

## Mathematics

MATH 88 (0811) Foundations of Math

Prerequisite: Placement Test Recommendation

Credit Hours: 3

This course is designed to help students improve their mathematical skills in the areas of whole numbers, fractions, decimals, measurement, and percents. The basic operations of addition, subtraction, multiplication, and division will be stressed in all areas. (Non transferable)

MATH 106 (1707) Applied Mathematics

Prerequisite: Placement Test Recommendation *or* C or better in MATH 88, Foundations of Math

Credit Hours: 3

This course is designed to help vocational students and other career minded students develop and refine job-related mathematical skills. The course includes material on arithmetic operations, problem solving techniques, estimation of answers, measurement skills, and geometry.

MATH 96 (1717) Beginning Algebra

Prerequisite: Placement Test Recommendation *or* C or better in MATH 88, Foundations in Math

Credit Hours: 3

This course will build skills in basic algebra concepts. Topics covered in the course will include the basic language and terms of algebra, rules for signed numbers, techniques for solving linear, quadratic, and literal equations, rules and properties of exponents as applied to algebraic expressions, and the graphing and solving of linear equations and linear systems in two unknowns. (Non transferable)

MATH 100 (1718) Intermediate Algebra

Prerequisite: Placement Test Recommendation *or* C or better in MATH 96, Beginning Algebra

Credit Hours: 3

This course will continue on from MATH 96 Beginning Algebra to cover properties of relations and functions, properties of radicals and radical expressions, properties of rational expressions, solving quadratic equations using root extraction and the quadratic formula, and extending and building graphing concepts from lines to basic polynomial functions. (Non transferable)

MATH 111 (1713) Mathematics for Education

Prerequisite: Placement Test Recommendation *or* C or better in MATH 100, Intermediate Algebra

Credit Hours: 3

This course is designed to provide a foundation of theory for many of the concepts found in the current elementary and middle school mathematics classroom. This course will examine topics related to the Real Number system, such as set theory, logic, probability theory, and statistics, all from a problem solving approach. The use of technology (e.g. calculator, the Internet, etc.) as tools for problem solving and research will be an integral part of the course.

MATH 115 (1719) College Algebra

Prerequisite: Placement Test Recommendation *or* C or better in MATH 100 Intermediate Algebra

Credit Hours: 3

This course continues from MATH 100 Intermediate Algebra to cover and extend the properties of functions and their inverses, properties and graphs of the exponential and logarithmic functions, graphing techniques for general higher order polynomials and rational functions, and various solution techniques for solving higher order linear systems of equations. Topics on sequences and series will be presented as time permits. Use of technology such as the graphing calculator and some computer packages will be incorporated into the course.

MATH 120 (1720) Elementary Statistics

Prerequisite: Placement Test Recommendation *or* MATH 115 College Algebra

Credit Hours: 3

This course is an introduction to fundamental statistical concepts and techniques with computer capability for applying these techniques to data. Includes descriptive statistics, nonparametric statistics, sampling techniques, hypothesis testing and other statistical inference.

MATH 121 Matrix Algebra

Prerequisite: Placement Test Recommendation *or* MATH 115 College Algebra (C or better)

Credit Hours: 3

This is an introductory course covering basic linear algebra, matrices, and their applications to the sciences, math, business, and economics. The course will cover matrices and matrix algebra, solution of linear systems of equations, the determinant of a matrix and its properties, eigenvalues and eigenvectors

of matrices, and vector and inner product spaces.

**MATH 122 (1722) Introduction to Analytical Processes**

Prerequisite: Placement Test Recommendation of MATH 125 Trigonometry or higher or successful completion of MATH 115 College Algebra with a C or better.

Credit Hours: 3

This course will begin with a review of algebra skills. It will introduce topics in elementary linear algebra including vectors and vector operations with respect to business applications. It will also introduce topics in differential and integral calculus. The optimization of functions using the derivative of both single and multivariate functions is presented. Throughout the course emphasis will be given to practical applications in business management and accounting.

**MATH 125 (1730) Trigonometry**

Prerequisite: Placement Test Recommendation or MATH 115 College Algebra

Credit Hours: 3

This course will cover the basic trigonometric functions on the right triangle and extend to rules for solving non-right triangles. Trigonometric identities will be derived and proven. Complex numbers and applications to the sciences will be presented. This course should be taken by any student needing to take Calculus I who has not yet had any exposure to the trigonometric functions. This course is recommended for any student needing to take physics and is required for most pre-engineering and engineering programs.

**MATH 127 (1746) Business Calculus (IO)**

Prerequisite: Placement Test Recommendation of MATH 125 Trigonometry or higher or successful completion of MATH 115 College Algebra with a C or better.

Credit Hours: 3

This course begins with a review of basic algebra skills. The course includes the operation of differentiation of single and multi-variable functions. The power, sum and difference, product, quotient, and chain rules for differentiating various functions will be covered. The course will then cover the antiderivative and various methods of integrating functions. Emphasis will be given to applications in the fields of business and accounting.

**MATH 130 (1751) Calculus I**

Prerequisite: Placement Test Recommendation or MATH 125 Trigonometry

Credit Hours: 5

The first course in the calculus sequence will cover the concepts of limits and continuity of polynomial, rational, trigonometric, and exponential functions. The concept of rates of change and the derivative will be applied to these functions. The course will come to a close with the concepts of the anti-derivative and properties and definition of the definite integral. This course is required of any student seeking a degree in physics, mathematics, engineering, chemistry, and other related fields at a four-year institution.

**MATH 131 (1752) Calculus II**

Prerequisite: MATH 130 Calculus I

Credit Hours: 5

This second course in the calculus sequence will cover the concepts of limits as applied to transcendental functions. Various substitution techniques for evaluating integrals will be presented. Problems involving areas, volumes of surfaces, and moments will be developed and solved. The course will cover sequences and series and look at properties of convergence and divergence. There will be an introductory look at differential equations and coverage of polar coordinates and parameterized curves. This course is required of any student seeking a degree in physics, mathematics, engineering, chemistry, and other related fields at a four-year institution.

**MATH 201 (1753) Calculus III**

Prerequisite: MATH 131 Calculus II

Credit Hours: 5

This third course will complete the calculus sequence. The course will cover infinite sequences and series and test of convergence and divergence. The calculus of multivariable functions, partial derivatives, and optimization of higher dimensional surfaces will be covered. The theory and use of vector-valued functions to calculus will be presented. Problems of areas, volumes, and moments will be extended to three-dimensional space and solved using multiple integration techniques (including the line integral, Stoke's Theorem, and Green's Theorem in vector fields). This course is required of any student seeking a degree in physics, mathematics, engineering, chemistry, and other related fields at a four-year institution.

MATH 202 (1740) Differential Equations

Prerequisite: MATH 201 Calculus III

Credit Hours: 3

This course will include solution techniques for the standard ordinary differential equations of the first and second order (with some generalization to higher order equations). Power series solution techniques for linear equations with constant coefficients will be presented. Solution of differential equations using the Laplace Transform will be presented. Applications to geometry and the physical science will be presented and covered. This course is required of any student seeking a degree in physics, mathematics, engineering, chemistry, and other related fields at a four-year institution.

*Reading Essentials Placement Scores: ACT 0-12, COMPASS 0-54*

*College Reading Placement Scores: ACT 13-16, COMPASS 55-74*

*No Reading Course Required Placement Scores: ACT 17 or Higher, COMPASS 75 or higher*

*IO = Infrequently Offered Course*