MATHEMATICS

MATHEMATICS COURSES

MATH 1 - Calculus I

5 units

An introduction to single-variable differential and integral calculus including: functions, limits and continuity; techniques and applications of differentiation and integration; the Fundamental Theorem of Calculus; areas and volumes of solids of revolution. 90 hours lecture. ADGE: 2; Transfer: CSU, UC*; Cal-GETC: 2; C-ID# MATH 211, MATH 900 S (if taken with MATH 2). ** MATH 1, 33, and 34 combined: maximum UC credit, one course.*

Prerequisite: MATH 30 with a minimum grade of C and MATH 39 with a minimum grade of C, or MATH 21 with a minimum grade of C, or MATH 22 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 2 - Calculus II

5 units

Continuation of single-variable differential and integral calculus. Topics covered include: inverse and hyperbolic functions; techniques of integration; polar and parametric equations; infinite sequences, series, power series and Taylor series; applications of integration. Primarily for mathematics, physical science and engineering majors. 90 hours lecture. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# MATH 221, MATH 900 S (if taken with MATH 1).

Prerequisite: MATH 1 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 3 - Multivariable Calculus

5 units

Vector valued functions, functions of several variables, partial differentiation, multiple integration, change of variables theorem, scalar and vector fields, gradient, divergence, curl, line integral, surface integral, Green's, Stokes', and divergence theorem, applications. 90 hours lecture. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# MATH 230.

Prerequisite: MATH 2 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 5 - Ordinary Differential Equations

3.5 units

Introduction to differential equations including the conditions under which a unique solution exists, techniques for obtaining solutions, and applications. Techniques include generation of series solutions, use of Laplace Transforms, and the use of eigenvalues to solve linear systems. Generation of exact solutions, approximate solutions, and graphs of solutions using MATLAB. 54 hours lecture, 27 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# MATH 240.

Prerequisite: MATH 3 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 7 - Elementary Linear Algebra

3.5 units

An introduction to linear algebra including: techniques and theory needed to solve and classify systems of linear equations using Gaussian elimination and matrix algebra; properties of vectors in n-dimensions; generalized vector spaces, inner product spaces, basis, norms, orthogonality; eigenvalues, eigenspaces; and linear transformations. Selected applications of linear algebra, including the use of MATLAB™ to solve problems involving advanced numerical computation. 54 hours lecture, 27 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# MATH 250.

Prerequisite: MATH 2 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 10 - Discrete Mathematical Structures

4 units

Designed for majors in mathematics and computer science, this course provides an introduction to discrete mathematical structures used in Computer Science and their applications. Course content includes: Propositional and predicate logic; rules of inference; quantifiers; elements of integer number theory; set theory; methods of proof; induction; combinatorics and discrete probability; functions and relations; recursive definitions and recurrence relations; elements of graph theory and trees. Applications include: analysis of algorithms, Boolean algebras and digital logic circuits. Students may receive credit for CS 17 or MATH 10, but not both. 72 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# COMP 152.

Prerequisite: MATH 1 with a minimum grade of C (May be taken concurrently). CS 1 with a minimum grade of C (May be taken concurrently).

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 21 - Precalculus

4 units

TPrecalculus core concepts relating to Science, Technology, Engineering and Mathematics (STEM) and Business fields are explored, such as polynomial, absolute value, radical, rational, exponential, logarithmic, and trigonometric functions and their graphs; analytic geometry, polar coordinates. Multiple representations, applications and modeling with functions are emphasized throughout. 72 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2.

Prerequisite: MATH 39 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 22 - Precalculus & Trigonometry

6 units

Precalculus and Trigonometric core concepts relating to Science, Technology, Engineering and Mathematics (STEM) and Business fields are explored, such as: polynomial, absolute value, radical, rational, exponential, logarithmic, and trigonometric functions and their graphs; analytic geometry, polar coordinates. Multiple representations, applications and modeling with functions are emphasized throughout. 108 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2.

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 27 - Number Systems for Educators

3 units

This course focuses on the development of quantitative reasoning skills through in-depth, integrated explorations of topics in mathematics, including real number systems and subsystems. Emphasis is on comprehension and analysis of mathematical concepts and applications of logical reasoning. 54 hours lecture. ADGE: 2; Transfer: CSU, UC.

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 29 - Independent Study, Mathematics

0.5 - 2 units

Supervised study in the area of Mathematics. Any student interested in registering for an Independent Studies course should contact a full/part-time instructor or dean in the appropriate area. 27 - 108 hours laboratory. Transfer: CSU.

- Credit - Degree Applicable
- Grading Option: Letter or Pass/No Pass

MATH 30 - College Algebra for STEM

4 units

College algebra core concepts relating to Science, Technology, Engineering and Mathematics (STEM) and Business fields are explored, such as: polynomial, rational, radical, exponential, absolute value, and logarithmic functions; systems of equations; theory of polynomial equations; and analytic geometry. Multiple representations, applications and modeling with functions are emphasized throughout. 72 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2; C-ID# MATH 151.

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 33 - Finite Mathematics

4 units

Linear functions, systems of linear equations and inequalities, exponential and logarithmic functions and applications, matrices, linear programming, mathematics of finance, sets and Venn diagrams, combinatorial techniques and an introduction to probability. Applications in business, economics and social sciences. 72 hours lecture. ADGE: 2; Transfer: CSU, UC*; Cal-GETC: 2; C-ID# MATH 130. ** MATH 1, 33, and 34 combined: maximum UC credit, one course.*

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 34 - Business Calculus

4 units

Functions and their graphs; limits of functions; differential and integral calculus of algebraic, exponential and logarithmic functions. Applications in business, economics, and social sciences. Functions of several variables and partial derivatives. 72 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC*; Cal-GETC: 2; C-ID# MATH 140. ** MATH 1, 33, and 34 combined: maximum UC credit, one course.*

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 39 - Trigonometry

4 units

Trigonometry includes definitions of the trigonometric functions and their inverses, graphs of the trigonometric functions and their inverses, trigonometric equations, trigonometric expressions and identities, including proofs, an introduction to vectors, polar coordinates and complex numbers. Applications include solving right triangles and solving triangles using the law of sines and the law of cosines. 72 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU; C-ID# MATH 851.

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 40 - Statistics and Probability

See STAT C1000.

MATH 47 - Mathematics for Liberal Arts

3 units

An introduction to a variety of mathematical concepts for students interested in liberal arts. Intended to cultivate an appreciation of the significance of mathematics in daily life and help develop students' mathematical reasoning. Topics include personal finance, logic, and exponential growth. 54 hours lecture, 18 hours laboratory. ADGE: 2; Transfer: CSU, UC; Cal-GETC: 2.

Prerequisite: Intermediate Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter Grade

MATH 55 - Intermediate Algebra

5 units

Intermediate Algebra concepts will be explored in this course including: an introduction to functions; linear and absolute value functions; absolute value equations and inequalities; compound linear inequalities; rational expressions, functions and equations; radical expressions, functions and equations; rational exponents; complex numbers; quadratic functions and equations; inverse of a function; exponential and logarithmic functions; properties of logarithms; exponential and logarithmic equations; conic sections; and systems of equations and inequalities. Multiple representations, applications and modeling with functions are emphasized throughout. 90 hours lecture. ADGE: 2.

Prerequisite: Elementary Algebra or a higher level of mathematics.

- Credit - Degree Applicable
- Grading Option: Letter or Pass/No Pass

MATH 55C - Concurrent Support for Intermediate Algebra

1 unit

This course is concurrent support for Intermediate Algebra. The course is designed to provide additional, formal support to students who are currently taking an Intermediate Algebra. It includes a review of arithmetic, algebraic and geometric concepts that are relevant to their Intermediate Algebra course, study strategies that promote understanding and improve performance, and more in-depth investigation of core concepts that are difficult for students to master. Embedded are learning skills such as growth mindset, brain research, time management, study skills, test taking, math anxiety and more. 54 hours laboratory.

Corequisite: MATH 55 or NMAT 255.

- Credit - Not Degree Applicable
- Grading Option: Pass/No Pass

MATH 66 - Math Jam for Calculus I

0.5 - 1 units

Math Jam for Calculus I is a credit course for students preparing for Calculus I. Embedded are essential study and life skills to develop each student holistically, including career development. Students will be learning basic skills and transfer-level material with the goal of preparing them to be successful in their upcoming class. It is strongly recommended that students taking this course are enrolled in a calculus course. 27 hours laboratory.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 66C - Concurrent Support for Calculus I

1 unit

This course offers structured support to students who are concurrently enrolled in Calculus I. The support course includes material to prepare students for the rigor of the calculus course by teaching learning skills necessary to succeed in college courses as well as review of relevant prerequisite algebraic, geometric and trigonometric concepts, and more in-depth investigation of core concepts in their concurrent math course. 54 hours laboratory.

Corequisite: MATH 1.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 67 - Math Jam for Calculus II

0.5 units

Math Jam for Calculus II is a credit course for students preparing for Calculus II. Embedded are essential study and life skills to develop each student holistically, including career development. Students will be learning basic skills and transfer-level material with the goal of preparing them to be successful in their upcoming class. It is strongly recommended that students taking this course are enrolled in a calculus course. 27 hours laboratory.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 67C - Concurrent Support for Calculus II

1 unit

This course offers structured support to students who are concurrently enrolled in Calculus II. The support course includes material to prepare students for the rigor of the calculus course by teaching learning skills necessary to succeed in college courses as well as review of relevant prerequisite algebraic, geometric and trigonometric concepts, and more in-depth investigation of core concepts in their concurrent math course. 54 hours laboratory.

Corequisite: MATH 2.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 68 - Math Jam for Calculus III

0.5 units

Math Jam for Calculus III is a credit course for students preparing for Calculus III. Embedded are essential study and life skills to develop each student holistically, including career development. Students will be learning basic skills and transfer-level material with the goal of preparing them to be successful in their upcoming class. It is strongly recommended that students taking this course are enrolled in a calculus course. 27 hours laboratory.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 68C - Concurrent Support for Calculus III

1 unit

This course offers structured support to students who are concurrently enrolled in Calculus III. The support course includes material to prepare students for the rigor of the calculus course by teaching learning skills necessary to succeed in college courses as well as review of relevant prerequisite algebraic, geometric and trigonometric concepts, and more in-depth investigation of core concepts in their concurrent math course. 54 hours laboratory.

Corequisite: MATH 3.

- Credit - Degree Applicable
- Grading Option: Pass/No Pass

MATH 100C - Concurrent Support for SLAM Mathematics

1 unit

Concurrent Support for SLAM Math is for students interested in disciplines that require Statistics and Liberal Arts Mathematics (SLAM) courses. This course offers structured support to students who are concurrently enrolled in a first-level transfer course, such as Statistics and Mathematics for Liberal Arts, and Finite Mathematics. The support course includes material to prepare students for the rigor of the transfer math course by teaching learning skills necessary to succeed in college courses as well as review of relevant prerequisite algebraic and geometric concepts, and more in-depth investigation of core concepts in their concurrent math course. 54 hours laboratory.

Corequisite: STAT C1000, or MATH 47, or MATH 33.

- Credit - Not Degree Applicable
- Grading Option: Pass/No Pass

MATH 101C - Concurrent Support for BSTEM Mathematics

1 unit

Concurrent Support for BSTEM Mathematics is for students interested in Business, Science, Technology, Engineering and Mathematical fields. This course offers structured support to students who are concurrently enrolled in a STEM-sequence math course, such as Calculus I, Precalculus, College Algebra, Trigonometry, and Business Calculus. The support course includes material to prepare students for the rigor of the transfer math course by teaching learning skills necessary to succeed in college courses as well as review of relevant prerequisite algebraic and geometric concepts, and more in-depth investigation of core concepts in their concurrent math course. 54 hours laboratory.

Corequisite: MATH 21, or MATH 22, or MATH 30, or MATH 39, or MATH 34.

- Credit - Not Degree Applicable
- Grading Option: Pass/No Pass