Mathematics (MAT)

MAT 1070   Business Mathematics   .... 3 Credit Hours
Equivalent: MAT 1010
This course includes a review of addition, subtraction, multiplication, and division of whole numbers, fractions and decimals, computing the average, and working with percent. The applications include payroll, cash and trade discounts, invoices, markup and markdown, depreciation, small loans, purchasing, simple and compound interest, and annuities with an emphasis on using business formulas to solve problems. BILLABLE CONTACT HOURS: 3

MAT 1125   Math Literacy   ....4 Credit Hours
Equivalent: MAT 1125E
Prerequisite: MAT 1050 with a 'C' or better within the last three years or appropriate math placement within the last two years.
This course will provide skills necessary to be successful in college level math courses such as Statistics or Quantitative Reasoning. Topics include numeracy, mathematical thinking and investigations, proportional reasoning, basic algebra concepts, linear and exponential functions and basic statistical concepts. Real-life applications, graphing calculators, spreadsheets, and internet resources are integrated throughout the course. This course is designed for non-STEM (Science, Technology, Engineering and Mathematics) students. BILLABLE CONTACT HOURS: 4

MAT 1125E   Math Literacy - Enhanced   .... 5 Credit Hours
Equivalent: MAT 1125
Prerequisite: Appropriate math placement within the last two years or consent of instructor.
Students will receive additional instruction and practice on math and academic skills to build success in this Enhanced MAT 1125. This course will provide skills necessary to be successful in college level math courses such as Statistics or Quantitative Reasoning. Topics include numeracy, mathematical thinking and investigations, proportional reasoning, basic algebra concepts, linear and exponential functions and basic statistical concepts. Real-life applications, graphing calculators, spreadsheets, and internet resources are integrated throughout the course. This course is designed for non-STEM (Science, Technology, Engineering and Mathematics) students. BILLABLE CONTACT HOURS: 5

MAT 1150   Intermediate Algebra   .... 4 Credit Hours
Equivalent: MAT 1130
Prerequisite: MAT 1100 or equivalent college transfer course with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1150 within the last two years. Must be completed prior to taking this course.
Review of basics from elementary algebra; absolute value equations and inequalities; radical and rational exponents; complex numbers; completing the square; the discriminant; quadratic inequalities; equations of lines; systems of equations; functions, inverses and their graphs; word problems; exponential and logarithmic functions. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1150E   Intermediate Algebra - Enhanced   ....2 Credit Hours
Prerequisite: MAT 1050 or equivalent college transfer course with a grade of 'B-' or better within the last three years or appropriate math placement into MAT 1150E within the last two years or consent of instructor.
Students will receive additional instruction in prior algebra skills needed for successful completion of MAT 1150. This course will be taken concurrently with a designated section of MAT 1150. BILLABLE CONTACT HOURS: 2
GE Outcomes: Quantitative Literacy

MAT 1500   Finite Mathematics   ....4 Credit Hours
Prerequisite: MAT 1150, MAT 1150E, MAT-1150S or equivalent college transfer course with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1500 within the last two years.
Designed primarily for business and social science students. Elementary functions, systems of linear equations, linear models, matrix theory, linear programming, set theory, combinatorials, probability theory, and decision making. NOTE: This course will not substitute for MAT 1540, MAT 1560, or MAT 1630 as preparation for MAT 1730. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1525   Quantitative Reasoning   ....4 Credit Hours
Prerequisite: MAT 1125, MAT 1125E, MAT 1150, MAT 1150E or MAT 1150S with a 'C' or better within the last three years or appropriate math placement within the last two years.
This course is a liberal arts class intended for students who are pursuing degrees and/or programs that do not require courses in statistics, pre-calculus or the calculus sequence. Upon completion of the course, students will be able to represent and communicate mathematical information symbolically, visually, graphically and numerically. Topics include problem solving, sets, logic, statistical reasoning, probability, finance, applications of equations and applications of functions. The types of functions include linear, quadratic, exponential and logarithmic. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1540   College Algebra   ....4 Credit Hours
Equivalent: MAT 1550
Prerequisite: MAT 1150, MAT 1150E, MAT 1150S or equivalent college transfer course with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1540 within the last two years.
Brief review of algebra fundamentals; equations quadratic in form; rational inequalities; graphing polynomials and rational functions; algebra of functions; including composition; inverse functions; theory of equations, Rational Root Theorem and Descartes' Rule; exponential and logarithmic functions; matrices, determinants and linear programming; partial fractions; conic sections; sequences and series; permutations and combinations; Binomial Theorem. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1540E   College Algebra - Enhanced   ....2 Credit Hours
Prerequisite: MAT 1100 or equivalent college transfer course with a grade of 'B-' or better within the last three years or appropriate math placement into MAT 1540E within the last two years or consent of instructor.
Students will receive additional instruction in prior algebra skills needed for successful completion of MAT 1540. This course will be taken concurrently with a designated section of MAT 1540. BILLABLE CONTACT HOURS: 2
GE Outcomes: Quantitative Literacy

MAT 1560   Trigonometry   ....3 Credit Hours
Prerequisite: MAT 1150, MAT 1150E, MAT-1150S or equivalent college transfer course with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1560 within the last two years.
Definition of the trigonometric functions as circular functions; graphs of the trigonometric functions; development and use of identities; solution of equations; inverse functions; applications; definition of the functions in a right triangle; solution of right triangles; solution of non-right triangles by use of Law of Sines and Law of Cosines; vectors; polar coordinates. BILLABLE CONTACT HOURS: 3
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1580   Statistics   .... 4 Credit Hours
Equivalent: MAT 1530 | MAT 1310
Prerequisite: MAT 1125, MAT 1125E, MAT 1150, MAT 1150E or MAT 1150S with a 'C' or better within the last three years; or appropriate math placement within the last two years.
Organization and presentation of data; analysis of data, including mean, median, mode, range, and standard deviation; elementary probability theory using combinations and permutations; Binomial Distribution; Normal Distribution; Student Distribution; Chi-square Distribution; F-Distribution; hypothesis testing; estimation, regression and correlation, analysis of variance (ANOVA), non-parametric statistics. Introduction to statistical analysis using current technology. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1580E   Statistics - Enhanced   .... 2 Credit Hours
Prerequisite: MAT 1100 or equivalent college transfer course with a grade of 'B-' or better within the last three years or appropriate math placement into MAT 1580E within the last two years or consent of instructor.
Organization and presentation of data; analysis of data, including mean, median, mode, range, and standard deviation; elementary probability theory using combinations and permutations; Binomial Distribution; Normal Distribution; Student Distribution; Chi-square Distribution; F-Distribution; hypothesis testing; estimation, regression and correlation, analysis of variance (ANOVA), non-parametric statistics. Introduction to statistical analysis using current technology. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1600   Applied Calculus   ....4 Credit Hours
Prerequisite: MAT 1500, MAT 1540, MAT 1540E or equivalent college transfer course with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1600 within the last two years. Designed primarily for business and social science students. Elementary functions, the limit of a function, the derivative, techniques of differentiation, the exponential and logarithmic functions with derivatives and applications, the integral, techniques of integration, applications of the integral, and introduction to multi-variable calculus. Note: Will not substitute for MAT 1730. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1630   Precalculus   ....5 Credit Hours
Equivalent: MAT 1610
Prerequisite: Placement into MAT 1630 within the last two years.
This course is an accelerated course that assumes prior exposure to college algebra and trigonometry concepts. The course covers equations and inequalities; absolute value, exponents and radicals. It includes functional notation; composition of functions; inverse functions; rational, polynomial, exponential, logarithmic, trigonometric and inverse trigonometric functions, including graphing and solving equations. Additionally, trigonometric identities, right triangle trigonometry, Law of Sines and Law of Cosines are covered. BILLABLE CONTACT HOURS: 5
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1730   Calculus I   ....4 Credit Hours
Equivalent: MAT 1710
Prerequisite: MAT 1630 or equivalent college transfer course with a grade of 'C' or better within the last three years or MAT 1540 and MAT 1560 or equivalent college transfer courses each with a grade of 'C' or better within the last three years or appropriate math placement into MAT 1730 within the last two years.
Limits; continuity; concept of the derivative; differentiation of algebraic and transcendental functions; applications of the derivative; antidifferentiation; the indefinite integral; the definite integral; the Fundamental Theorem of Calculus; numerical integration; integration involving logarithmic functions; some applications of the integral. Some of the course concepts will be explored and/or enhanced with current technology. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Quantitative Literacy

MAT 1740   Calculus II   ....4 Credit Hours
Prerequisite: MAT 1730 or equivalent college transfer course with a grade of 'C' or better.
Integrals involving inverse trigonometric functions; hyperbolic functions; an introduction to differential equations; applications of the definite integral; techniques of integration; limits of indeterminate forms; improper integrals; two-dimensional analytic geometry using polar coordinates and parametric equations; infinite series. Some of the course concepts will be explored and/or enhanced with current technology. BILLABLE CONTACT HOURS: 4

MAT 2530   Mathematics for Elementary Teachers I   ....4 Credit Hours
Equivalent: MAT 2510
Prerequisite: MAT 1150, MAT 1150E or MAT-1150S with a 'C' or better within the last three years; or appropriate math placement within the last two years.
This course is designed for students intending to major in elementary education, and will provide mathematical understanding necessary to teach mathematics in elementary schools. National Council of Teachers of Mathematics (NCTM) Standards will be followed. Topics include problem solving techniques, set theory, logic, numeration systems, modeling and development of algorithms for arithmetic including the sets of whole numbers, integer and rational numbers, and number theory using virtual and physical manipulatives. Students will observe an elementary (K-8) math class session. BILLABLE CONTACT HOURS: 4
GE Outcomes: Critical Thinking, Effective Communication, Quantitative Literacy

MAT 2540   Mathematics for Elementary Teachers II   ....4 Credit Hours
Prerequisite: MAT 2530 with a 'C' or better within the last three years.
This course is the second of a two course sequence designed for students intending to major in elementary education, and will provide mathematical understanding necessary to teach mathematics in elementary schools. NCTM and AMATYC standards will be followed. Topics include solving equations and inequalities, graphs and equations of function, introductory probability, introductory statistics, geometric figures, measurement and transformational geometry using virtual and physical manipulatives. BILLABLE CONTACT HOURS: 4

MAT 2740   Calculus III   ....4 Credit Hours
Prerequisite: MAT 1740 or equivalent college transfer course with a
grade of 'C' or better.
Three-dimensional analytic geometry and vectors; multivariable functions;
partial differentiation with applications; multiple integrals and applications;
cylindrical coordinates; vector calculus. Some of the course concepts
will be explored and/or enhanced with current technology. BILLABLE
CONTACT HOURS: 4

MAT 2810   Differential Equations   ....4 Credit Hours
Prerequisite: MAT 1740 or equivalent college transfer course with a
grade of 'C' or better.
This is a first course in ordinary differential equations. It includes solution
of principal types of first order differential equations with applications,
solution of higher order linear equations by undetermined coefficients and
by variation of parameters, solution by using infinite power series, solution
of linear equations by Laplace Transforms, matrix solution of systems of
linear differential equations, and solution and applications of higher order
differential equations. BILLABLE CONTACT HOURS: 4

MAT 2880   Linear Algebra   ....4 Credit Hours
Prerequisite: MAT 1740 or equivalent college transfer course with a
grade of 'C' or better.
The topics covered are systems of linear equations, matrix operations
and properties of matrices, vector spaces (subspaces of Rn linear
transformations, determinants, Eigenvectors and Eigenvalues,
diagonalization and inner products. Although not required, MAT 2740
is recommended before enrolling in this course. BILLABLE CONTACT
HOURS: 4