

MATHEMATICS (MATH)

MATH C030 4 Units (72 lecture hours)

Intermediate Algebra

Prerequisite(s): MATH C010 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass
Not Transferable.

Review of elementary algebra, linear and quadratic equations, curve plotting, exponents, radicals, polynomials, systems of equations/inequalities, nonlinear equations, logarithmic and exponential functions, complex numbers, and applications. Graded or Pass/No Pass option.

MATH C044 5 Units (90 lecture hours)

Combined Basic Mathematics and Pre-Algebra

Grading Mode: Pass/No Pass
Not Transferable.

This course prepares students with the basic math principles and foundation for Elementary Algebra (MATH C010). The course content is equivalent to that covered separately in Basic Arithmetic (MATH C005) and Pre-Algebra (MATH C008). The course develops number and operation sense with regard to whole numbers, integers, rational numbers, mixed numbers, and decimals. Also included are grouping symbols, order of operations, estimation and approximation, scientific notation, ratios, percents, proportions, geometric figures, and units of measurement with conversions. An introduction to algebraic topics, including simple linear equations, algebraic expressions and formulas, and practical applications of the material are also covered. All topics will be covered without the use of a calculating device. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C045 6 Units (108 lecture hours)

Combined Elementary and Intermediate Algebra

Prerequisite(s): MATH C008 or C044 with a passing grade or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass
Not Transferable.

Numerical and algebraic operations, number systems, linear and quadratic equations/inequalities, exponents, polynomials, radicals, curve plotting, systems of equations/inequalities, nonlinear equations, logarithmic and exponential functions, complex numbers, and applications. Graded or Pass/No Pass option.

MATH C046 5 Units (90 lecture hours)

Statistics Pathway

Grading Mode: Standard Letter, Pass/No Pass
Not Transferable.

Statistics Pathway is recommended for majors that require no mathematics beyond college-level statistics, MATH C160. The course covers requisite topics from Algebra including linear equations and inequalities, linear regression analysis, exponential functions, exponential equations, descriptive statistics, probability, sampling distributions including the Normal distribution, and the use of graphing calculators and/or computer software. Please see a counselor for more information. Graded or Pass/No Pass option.

MATH C091 2 Units (36 lecture hours)

Support for College Algebra

Co-requisite(s): MATH C115.

Grading Mode: Pass/No Pass
Not Transferable.

This course covers the underlying algebra skills and concepts, along with mathematical problem solving and study skills that promote or are needed for success in College Algebra. Concurrent enrollment in specified sections of MATH C115 is required. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C092 2 Units (36 lecture hours)

Support for Trigonometry

Co-requisite(s): MATH C120.

Grading Mode: Pass/No Pass
Not Transferable.

A concurrent support course designed to review prerequisite topics necessary for success in MATH C120, Trigonometry, covering operations with real numbers, relations and functions, systems of linear equations, factoring, rational expressions, quadratic equations, conic sections, and basic geometry. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C094 2 Units (36 lecture hours)

Support for Business Calculus

Co-requisite(s): MATH C140.

Grading Mode: Pass/No Pass
Not Transferable.

Math C094 is a concurrent support course for MATH C140, Business Calculus. It is designed to review prerequisite skills necessary for success. Topics include the structure and properties of number systems; applications, solution and graphs of polynomials, rational, exponential, logarithmic functions; matrices; sequences and series. It prepares students for MATH C140. Concurrent enrollment in specified sections of MATH C140 may be required. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C096 2 Units (36 lecture hours)

Support for Introduction to Statistics

Co-requisite(s): MATH C160.

Grading Mode: Pass/No Pass
Not Transferable.

This course covers the underlying algebra skills and concepts, along with mathematical problem solving and study skills, that promote or are needed for success in Introduction to Statistics. Concurrent enrollment in specified sections of MATH C160 is required. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C097 2 Units (36 lecture hours)

Support for Precalculus
Co-requisite(s): MATH C170.

Grading Mode: Pass/No Pass
 Not Transferable.

A concurrent support course designed to review prerequisite topics necessary for success in MATH C170, Precalculus, covering algebra skills and concepts, along with mathematical problem solving and study skills that promote or are needed for success in College Algebra, and basic geometry for success in Trigonometry. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C098 2 Units (36 lecture hours)

Support for Calculus 1
Co-requisite(s): MATH C180.

Grading Mode: Pass/No Pass
 Not Transferable.

Math C098 is a concurrent support course for MATH C180 (Calculus 1). It is designed to review prerequisite skills necessary for success. Topics include the structure and properties of number systems; applications, solution and graphs of polynomials, rational, exponential, logarithmic and trigonometric functions; matrices; sequences and series; analytic geometry. Prepares students for MATH C180. Concurrent enrollment in specified sections of MATH C180 is required. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C099 2 Units (36 lecture hours)

Support for Liberal Arts Mathematics
Co-requisite(s): MATH C100.

Grading Mode: Pass/No Pass
 Not Transferable.

A concurrent support course for MATH C100, Liberal Arts Mathematics, designed to review prerequisite skills necessary for success. Topics include operations with real numbers; conversion between decimals, percents, and fractions; selected algebraic topics essential to Liberal Arts Mathematics; the graph of a line; and problem-solving strategies. Pass/No Pass. (NOT DEGREE APPLICABLE.)

MATH C100 3 Units (54 lecture hours)

Liberal Arts Mathematics
Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

Examines the mathematics involved in personal finance, environmental issues, the social sciences, politics and voting, business and economics, graph theory, fractals, art, and music. The course will also include a writing and research component. Graded or Pass/No Pass option.

MATH C101 3 Units (54 lecture hours)

Applied Mathematics
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU.

This course offers the student an applications-oriented, problem-solving exploration into a variety of mathematical fields including measurement, geometry, logic, ratio, proportion, set theory, probability, statistics, graph theory, and mathematics of finance. This course is designed not only to meet college general education requirements but to help generate a positive attitude toward and an interest in mathematics. Graded or Pass/No Pass option.

MATH C103 3 Units (54 lecture hours)

Statistics for Elementary Teachers
Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter
Transfer Credit: CSU.

This course is designed for prospective teachers. It is an activity-based exploration of statistics aligned with the California State Mathematics Standards for K-12. Topics include data representation and analysis, randomization, and sampling, measures of central tendency, and dispersion, hypothesizing, and statistical inference. Letter Grade only.

MATH C104 3 Units (54 lecture hours)

Mathematics for Elementary Teachers
Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC: Credit Limitation: MATH C104 and MATH C106 combined: maximum credit, 1 course.

This course will develop and reinforce conceptual understanding of mathematical topics through the use of connections, modeling, and representation and national and state curriculum standards for elementary school math, including Common Core State Standards. Instructional delivery design techniques and technological applications will be explored. The course involves using technology, participating in group work and projects, and observing and/or teaching in local elementary schools. Topics covered include whole numbers, integers, rational numbers, real numbers, number theory, ratio, proportion, percent, set theory, and elementary logic. Letter Grade only.

MATH C106 3 Units (54 lecture hours)

Geometry for Elementary Teachers
Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC: Credit Limitation: MATH C104 and MATH C106 combined: maximum credit, 1 course.

This course will build fluency and understanding of basic mathematical concepts and develop reasoning, problem solving, and communicating skills. The course involves using technology, participating in group work and projects, and observing and/or teaching in local elementary schools. Topics covered include data analysis, probability, geometry, measurement, algebra, and coordinate geometry. Letter Grade only.

MATH C115 **4 Units (72 lecture hours)****College Algebra**

Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC: Credit Limitation: MATH C115 and MATH C170 combined: maximum credit, five semester or seven and one-half quarter units.

Basic concepts of algebra, equations, and inequalities along with functions and graphs, polynomial and rational functions, exponential and logarithmic functions, systems, matrices and determinants, linear programming, conic sections, sequences, series, and combinatorics. Graded or Pass/No Pass option.

MATH C120 **3 Units (54 lecture hours)****Trigonometry**

Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU, UC.

Circular functions, trigonometric identities and graphs, inverse functions, triangles, vectors, applications, and imaginary and complex numbers. Graded or Pass/No Pass option.

MATH C140 **4 Units (72 lecture hours)****Business Calculus**

Prerequisite(s): MATH C115 or C170 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC: Credit Limitation: MATH C140 and MATH C180 combined: maximum credit, 1 course.

For Business, Management, and Social Science majors. Functions, graphs, limits, continuity, derivatives, and integrals of exponential and logarithmic functions, the Chain Rule, multivariable functions, differential equations, and applications. Graded or Pass/No Pass option. **C-ID:** MATH 140.

MATH C150 **4 Units (72 lecture hours)****Finite Mathematics With Applications**

Prerequisite(s): MATH C030 or C045 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC.

Topics include linear functions, systems of linear equations and inequalities, matrices, linear programming, mathematics of finance, sets and Venn diagrams, combinatorial techniques, and an introduction to probability. Applications in business, economics, and social sciences. Graded or Pass/No Pass option.

MATH C160 **4 Units (72 lecture hours)****Introduction to Statistics**

Prerequisite(s): MATH C030, C045, or C046 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC.

Statistical topics covered include collecting of data, sampling, probability, hypothesis testing, analyzing of variance, correlation and regression, nonparametric testing, and correlating for application in the natural sciences, social sciences, business, and management. Use of statistical technology will be introduced. Graded or Pass/No Pass option. **C-ID:** MATH 110.

MATH C170 **5 Units (90 lecture hours)****Precalculus**

Prerequisite(s): MATH C120 with a grade of C or better or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC: Credit Limitation: MATH C115 and MATH C170 combined: maximum credit, five semester or seven and one-half quarter units.

Topics include algebra review, complex numbers, sequences and series, polynomial, rational, exponential, logarithmic, and trigonometric and inverse functions, vectors, analytic geometry, linear systems, matrices, elementary theory of equations, and polar coordinates. This course is designed for those students planning to study calculus. Graded or Pass/No Pass option.

MATH C180 **5 Units (90 lecture hours)****Calculus 1**

Prerequisite(s): MATH C170 with a grade of C or better; or MATH C115 and C120 with a grade of C or better; or by Multiple Measures Assessment.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC: Credit Limitation: MATH C140 and MATH C180 combined: maximum credit, 1 course.

This is the first course in the calculus sequence. It satisfies the requirement for majors in mathematics, science, or engineering. Topics include limits, derivatives of algebraic and transcendental functions, applications of derivatives, indefinite integrals, definite integrals, the Fundamental Theorem of Calculus, and applications of integration. Graded or Pass/No Pass option. **C-ID:** MATH 210.

MATH C185 **5 Units (90 lecture hours)****Calculus 2**

Prerequisite(s): MATH C180 with a grade of C or better.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC.

Second course in the calculus sequence. It satisfies the requirement for majors in mathematics, science, or engineering. Topics include techniques and applications of integration, calculus applied to parametric curves and polar curves, analytic geometry, sequences, series, and an introduction to differential equations. Graded or Pass/No Pass option.

MATH C230 **5 Units (90 lecture hours)**

Introduction to Discrete Math

Prerequisite(s): MATH C115 or C170.

Advisory: MATH C180.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

Fundamental topics of discrete math, such as logic, proof techniques, sets, introduction to computer programming, basic counting rules, relations, functions and recursion, graphs, and probability trees. Letter Grade only.

MATH C280 **5 Units (90 lecture hours)**

Calculus 3

Prerequisite(s): MATH C185 with a grade of C or better.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC.

Multivariable calculus including vectors, vector-valued functions, functions of several variables, partial derivatives, multiple integrals, calculus of vector fields, Green's Theorem, Stokes' Theorem, and the Divergence Theorem. Graded or Pass/No Pass option. **C-ID:** MATH 230.

MATH C285 **5 Units (90 lecture hours)**

Introduction to Linear Algebra and Differential Equations

Prerequisite(s): MATH C185 with a grade of C or better.

Grading Mode: Standard Letter, Pass/No Pass

Transfer Credit: CSU; UC.

Introduction to linear algebra and differential equations, matrices, determinants, eigenvectors and eigenvalues, inverse and implicit function theorems, linear methods and numerical methods, Fourier series, and Laplace transforms. Graded or Pass/No Pass option. **C-ID:** MATH 910 S.