

Mathematics

MATH 061 **Integrated Support for Non-Algebra Pathway** **3 credits**

Attribute: DEV

This course is designed to be paired with a college-level non-algebra sequence mathematics course to support underprepared students. Students review the skills necessary for success in the associated college-level course in an ongoing as-needed just-in-time fashion. Topics include: numeracy, basic data analysis, proportional reasoning, an introduction to algebraic expressions and algebraic reasoning, and linear functions. Note: credits earned in this course cannot be applied toward graduation. Corequisite: MATH154S Topics in Mathematics With Integrated Support or MATH158S Introduction to Statistics With Integrated Support

MATH 065 **Integrated Support for College Algebra** **3 credits**

Attribute: DEV

This course is designed to be paired with College Algebra to support underprepared students. Students review the skills necessary for success in College Algebra in an ongoing as-needed just-in-time fashion. Topics may include: operations on natural numbers, integers, rational numbers, and real numbers, ratio, proportions, and percentages, perimeter, area, and volume of geometric figures, solving linear equations, graphing linear equations, polynomial arithmetic, factoring polynomials, radical expressions and equations, rational expressions and equations, and solving quadratic equations. Note: credits earned in this course cannot be applied toward graduation. Corequisite: College Algebra with Integrated Support (MATH203S).

MATH 115 **Contemporary Mathematics** **3 credits**

Attribute: LA

In this course, students develop problem-solving skills while covering topics which include number sense and estimation, proportions, unit conversions, metric system, statistics and probability, percent's, the mathematics of finance, and mathematical modeling of contemporary problems. Additional topics are tailored to meet the needs of students in specific programs.

Prerequisite: Waiver by placement testing results; or departmental approval.

MATH 127 **Mathematics for Elementary Teachers I** **3 credits**

Attribute: LA

This course provides a conceptually based, comprehensive study of the mathematical content of numbers and their operations at the deep level required for successful elementary school teaching. Topics are examined in ways that are meaningful to pre-service elementary teachers. Topics include: place value and arithmetic models, mental math, algorithms, pre-algebra factors and prime numbers, fractions and decimals, ratio, percentage and rates, integers, and elementary number theory.

Prerequisite: Waiver by placement testing results; or departmental approval.

MATH 128 **Mathematics for Elementary Teachers II** **3 credits**

Attribute: LA

This course provides a conceptually based, comprehensive study of the mathematical content of geometry, measurement, probability, and statistics at the deep level required for successful elementary school teaching. Topics are examined in ways that are meaningful to pre-service elementary teachers. Topics include: two- and three-dimensional Geometry, measurement, data analysis, single variable statistics, probability.

Prerequisite: MATH127 Mathematics for Elementary Teachers I

MATH 154 **Topics in Mathematics** **3 credits**

Attribute: LA

This course is provided for students who wish to know what mathematics is all about but who do not wish to be mathematicians. Possible topics are: elementary logic, set theory, number systems, mathematical systems, number theory, voting coalitions, geometry, mathematics of finance, topology, linear programming, game theory, and cryptography. A selection of three or more such topics are offered each semester.

Prerequisite: waiver by placement testing results; or departmental approval.

MATH 154S **Topics in Mathematics with Integrated Support** **3 credits**

Attribute: LA

This course is provided for students who wish to know what mathematics is all about but who do not wish to be mathematicians. Possible topics are: elementary logic, set theory, number systems, mathematical systems, number theory, voting coalitions, geometry, mathematics of finance, topology, linear programming, game theory, and cryptography. A selection of three or more such topics are offered each semester. Corequisite: MATH061 Integrated Support for Non-Algebra Pathway

MATH 158 **Introduction to Statistics** **3 credits**

Attribute: LA

This course provides a basic introduction to statistics. It is recommended for students in business, social science, human resources, allied health, and criminal justice and provides an excellent preparation for any career. Topics include descriptive statistics, probability, probability distributions, the normal distribution, hypothesis testing, estimates and sample sizes, the chi square distribution, correlation, and regression.

Prerequisites: Waiver by placement testing results; or department approval.

MATH 158S Introduction to Statistics with Integrated Support 3 credits

Attribute: LA

This course provides a basic introduction to statistics. It is recommended for students in business, social science, human resources, allied health, and criminal justice and provides an excellent preparation for any career. Topics include descriptive statistics, probability, probability distributions, the normal distribution, hypothesis testing, estimates and sample sizes, the chi square distribution, correlation, and regression. Corequisite: MATH061 Integrated Support for Non-Algebra Pathway.

MATH 203 College Algebra 3 credits

Attribute: LA

This course covers the algebra necessary for successful completion of the Precalculus/Calculus sequence while introducing functions, graphing, and graphing utilities. Topics include the operation and use of graphing utilities, polynomial operations and functions, absolute value equations and functions, radical and rational exponent functions, piecewise functions, composite functions, and complex numbers.

Prerequisite: Waiver by placement testing results; or department approval.

MATH 203S College Algebra with Integrated Support 3 credits

Attribute: LA

This course covers the algebra necessary for successful completion of the Precalculus/Calculus sequence while introducing functions, graphing, and graphing utilities. Topics include the operation and use of graphing utilities, polynomial operations and functions, absolute value equations and functions, radical and rational exponent functions, piecewise functions, composite functions, and complex numbers. Corequisite: MATH065 Integrated Support for College Algebra.

MATH 217 Precalculus 4 credits

Attribute: LA

This course continues the mathematics preparation for successful completion of Calculus. Topics include the operation and use of graphing utilities, the properties and graphs of rational functions, one-to-one and inverse functions, exponential and logarithmic functions, and trigonometric functions.

Prerequisite: C- or higher in MATH 203 College Algebra or MATH 203S College Algebra with Integrated Support; waiver by placement testing results; or departmental approval.

MATH 218 Discrete Mathematics 3 credits

Attribute: LA

This course is designed to give necessary mathematical background to students in computer science programs. Topics include logic, sets, basic number theory, induction and recursion, counting, relations, and graphs.

Prerequisite: C- or higher in MATH 217 Precalculus; waiver by placement testing results; or departmental approval.

MATH 221 Calculus I 4 credits

Attribute: LA

This standard Calculus I course is the first course in the sequence of calculus of one variable intended for undergraduate mathematics, science, technology, or engineering majors. Topics include limits, continuity, techniques and applications of differentiation, indefinite and definite integrals, and the Fundamental Theorem of Calculus.

Prerequisite: C- or higher in MATH 217 Precalculus; waiver by placement testing results; or departmental approval.

MATH 222 Calculus II 4 credits

Attribute: LA

This course is a continuation of MATH 221 Calculus I. This is the second course in the sequence of calculus of one variable intended for undergraduate mathematics, science, technology or engineering majors. Topics include techniques and applications of integration, indeterminate forms, improper integrals, and infinite series.

Prerequisite: C- or higher in MATH 221 Calculus I; waiver by placement testing results; or departmental approval.

MATH 223 Calculus III 4 credits

Attribute: LA

This is the third course in the calculus sequence intended for undergraduate mathematics, science, technology, or engineering majors. Topics include conic sections, parametric equations, polar coordinates, vectors and applications, functions of several variables, partial derivatives and applications, double and triples integrals in rectangular and other coordinate systems and applications, vector fields, line integrals and applications, parametric surfaces, surface integrals and applications, Green's Theorem, the Divergence Theorem, and Stoke's Theorem.

Prerequisite: C- or higher in MATH 222 Calculus II; waiver by placement testing results; or departmental approval.

MATH 229 Linear Algebra 4 credits

Attribute: LA

This course is designed to introduce students to the theory of systems of linear equations and to mathematical proof. Topics include solving systems of linear equations, linear independence, linear transformations, matrix operations, determinants, vector spaces, eigenvalues and eigenvectors, and applications.

Prerequisite: C- or higher in MATH 222 Calculus II; waiver by placement testing results; or departmental approval.

MATH 230 Differential Equations

4 credits

Attribute: LA

This course is an introductory study of ordinary differential equations of the first and higher orders. Topics include linear differential equations with constant coefficients, power series solutions, Fourier Series solutions, Laplace transforms, higher-order forced linear equations with constant coefficients, and applications with numerical methods.

Prerequisite: C- or higher in MATH 222 Calculus II; waiver by placement testing results; or departmental approval.

MATH 400 Special Study in Mathematics

1 credit

Attribute: LA

This course involves independent work on a selected topic under the direction of members of the Mathematics Department. Limited to two courses per student.

Prerequisite: approval of the Department Chair and Division Dean.