MATHEMATICS (MATH)

MATH 065
Corequisite Support For Introductory Statistics
2 Units
36 lecture hours
Grade Mode: Pass/No Pass
Prerequisite(s): Direct placement based on multiple measures.
Co-Requisite(s): Concurrent enrollment in MATH 165 at Citrus College.
A review of the core prerequisite skills, competencies, and concepts needed in statistics. Intended for students who are concurrently enrolled in Math 165, Introductory Statistics, at Citrus College. Topics include concepts from arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand the basics of college-level statistics. Concepts are taught through the context of descriptive data analysis. Additional emphasis is placed on solving and graphing linear equations and modeling with linear functions. Pass/No Pass only. Non-degree applicable.

MATH 075
Corequisite Support for Pre-Calculus
2 Units
36 lecture hours
Grade Mode: Pass/No Pass
Prerequisite(s): Direct placement based on multiple measures.
Co-Requisite(s): MATH 175.
A review of the core prerequisite skills, competencies, and concepts needed in pre-calculus. Intended for majors in science, technology, engineering, and mathematics (STEM) who are concurrently enrolled in MATH 175, Pre-Calculus, at Citrus College. Topics include: a review of computational skills developed in intermediate algebra, factoring, operations on rational and radical expressions, absolute value equations and inequalities, exponential and logarithmic expressions and equations, conic sections, functions including composition and inverses, an in-depth focus on quadratic functions, and a review of topics from geometry. This course is appropriate for students who are confident in their graphing and beginning algebra skills. A graphing calculator is required for this course.

MATH 080
Corequisite Support for Calculus for Business and Social Sciences
2 Units
36 lecture hours
Equivalent to: MATH 062
Grade Mode: Pass/No Pass
Prerequisite(s): Direct placement based on multiple measures.
Co-Requisite(s): MATH 180.
This course is designed for those students who are concurrently enrolled in MATH 180 at Citrus College. The course will help students review their problem solving skills for linear and piecewise-defined functions and nonlinear equations and functions such as quadratic, rational, radical, exponential and logarithmic. Other review topics include: solving and graphing linear, piecewise-defined, quadratic, exponential and logarithmic functions, solving and graphing inequalities in one and two variables, solving and graphing linear systems of equations in two variables, factoring polynomials and complex rational expressions and algebraic operations on simplifying complex rational expressions. A scientific calculator is required for this course. Non-degree applicable.

MATH 090
Corequisite Support for Calculus I
2 Units
36 lecture hours
Grade Mode: Pass/No Pass
Prerequisite(s): Direct placement based on multiple measures.
Co-Requisite(s): MATH 190.
Support for this course focuses on the prerequisite skills, competencies, and concepts needed for success in a Calculus with Analytic Geometry I course. This course is intended for majors in science, technology, engineering, and mathematics (STEM) who are concurrently enrolled in MATH 190, Calculus with Analytic Geometry I, at Citrus College. Students will receive extra support in topics such as algebra, analytic geometry, trigonometry, technology, and study skills. A graphing calculator is required for this course. Pass/No Pass only. Non-degree applicable.

MATH 144
Technical Mathematics
5 Units (AA/AS; Citrus A3; CSU; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): Elementary algebra or higher or direct placement based on multiple measures.
Reviews and extends concepts from elementary algebra and geometry, and introduces new content from trigonometry, statistics, and other mathematical topics that can be applied to problems that arise in a career and technical setting. Simplifying algebraic expressions, functions, basic graphing, systems of linear equations, linear and quadratic equations, triangles, circles, quadrilaterals, polygons, prisms, spheres, cylinders, statistical graphs, measures of central tendency, measures of variation, normal distribution, right-angle trigonometry, radian measure, Law of Sines, Law of Cosines, sine and cosine graphs, binary and hexadecimal numbers, measurement, metric system, signed numbers and powers of ten. Emphasis is on technical applications and problem-solving skills including the appropriate use of technology.

MATH 151
Plane Trigonometry
4 Units (AA/AS; Citrus A3; CSU; CSUGE B4)
72 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): Direct placement based on multiple measures.
The study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometic expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors.

MATH 160
Mathematics for Everyday Living - A Liberal Arts Course
5 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): Intermediate algebra or higher or direct placement based on multiple measures.
A course in mathematical concepts for the liberal arts student. Topics include critical thinking, approaches to problem solving, numbers in the real world, financial management, statistical reasoning, probability, and applications of exponential growth and decay.

MATH 165
Introductory Statistics
4 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
72 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): Intermediate algebra or higher or direct placement based on multiple measures.
Introductory course to statistics and probability, descriptive analysis, and presentation of data, hypothesis testing, statistical inference, normal curve, chi square, and applications in diverse disciplines.

MATH 165H
Introductory Statistics - Honors
4 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
72 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): Intermediate algebra or higher or direct placement based on multiple measures; ENGL 101 or ENGL 101E or ENGL 101H or higher or direct placement based on multiple measures; also, student must be eligible for the Citrus College Honors Program or obtain a recommendation from an Honors instructor.
Introductory course to statistics and probability, descriptive analysis, and presentation of data, hypothesis testing, statistical inference, normal curve, chi-square, and applications in diverse disciplines. Students are expected to work and participate at an honors level which includes strong critical thinking skills, thorough analysis of mathematical readings, presentation, and leadership skills demonstrated through class participation/presentation and service learning in the community.

MATH 168
Mathematics for Elementary Teachers I
5 Units (AA/AS; Citrus A3; CSU; UC; CSUGE B4)
90 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): Intermediate algebra or higher, or direct placement based on multiple measures.
Course is designed for prospective elementary teachers. The course covers problem solving, logic and sets, number systems and operations, number theory and algebraic reasoning. Techniques in instructional delivery explored.

MATH 169
Mathematics for Elementary Teachers II
5 Units (AA/AS; Citrus A3; CSU; UC; CSUGE B4)
90 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): MATH 168.
Second class for elementary school teachers. Course covers topics in measurement, geometry, probability and statistics. Techniques in the design of instruction delivery will be explored.

MATH 170
College Algebra
4 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
72 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): Intermediate algebra or higher or direct placement based on multiple measures.
College level course in algebra for majors in the liberal arts. Polynomial, rational, radical, exponential, absolute value, and logarithmic functions; systems of equations; theory of polynomial equations; analytic geometry.

MATH 175
Pre-Calculus
6 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
108 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): Intermediate algebra or plane trigonometry or higher or direct placement based on multiple measures.
Preparation for calculus; polynomial, rational, exponential, logarithmic, and trigonometric functions; analytic geometry; systems of equations; sequences and series; mathematical induction.

MATH 180
Calculus for Business and Social Sciences
4 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
72 lecture hours
Equivalent to: MATH 162
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): Intermediate algebra or higher or direct placement based on multiple measures.
Concepts of function and limits: applied calculus emphasizing techniques of integration and differentiation with applications in social and life sciences, business administration, economics, and engineering technology.

MATH 190
Calculus with Analytic Geometry I
5 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): MATH 175 or direct placement based on multiple measures.
A first course in differential and integral calculus of a single variable: functions; limits and continuity; techniques and applications of differentiation and integration; Fundamental Theorem of Calculus. Primarily for science, technology, engineering & math majors.

MATH 191
Calculus with Analytic Geometry II
5 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): MATH 190.
A second course in differential and integral calculus of a single variable: integration; techniques of integration; infinite sequences and series; polar and parametric equations; applications of integration. Primarily for science, technology, engineering & math majors.

MATH 210
Calculus with Analytic Geometry III
5 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): MATH 191.
Vectors, calculus of functions of more than one variable, partial derivatives, multiple integration, vector calculus, Green's Theorem, Stokes' Theorem, and divergence theorem.

MATH 211
Differential Equations
5 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
90 lecture hours
Grade Mode: Pass/No Pass, Standard Letter
Prerequisite(s): MATH 210.
Solve first and higher-order, linear and non-linear, differential equations with applications. Use the Existence and Uniqueness Theorem on differential equations with constant or variable coefficients, homogeneous or nonhomogeneous, whose order is second or higher. Apply linear algebra techniques to solve systems of linear differential equations and their applications. Use the method of Laplace Transforms to solve initial valued problems of 2nd and higher-order differential equations with constant or polynomial coefficients. using the method of Laplace Transforms. Estimate the solution to variable coefficient differential equations by using power series.

MATH 212
Introduction to Linear Algebra
4 Units (AA/AS; Citrus A3; CSU; IGETC 2A; UC; CSUGE B4)
72 lecture hours
Grade Mode: Standard Letter
Prerequisite(s): MATH 191.
This course develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. The course investigates the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included. This introduction to linear algebra course complements coursework in calculus.