or a qualifying placement test score.

MAT-162 Business Statistics (4)

Introduces statistics, primarily for business majors. Investigates methods of collection, organization, presentation, analysis and interpretation of data in the context of effective business decision-making. Utilizes computer applications to visualize and analyze data. Covers descriptive statistics, probability, inferential procedures including confidence intervals and hypothesis testing for one and two samples, regression, correlation and chi-square. Covers ANOVA if time allows. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-138, MAT-140, MAT-157 or MAT-163, or a qualifying placement test score.

MAT-163 Quantitative Reasoning for Business (4)

Covers algebra techniques, functions (including exponential and logarithmic), modeling, limits, and a thorough introduction to differential calculus. Focuses on applying quantitative methods to solve problems that arise in management and economic sciences and other related areas. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-102 or MAT-708, or have a qualifying placement test score.

MAT-165 Business Calculus (3)

Emphasizes techniques and applications of differential and integral calculus to business economics. Arts & Sciences Elective Code: A

Hours per week: 3.0 lecture

Prerequisite: Take MAT-138 or a qualifying placement test score.

MAT-210 Calculus I (4)

Introduction to limits, differentiation, applications of the derivative, the definite and indefinite integral including The Fundamental Theorem of Calculus, and an introduction to differential equations. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-136 or a qualifying placement test score.

MAT-216 Calculus II (4)

Continues Calculus I. Includes integration, applications of integration used in applied disciplines, differential equations, Taylor series, and calculus in polar coordinates. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-210.

MAT-219 Calculus III (4)

Continues Calculus II. Includes study of vector functions, function of several variables, multiple integrals and vector fields. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-216.

MAT-227 Differential Equations With Laplace (4)

Studies exact equations, separable equations, linear equations, physical applications, series solutions, systems of linear differential equations, and methods of approximating the solutions to first-order equations. Introduces Laplace transforms that are used to solve differential equations. Arts & Sciences Elective Code: A

Hours per week: 4.0 lecture

Prerequisite: Take MAT-216.

MAT-232 Applied Industrial Math for Technicians (3)

Reviews mathematical principles and fundamentals that enable students to understand and apply course material throughout the Industrial Maintenance, Energy Production and Automation programs. Covers metric prefixes, conversions, exponents, scientific notation, engineering notation, ratios, proportions binary, geometry, dimensional analysis and algebraic expressions. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

MAT-234 Applied Electrical Math for Technicians (1)

Reviews mathematical principles and fundamentals utilized throughout the Industrial Maintenance, Energy Production and Automation programs. Covers area, volume, electrical formulas and series, parallel and series parallel circuits. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture

Pre/corequisite: Take MAT-052.

MAT-607 Survey of Data (3)

Introduces algebraic and statistical content intended to prepare students for a college-level statistics or liberal arts math course. Includes sampling methods, graphical, tabular, and numerical summaries of data, scatterplots and linear associations, linear models and slope, functions, and working with formulas. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

Prerequisite: Take MAT-052 or MAT-772.

MAT-707 Algebra Mastery 1 (3)

Continues modules from MAT-076, including linear equations and inequalities, polynomials, factoring, and systems of linear equations and inequalities. Emphasizes active, computer-based, individually-paced learning supported by instructor guidance and small-group lectures. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

Prerequisite: Take MAT-076.

MAT-708 Algebra Mastery 2 (3)

Continues modules from MAT-707, including rational and radical expressions and equations, exponential and logarithmic functions, and quadratic equations. Emphasizes active, computer-based, individually-paced learning supported by instructor guidance and small-group lectures. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

Prerequisite: Take MAT-707.

MAT-715 Industrial Math I (3)

Covers basic math skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice and solving stated problems and covers introductory algebra concepts.

Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

MAT-716 Industrial Math II (3)

Covers basic algebra as it relates to fundamental equations, ratios and proportion, and percentages. Covers applied geometry as it relates to finding length, area, volume, etc. Incorporates basic right angle trigonometry and provides practice in solving stated problems. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

Prerequisite: Take MAT-052.

MAT-719 Applied HVAC Math (3)

Provides instruction in basic math skills such as addition, subtraction, multiplication, and division of whole numbers and fractions. Includes ratio and proportion, percent and percentage, computed measure, and heat load calculations. Covers specific math concepts related to HVAC and terminology technicians will encounter in the field. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

MAT-735 Machinist Mathematics I (2)

Begins with a review of fractions and decimals as they are used to solve shop problems. Students are introduced to the problems involving powers and roots, tapers and angles. Use of the calculator is introduced, along with handbook tables and formulas. Introduces the student to metric conversion and more advanced applied math involving calculations of area, volume and weight of material. Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture

MAT-736 Machinist Mathematics II (1)

Continues Machinist Mathematics I. Introduces students to more advanced practical mathematics. Includes metric conversion, area and volume calculation, temperature conversion and expansion of metals. Right angle trigonometry is introduced along with calculations that relate to numerical control programming. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture

Prerequisite: Take MAT-735.

MAT-737 Applied Plumbing Math (3)

Provides instruction on the applied mathematics used in the plumbing and pipefitting industries. Reviews addition, subtraction, multiplication, division of whole numbers and fractions, and measurement conversions. Includes pipefitting dimensions and diameters, fitting allowances or make-up dimensions, 90, 60, 45 and 22 1/2 degree piping offsets, parallel offsets and rolling offsets. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

MAT-738 Applied Plumbing Math II (1)

Provides instruction on plumbing trade calculations including British Thermal Units (BTUs), heat transfer, heat loss and heat gain, latent and sensible heat, volume, weight and surface area calculations, percentage calculations, water and head pressure calculations, Boyle's Law, and the applications of Boyle's Law. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture

Prerequisite: Take MAT-737.

MAT-745 Technical Mathematics I (4)

Studies applied math with emphasis on high-skilled calculations. Includes concepts of basic algebra, functions and graphs, trig functions, geometry, quadratic equations, exponents and radicals, systems of equations, and determinants. Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

Prerequisite: CAD/Mechanical Engineering students take MAT-076, MAT-107 or appropriate math placement score. Electronics Engineering students take MAT-052 or 22 on ALEKS placement test.

MAT-746 Technical Mathematics II (4)

Includes logarithms and exponentials, solving nonlinear equations, variation, sequences, binomial theorem, trig identities, analytic geometry and statistics. Introduces the fundamental concepts of calculus, including limits, the derivative, definite and indefinite integrals and applications of each. Emphasizes solving problems relevant to the mechanical engineering field. Arts & Sciences Elective Code: B
Hours per week: 4.0 lecture

Prerequisite: Take MAT-745.

MAT-755 Fabrication Math I (2)

Covers basic math skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Introduces linear measurement with emphasis on common measurement tools and techniques, scientific calculators, handbook tables, formulas, basic algebraic concepts, metric conversion, and applied problems of calculating area, volume, mass and weight. Arts & Sciences Elective Code: B
Hours per week: 2.0 lecture

MAT-756 Fabrication Math II (2)

Continues Fabrication Math I. Introduces students to more advanced practical mathematics, including plane geometry and trigonometry, by resolving real industry problems. Arts & Sciences Elective Code: B
Hours per week: 2.0 lecture

Prerequisite: Take MAT-755.

MAT-765 Welding Mathematics (3)

Covers basic algebra as it relates to fundamental equations, ratios and proportions, and percentages. Incorporates basic right angle trigonometry and provides for additional practice in solving stated problems. Arts & Sciences Elective Code: B
Hours per week: 3.0 lecture

MAT-772 Applied Math (3)

Covers basic mathematical skills for students in career and technical fields. Focuses on computing with whole numbers, fractions, decimals, and signed numbers; percents; evaluating formulas; ratio and proportion as a problem-solving tool; the metric system; measurement; basic algebra; and reading tables and graphs. Arts & Sciences Elective Code: B
Hours per week: 3.0 lecture

MAT-924 Honors Project (1)

Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean
Hours per week: 1.0 lecture

MAT-928 Independent Study (1)

Allows for a special concentration of study under the guidance of a faculty member. Requires an independent study contract. May be taken more than once. Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean
Hours per week: 2.0 lab