

MATHEMATICS (MATH)

MATH 003 COLLEGE ALGEBRA FOR STEM

5 unit

Transfer Credit: CSU; UC limitations. See counselor.

Prerequisite(s): MATH 131 or placement based on the Math assessment process

Algebra, graphing, and applications of functions; polynomial, rational, logarithmic and exponential functions, equations and inequalities; linear and nonlinear systems of equations; conic sections; sequences and series; the binomial theorem. Intended for STEM majors but open to all qualified students. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 005A SINGLE VARIABLE CALCULUS I

5 unit

Transfer Credit: CSU; UC credit limitations. See counselor.

C-ID: MATH 211; MATH SEQ 900S (WITH MATH 005B)

Prerequisite(s): MATH 008 or MATH 009, or placement based on the Math assessment process

Limits, differentiation, and integration of functions of a single variable including the Mean Value Theorem and the Fundamental Theorem of Calculus. No credit if taken after MATH 005AH. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 005AH HONORS SINGLE VARIABLE CALCULUS I

5 unit

Transfer Credit: CSU; UC

Prerequisite(s): MATH 008 or MATH 009, or placement based on the Math assessment process

Enrollment Limitation: Acceptance into the Honors Program

Limits, differentiation, and integration of functions of a single variable including the Mean Value Theorem and the Fundamental Theorem of Calculus. As an honors course, students will be expected to complete additional assignments involving more extensive proofs and problem solving to gain deeper insight into single variable calculus theory and applications. No credit if taken after MATH 005A. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 005B SINGLE VARIABLE CALCULUS II

5 unit

Transfer Credit: CSU; UC.

C-ID: MATH 221; MATH SEQ 900S (WITH MATH 005A)

Prerequisite(s): MATH 005A or MATH 005AH

Differentiation and integration of trigonometric, exponential, logarithmic, hyperbolic functions, polar, and parametric equations; applications and techniques of integration; indeterminate forms and infinite sequences and series. No credit given if taken after MATH 005BH. Total of 90 hours lecture.

Grade Mode: Letter Grade, Pass/No-Pass

MATH 005BH HONORS SINGLE VARIABLE CALCULUS II

5 unit

Transfer Credit: CSU; UC.

C-ID: MATH 221.

Prerequisite(s): MATH 005A or 005AH

Enrollment Limitation: Acceptance to the PCC Honors Program

Differentiation and integration of trigonometric, exponential, logarithmic, hyperbolic functions; polar, and parametric equations; applications and techniques of integration; indeterminate forms and infinite sequences and series. As an honors course, students will be expected to complete additional assignments involving more extensive proofs and problem solving to gain deeper insight of single variable calculus theory and applications. No credit if taken after MATH 005B. Total of 90 hours lecture.

Grade Mode: Letter Grade, Pass/No-Pass

MATH 005C MULTIVARIABLE CALCULUS

5 unit

Transfer Credit: CSU; UC.

C-ID: MATH 230

Prerequisite(s): MATH 005B or MATH 005BH

Parametric equations, polar coordinates, vectors and vector calculus, partial differentiation, multiple integration, Green's theorem, divergence theorem of Gauss, Stokes' theorem. No credit given if taken after MATH 005CH. Total of 90 hours lecture

Grade Mode: Letter Grade, Pass/No-Pass

MATH 005CH HONORS MULTIVARIABLE CALCULUS

5 unit

Transfer Credit: CSU; UC

Prerequisite(s): MATH 005B or 005BH

Enrollment Limitation: Acceptance to the PCC Honors Program

Parametric equations, polar coordinates, vectors and vector calculus, partial differentiation, multiple integration, Green's theorem, divergence theorem of Gauss, Stokes' theorem. As an honors course, students will be expected to complete additional assignments involving more extensive proofs and problem solving to gain deeper insight of multivariable calculus theory and applications. No credit if taken after MATH 005C. Total of 90 hours lecture

Grade Mode: Letter Grade, Pass/No-Pass

MATH 006A CALCULUS FOR LIFE SCIENCES I

3 unit

Transfer Credit: CSU; UC credit under review.

Prerequisite(s): MATH 003 or MATH 009 or placement by the Math Placement process

Standard topics in differential calculus with an emphasis on life science applications used throughout the course. Topics include algebraic, trigonometric, exponential growth and decay functions; limits; continuity; derivatives and applications of derivatives; brief introduction to integrals. Total of 54 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 008 PRECALCULUS TRIGONOMETRY**4 unit***Transfer Credit: CSU***Prerequisite(s):** MATH 003 or placement based on the assessment process

Trigonometric functions and their graphs; inverse trigonometric functions; unit circle and special right triangles; trigonometric identities and equations; polar and parametric equations; polar and rectangular forms of complex numbers and vectors; matrix algebra and Cramer's Rule; mathematical induction. Intended for STEM majors but open to all qualified students. No credit if taken after MATH 007B. Total of 72 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 009 PRECALCULUS MATHEMATICS****5 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** MATH 008 or placement based on the Math assessment process

Algebraic, exponential, logarithmic and trigonometric functions; inverse functions; zeros and graphs of functions; inequalities; matrices; determinants; sequences and series; binomial theorem; mathematical induction; topics in analytic geometry including curve sketching and conic sections. No credit if taken after MATH 007A or 007B. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 010 LINEAR ALGEBRA AND APPLICATIONS****5 unit***Transfer Credit: CSU; UC**C-ID: MATH 250***Prerequisite(s):** MATH 005B

Vector spaces, linear transformations, determinants, solutions of systems of equations, algebra of matrices. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 015 EXPLORATIONS IN QUANTITATIVE REASONING****4 unit***Transfer Credit: CSU; UC***Prerequisite(s):** Intermediate Algebra or placement into any MATH course numbered 001 - 099

Skills and techniques for problem solving using mathematical methods and quantitative reasoning. Topics include: elementary logic; combinatorics and probability; statistics; set theory; and finance math. For students with non-STEM majors. Total of 72 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 020 INDEPENDENT STUDY****2 unit***Transfer Credit: CSU***Prerequisite(s):** Enrollment in or completion of any college level math course and permission of division dean

Faculty-guided survey of contemporary mathematical topics and student research. Total of 108 hours laboratory.

Grade Mode: Letter Grade, Pass/No-Pass**MATH 022 DISCRETE MATHEMATICS****4 unit***Transfer Credit: CSU, UC***Prerequisite(s):** MATH 005A or CS 002 or placement based on the Math assessment process

Study of finite mathematical systems. Includes set theory, logic, modular arithmetic, combinatorics, relations and functions, matrix algebra, Boolean algebra, recursion, graph theory. For mathematics and computer science majors, but open to all qualified students. Total of 72 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 038 FOUNDATIONS OF ELEMENTARY SCHOOL MATHEMATICS: BASIC NUMBER CONCEPTS****3 unit***Transfer Credit: CSU; UC***Prerequisite(s):** Intermediate Algebra or placement into any MATH course numbered 001 ndash; 099

Introduces problem-solving strategies and quantitative reasoning to develop skills and explore topics in numeration systems and the real number system. Designed for prospective elementary and middle school teachers. Total of 54 hours lecture and 18 hours laboratory.

Grade Mode: Letter Grade, Pass/No-Pass**MATH 055 DIFFERENTIAL EQUATIONS****4 unit***Transfer Credit: CSU; UC.**C-ID: MATH 240***Prerequisite(s):** MATH 005B or MATH 005BH

Ordinary first-and higher-order differential equations and modeling with applications to biological and physical sciences. Linear and nonlinear equations, initial-value problems, series solutions, Laplace transforms, systems of linear equations, and numerical solutions. No credit if taken after Math 055H. Total of 72 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 055H HONORS DIFFERENTIAL EQUATIONS****4 unit***Transfer Credit: CSU; UC.***Prerequisite(s):** MATH 005B or MATH 005BH**Enrollment Limitation:** Acceptance to the Honors Program

Ordinary first- and higher-order differential equations and modeling with applications to biological and physical sciences. Linear and nonlinear equations, initial-value problems, series solutions, Laplace transforms, systems of linear equations, and numerical solutions. As an honors course, students will be expected to complete additional assignments involving more extensive proofs and problem solving to gain deeper insight into differential equations theory and applications. No credit if taken after MATH 055. Total of 72 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 065 SCIENTIFIC COMPUTING FOR MATHEMATICS**1 unit***Transfer Credit: CSU: UC credit under review.*

Exploration of the potential of applied programming methods for mathematics. Fundamentals of scripting including generative plots, graphs, animations, computations, and simulations in a variety of projects with an emphasis on using the open-sourced libraries and packages specifically for mathematics. For students who would like to explore applied coding in the context of mathematics but open to all students. Total of 54 hours laboratory.

Grade Mode: Letter Grade, Pass/No-Pass**MATH 103 SUPPORT FOR COLLEGE ALGEBRA****0.5 unit****Corequisite(s):** MATH 003

Review of core prerequisite skills, competencies, and concepts for college algebra with an emphasis on critical thinking and problem solving. Intended for students who are concurrently enrolled in MATH 003: College Algebra for STEM. Topics include learning strategies and mathematical knowledge necessary for successful completion of College Algebra for STEM. Total of 45 hours laboratory.

Grade Mode: Audit, Pass/No-Pass**MATH 115 SUPPORT FOR EXPLORATIONS IN QUANTITATIVE REASONING****0.5 unit****Corequisite(s):** MATH 015

Review of core prerequisite skills, competencies, and concepts for quantitative reasoning with an emphasis on critical thinking and problem solving. Intended for students who are concurrently enrolled in MATH 015: Explorations in Quantitative Reasoning. Topics include learning strategies and mathematical knowledge necessary for successful completion of Explorations in Quantitative Reasoning. Total of 36 hours laboratory.

Grade Mode: Audit, Pass/No-Pass**MATH 125 BEGINNING ALGEBRA****4 unit****Prerequisite(s):** MATH 402 or 400B or 250, or placement based on the Math assessment process

Simplifying linear, polynomial, rational, and radical expressions. Using properties of exponents. Factoring polynomials. Applications and solving of linear, rational, radical, and quadratic equations. Graphing linear equations and solving systems of linear equations. Maximum credit for MATH 125, 127AB, and 128AB is 4 units. No credit if taken after MATH 127B or MATH 128B. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 131 INTERMEDIATE ALGEBRA FOR STEM****5.5 unit****Prerequisite(s):** MATH 125; or MATH 250 and concurrent enrollment in or completion of MATH 331; or placement based on the Math assessment process

Topics include algebra, graphing, and applications of functions: polynomial, rational, radical, exponential, and logarithmic. Designed for STEM majors and some Business majors. Total of 90 hours lecture and 45 hours laboratory.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 139 PLANE GEOMETRY****3 unit****Prerequisite(s):** MATH 125 or MATH 126C or MATH 127B or MATH 128B

Geometric facts necessary for advanced work in mathematics. Deductive process emphasized. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 141 SURVEY OF MATHEMATICAL IDEAS****4 unit****Prerequisite(s):** MATH 125 or MATH 127B or MATH 128B or placement based on the Math assessment process

Study of practical applications of mathematics, including topics in finance, probability and statistics, and geometry. Additional topics may include graph theory, health and nutrition, voting, history of mathematics, and logic. Total of 90 hours lecture.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 150 QUANTITATIVE LITERACY II****5.5 unit****Prerequisite(s):** MATH 250 or MATH 402 or MATH 400B or placement based on the Math assessment process

Study of practical applications of mathematics including finance, probability, statistics, geometry, measurement & dimensional analysis, and functions: linear, exponential & logarithmic. For non-STEM majors, but open to all qualified students. Total of 90 hours lecture and 45 hours of laboratory.

Grade Mode: Audit, Letter Grade, Pass/No-Pass**MATH 171A EXPLORING TOPICS IN MATHEMATICS****3 unit**

Exploratory course: Specific topic identified in Schedule of Classes. Lecture focusing on topics of current and general interest. Pass/no pass grading. Total of 90 hours lecture.

Grade Mode: Audit, Pass/No-Pass**MATH 171B EXPLORING TOPICS IN MATHEMATICS****2 unit**

Exploratory course: Specific topic identified in Schedule of Classes. Lecture focusing on topics of current and general interest. Pass/no pass grading. Total of 45 hours of lecture.

Grade Mode: Audit, Pass/No-Pass**MATH 171C EXPLORING TOPICS IN MATHEMATICS****1 unit**

Exploratory course: Specific topic identified in Schedule of Classes. Lecture focusing on topics of current and general interest. Pass/no pass grading. Total of 18 hours lecture and 18 hours laboratory.

Grade Mode: Audit, Pass/No-Pass**MATH 250 QUANTITATIVE LITERACY I****5.5 unit****Prerequisite(s):** MATH 450 or placement based on the Math assessment process

Number sense and basic algebraic skills involving integers, fractions, decimals, and percents. Simplifying algebraic expressions, solving linear equations and graphing. With an emphasis on how and where mathematics is used. No credit if taken after MATH 402, 400B, 125, 127B, or 128B. Total of 90 hours lecture and 45 hours laboratory.

Grade Mode: Audit, Letter Grade, Pass/No-Pass

MATH 330 SKILLS FOR COLLEGE SUCCESS IN ELEMENTARY ALGEBRA

2 unit

Corequisite(s): *MATH 125*

Development and rigorous practice of essential study techniques and course material for success in Elementary Algebra. Integration of web-based supplemental instruction, life management skills, strategies for successful classroom experience, and critical thinking/problem solving strategies. No credit if taken after MATH 110. For students admitted to the Math Path program but open to all qualified students. Pass/no pass grading. Total of 45 hours lecture.

Grade Mode: *Audit, Pass/No-Pass*

MATH 331 SKILLS FOR COLLEGE SUCCESS IN INTERMEDIATE ALGEBRA FOR STEM

0.5 unit

Prerequisite(s): *MATH 250 or placement based on the Math assessment process* **Corequisite:** *MATH 131*

Critical thinking and problem solving. Intended for STEM majors to develop study skills and mathematical knowledge necessary for successful completion of Intermediate Algebra for STEM. Total of 45 hours of laboratory.

Grade Mode: *Audit, Pass/No-Pass*

MATH 402 PREALGEBRA

4 unit

Prerequisite(s): *MATH 450, or placement based on the Math assessment process*

Basic algebraic skills involving fundamental mathematical operations with integers, fractions, decimals, and percents. Simplifying algebraic expressions and solving equations. Maximum credit for MATH 402 and 400AB is 4 units. No credit if taken after MATH 400B or 250. Total of 90 hours lecture.

Grade Mode: *Audit, Letter Grade, Pass/No-Pass*

MATH 429 SKILLS FOR SUCCESS IN PREALGEBRA

2 unit

Corequisite(s): *MATH 402*

Development and rigorous practice of essential study techniques and course material for success in Prealgebra; web-based supplemental instruction; life management skills; strategies for successful classroom experience, and critical thinking/problem solving strategies. No credit if taken after MATH 110. Pass/no pass grading. Total of 45 hours lecture.

Grade Mode: *Audit, Pass/No-Pass*

MATH 450 NUMERICAL FOUNDATIONS

4 unit

Building whole number arithmetic skills. Includes a brief introduction to fractions, decimals and percents and incorporates study skills for success in mathematics courses. Total of 90 hours lecture.

Grade Mode: *Audit, Letter Grade, Pass/No-Pass*