

Mathematics

MA001 MA121: ILS

Cr-0

This course includes intermediate and college algebra and trigonometry. Algebraic manipulations, graphing skills and problem solving are emphasized. Topics include variables, equations, graphs, systems of linear equations including Cramer's Rule, quadratic equations, radicals, variation, factoring and rational expressions, vectors and oblique triangles, and an introduction to trigonometry and applications.

MA005 MA125: ILS

Cr-0

Learning Support for College Algebra and Trigonometry is a corequisite for students needing MA125 who do not meet the prerequisite of MA125. This course includes mathematical skills necessary to succeed in MA125.

MA010 MA110 ILS

Cr-0

Learning Support for Elementary Statistics is a corequisite for students needing MA110 who do not meet the prerequisite of MA110. This course includes mathematical skills necessary to succeed in MA110.

MA025 Essentials of Mathematics

Cr-0

This course is for students who, according to placement test results, need preparation for subsequent mathematics courses. It develops basic skills of arithmetic by focusing on concepts, language, and understanding. Topics include whole numbers, integers, rational numbers, decimals, and algebraic expressions and equations.

MA039 MA139: ILS

Cr-0

Learning Support for College Algebra is a corequisite for students needing MA139 who do not meet the prerequisite of MA139. This course includes mathematical skills necessary to succeed in MA139.

MA071 MA171: ILS

Cr-0

Learning Support for Foundations of Mathematics 1 is a corequisite for students needing MA 171 who do not meet the prerequisite of MA 171. This course will include mathematical skills necessary to succeed in MA 171.

MA089 Arithmetic

Cr-0

This course is for students who, according to placement test results, need preparation for subsequent mathematics courses. It develops basic skills by focusing on language and concepts. Topics include whole numbers, integers, rational numbers, and decimals.

MA090 Essential Math Skills

Cr-0

This course is for students enrolled in non-STEM programs who, according to placement test results, need preparation for subsequent mathematics courses. It develops problem solving skills with an emphasis placed on applications. Topics include arithmetic computations, measurement, geometry, percentage, ratio and proportion, linear equations, and an introduction to graphing lines. Prerequisite: An appropriate placement test result or MA089 Arithmetic.

MA091 Introductory Algebra

Cr-0

This course is for students enrolled in STEM programs or for students who need to take either MA115 or MA171 and who, according to placement test results, need preparation for subsequent mathematics courses. It develops basic skills and the understanding of elementary algebra. Topics include arithmetic computations, measurement and geometry, percentages, ratio and proportion, linear equations, polynomials, and an introduction to graphing lines. Prerequisite: An appropriate placement test score or MA089 Arithmetic.

MA096 Mathematical Literacy

Cr-0

This course focuses on mathematics for everyday life and prepares students to take a college-level, non-STEM course in mathematics. It integrates fluency with numbers, proportional reasoning, data interpretation, algebraic reasoning, mathematical modeling, and communication qualitative information. Mathematical concepts are investigated through cooperative learning activities based on real-life contexts. Prerequisite: An appropriate placement test score or MA089 Arithmetic.

MA099 Introduction to Elementary Algebra

Cr-0

This course provides the skills necessary for the transition from MA090 Essential Math Skills for MA115 Intermediate Mathematics or MA171 Foundations of Mathematics 1. Operation properties, multi step equations, polynomials, and graphing lines will be covered. Prerequisite: MA090 Essential Math Skills or MA096 Mathematical Literacy.

MA105 Technical Mathematics 1

Cr-4

This course covers the four fundamental operations on integers, rational numbers, and real numbers. It includes the study of weights and measures, exponents and radicals, factoring, and linear equations, with an emphasis on technical applications.

MA106 Technical Mathematics 2

Cr-3

This course is a continuation of MA105 Technical Mathematics 1, with further topics from algebra as well as from geometry and trigonometry, and an emphasis on technical applications. Prerequisite: MA105 Technical Mathematics 1.

MA108 Concepts in Mathematics

Cr-3

This course is a survey of mathematics for students in those programs that do not require a mathematics sequence. It provides an appreciation of mathematical ideas in historical and modern settings. Topics include problem solving, logic, geometry, statistics, and consumer mathematics. Prerequisite: Appropriate high school GPA or placement test score or MA089 Arithmetic.

MA110 Elementary Statistics

Cr-3

This course introduces probability and statistics. Topics include graphs, tables, frequency distributions, measures of central tendency and dispersion, normal distribution, correlation and regression, probability, and inferential statistics. This course is available in two formats: lecture only, or lecture plus laboratory using technology. Prerequisite: Appropriate high school GPA or placement test score or MA089 Arithmetic.

MA111 Intermediate Statistics

Cr-3

This course is a continuation of Elementary Statistics (MA110) emphasizing confidence intervals and hypothesis testing. Topics include single and two-sample analysis, single and multiple regression, chi-square testing, testing and estimating standard deviation and variance, one-way and two-way ANOVA. Emphasis is placed on selecting the proper technique, satisfying its requirements and correctly reporting the results. Prerequisites: Satisfactory completion of MA110 Elementary Statistics or an equivalent course.

MA115 Intermediate Mathematics

Cr-4

This course introduces intermediate algebra-level knowledge and skills. Topics include exponents and radicals, polynomial and rational expressions, functions and relations and their graphs, inequalities, and systems of linear equations. Linear, quadratic, rational, and

radical equations are solved. Applications are included. Prerequisite: Appropriate high school GPA or placement test score or MA089 Arithmetic.

MA121 Fundamentals of College Mathematics 1 **Cr-4**

This is the first of a two-course sequence for students in programs that require mathematics through polynomial calculus. Algebraic manipulations, graphing skills and problem solving are emphasized. Topics include systems of linear equations including Cramer's Rule, quadratic equations, variation, factoring and fractions, vectors and oblique triangles, and an introduction to trigonometry and applications. Prerequisite: Appropriate high school GPA or placement test score or MA115 Intermediate Mathematics.

MA122 Fundamentals of College Mathematics 2 **Cr-4**

This is the second of a two-course sequence for students in programs that require mathematics through polynomial calculus. Topics include complex numbers, exponential and logarithmic functions, analytic geometry, limits, derivatives and integrals of polynomial functions, applications of the derivative, and area under a curve. Prerequisite: MA121 Fundamentals of College Mathematics 1.

MA125 College Algebra and Trigonometry **Cr-4**

This course prepares students for MA150 Precalculus. Topics include linear and quadratic equations; inequalities; rational expressions; trigonometric functions; graphs of linear, quadratic, piecewise, and trigonometric functions; and, systems of equations. Algebraic and trigonometric manipulations and problem-solving are emphasized. Prerequisite: Appropriate high school GPA or placement test score or MA115 Intermediate Mathematics.

MA131 Finite Mathematics **Cr-3**

This course emphasizes conceptual understanding and practical applications of logic, sets, probability, matrices, and linear programming. Prerequisite: An appropriate placement test result or MA108 Concepts in Mathematics.

MA139 College Algebra **Cr-4**

This course emphasizes algebraic manipulations and problem solving. Topics include equations and inequalities; systems of equations; factoring; radical and rational expressions; linear, quadratic, rational, exponential, and logarithmic functions; and, their graphs. Applications are selected from business, economics, and the natural sciences. Prerequisite: Appropriate high school GPA or placement test score or MA115 Intermediate Mathematics.

MA140 Calculus for Business and Social Science **Cr-4**

This course is for those whose programs do not require the Calculus sequence. Topics include an intuitive study of limits, and the analytic geometry, differentiation and integration of polynomial, rational, exponential, logarithmic, and power functions. Applications are selected from business, economics, and the social sciences. Prerequisite: MA139 College Algebra.

MA150 Precalculus **Cr-4**

This course prepares students for calculus through a study of the properties and graphs of polynomial, rational, trigonometric, inverse trigonometric, exponential, and logarithmic functions. Topics include an introduction to mathematical argument and conic sections. Emphasis is placed on the function concept and the appropriate use of the language of mathematics. Prerequisite: Appropriate placement test score or MA125 College Algebra and Trigonometry.

MA151 Calculus 1 **Cr-4**

This is the first in a sequence of three courses in calculus. Topics include limits and continuity, differentiation of algebraic, trigonometric, exponential, and logarithmic functions, and indefinite and definite integration. Applications are included. Prerequisite: An appropriate placement test score or MA150 Precalculus.

MA152 Calculus 2 **Cr-4**

This is the second in a sequence of three courses in calculus. Topics include the integration of trigonometric functions, the differentiation and integration of the inverse trigonometric functions, further techniques in integration, L'Hopital's Rule, improper integrals, and infinite series. Applications are included. Prerequisite: MA151 Calculus 1.

MA171 Foundations of Mathematics 1 **Cr-3**

This is the first of a two-course sequence for students preparing to teach at the elementary school level. Topics include the study of real numbers through a development of natural numbers, whole numbers, integers, rational numbers, decimals, and irrational numbers, together with operations on them. Number theory is presented, along with a discussion of numeration systems including bases other than 10. The language and nature of reasoning, together with basic elements of set theory, are introduced. Problem-solving is emphasized. Prerequisite: Appropriate high school GPA or placement test score or MA089 Arithmetic.

MA172 Foundations of Mathematics 2 **Cr-3**

This is the second of a two-course sequence for students preparing to teach at the elementary school level. Topics include elementary geometry of two and three dimensions, measurement, coordinate geometry and transformations, probability, and statistics. Prerequisite: MA171 Foundations of Mathematics 1.

MA175 Elementary Functions **Cr-3**

This course examines the elementary functions of mathematics with emphasis on their graphical properties. Topics include the polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions. Graphing technology is incorporated. Prerequisite: MA172 Foundations of Mathematics 2.

MA223 Fundamentals of College Mathematics 3 **Cr-4**

This course is designed for the Electrical Engineering Technology program. Topics include trigonometric identities and equations, derivatives and integrals involving trigonometric, exponential, and logarithmic functions, and MacLaurin and Fourier Series. Applications include area, volume, center of gravity, and periodic functions. Prerequisite: MA122 Fundamentals of College Mathematics 2.

MA253 Calculus 3 **Cr-4**

This is the third in a sequence of three courses in calculus. Topics include polar and space coordinates, parametric equations, the algebra and calculus of vectors, partial differentiation, and multiple integration. Applications are included. Prerequisite: MA152 Calculus 2.

MA260 Differential Equations **Cr-3**

This course introduces the concepts and theory of ordinary differential equations. Topics include existence and uniqueness of solutions, and separable, homogenous, exact, and linear differential equations. Methods involving integrating factors, undetermined coefficients, and variation of parameters, power series, numerical approximation, and systems of differential equations using differential operators are covered. Applications are drawn from geometry, chemistry, biology, and physics. Prerequisite: MA152 Calculus 2. (Spring Semester only)

MA275 Discrete Algebraic Structures**Cr-4**

This course introduces mathematical systems. Topics include methods of proof, sets, logic, functions, relations, graphs, trees, and algebraic systems. Prerequisite: MA151 Calculus 1. (Fall Semester only)

MA280 Linear Algebra**Cr-3**

This course begins with geometric concepts and transitions to more abstract reasoning. Topics include systems of linear equations, matrix algebra, determinants, vector spaces, bases, linear transformations, Eigen values, and inner products. Prerequisite: MA152 Calculus 2. (Spring Semester only)