

# MAT - MATH

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## **MAT 012 Developmental Mathematics Workshop (1-0-1)**

*Offered Spring, Summer and Fall Semesters*

Co-requisite: MAT 120

This course provides support for mastery of MAT 032 competencies (e.g., may include, but is not limited to, laboratory work, computerized instruction, and/or projects).

## **MAT 013 Developmental Mathematics - Compressed (1-0-1)**

*Offered Spring, Summer and Fall Semesters*

Co-requisite: MAT 103

This course provides a review, in a compressed time frame, of arithmetic skills, measurement and geometry, basic algebra concepts and data analysis skills studied in MAT 032. Successful completion of this course allows a student to exit Developmental Mathematics.

## **MAT 019 Developmental Mathematics Workshop I (2-0-2)**

*Offered Spring, Summer and Fall Semesters*

Co-requisite: MAT 109

This course provides a study of basic algebraic concepts and application to real-world problem-solving ( may include but not limited to laboratory work, technology and/or projects).

## **MAT 020 Developmental Mathematics Workshop II (2-0-2)**

*Offered Spring, Summer and Fall Semesters*

Co-requisite: MAT 110

This course provides a study of algebraic and function concepts (may include but not limited to technology and/or projects).

## **MAT 103 Quantitative Reasoning (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course is designed to develop quantitative reasoning and critical thinking skills. Topics include logic and computers, probability and statistics, financial mathematics, and additional applications selected to address areas of contemporary interest.

## **MAT 109 College Algebra with Modeling (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course is an approach to algebra that incorporates mathematical modeling of real data and business applications. Emphasis on linear, quadratic, piece-wise defined, rational, polynomial, exponential and logarithmic functions. Includes inequalities and matrices. (MAT 109 is the preferred college algebra prerequisite course for MAT 130.)

## **MAT 110 College Algebra\* (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course includes the following topics: polynomial, rational, logarithmic, and exponential functions; inequalities; systems of equations and inequalities; matrices; and solutions of higher degree polynomials. (MAT 110 is the preferred college algebra prerequisite course for MAT 111.)

## **MAT 111 College Trigonometry\* (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 109 or MAT 110 or satisfactory placement, (The preferred prerequisite is MAT 110)

This course includes the following topics: trigonometric functions; trigonometric identities; solution of right and oblique triangles; solution of trigonometric equations; polar coordinates; complex numbers, including DeMoivre's Theorem; vectors; conic sections; and parametric equations.

## **MAT 120 Probability and Statistics\* (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course is an introduction to probability and statistics. Topics include organization of data, calculating probabilities, counting principles, binomial and normal distributions, central limit theorem, confidence intervals, hypothesis tests, linear regression, and correlation.

## **MAT 130 Elementary Calculus\* (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 109 or MAT 110 or satisfactory placement (The preferred prerequisite is MAT 109)

This course includes the following topics: differentiation and integration of polynomials; rational, logarithmic and exponential functions; and interpretation and application of these processes.

## **MAT 140 Analytical Geometry and Calculus I\* (4-0-4)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 111 or satisfactory placement

This course includes the following topics: derivatives and integrals of polynomial, rational, logarithmic, exponential, trigonometric and inverse trigonometric functions; curve sketching; maxima and minima of functions; related rates; work; and analytic geometry.

## **MAT 141 Analytical Geometry and Calculus II\* (4-0-4)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 140

This course includes the following topics: continuation of calculus of one variable, including analytic geometry, techniques of integration, volumes by integration and other applications; infinite series, including Taylor series and improper integrals.

## **MAT 155 Contemporary Mathematics (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course includes techniques and applications of the following topics: properties of and operations with real numbers, elementary algebra, consumer mathematics, applied geometry, measurement, graph sketching and interpretations, and descriptive statistics.

## **MAT 170 Algebra, Geometry and Trigonometry I (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

This course includes the following topics: elementary algebra, geometry, trigonometry and applications.

## **MAT 211 Math for Elementary Education I (3-0-3)**

*Offered Spring Semester*

This course includes the following topics: logic, set theory, properties of and operations on counting numbers, integers, rational numbers and real numbers.

## **MAT 212 Math for Elementary Education II (3-0-3)**

*Offered Spring Semester*

Prerequisites: MAT 211

This course includes the following topics: basic algebra, introductory geometry, probability and statistics.

## **MAT 215 Geometry (3-0-3)**

*Offered Summer Semester*

This course includes the following topics: Euclidean geometry of points, lines, triangles, circles and polygons; right triangle trigonometry; and analytical geometry of the straight line. (This course is designed primarily for elementary teachers.)

**MAT 220 Advanced Statistics (3-0-3)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 120

This course includes the following topics: estimation of parameters; formulation and testing of hypotheses; multiple and non-linear regression; correlation; contingency tables; analysis of variance; special distributions; introduction to non-parametric statistics.

**MAT 230 Basic Multivariable Calculus (3-0-3)**

*Offered Summer Semester*

Prerequisites: MAT 130

This course includes the following topics: partial derivatives; extrema problems; multiple integration; continuous probability distributions; difference equations; and management and economic applications.

**MAT 240 Analytical Geometry & Calculus III\* (4-0-4)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 141

This course includes the following topics: multivariable calculus, including vectors; partial derivatives and their applications to maximum and minimum problems with and without constraints; line integrals; multiple integrals in rectangular and other coordinates; and Stokes' and Green's theorems.

**MAT 242 Differential Equations\* (4-0-4)**

*Offered Fall, Spring, and Summer Semesters*

Prerequisites: MAT 141

This course includes the following topics: solution of linear and elementary non-linear differential equations by standard methods with sufficient linear algebra to solve systems; applications; series; Laplace transform; and numerical methods.

**MAT 299 Research in Mathematics (0-9-3)**

*Offered Fall, Spring, and Summer Semesters*

This course provides an opportunity for students to investigate a faculty-approved topic related to mathematics using the application of practical research methods. \*This course is for use at Greenville Technical College in support of the academic agreement with Clemson University.