

MATHEMATICS (MTHM)

MTHM 024, GEOMETRY 2 (2)

This course is for students who need an extensive background in geometry. Topics include angles, triangles, parallel lines, quadrilaterals, congruence, similarity, polygons, circles, area and volume.

General Education: IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 061 or satisfactory placement assessment in mathematics; may be taken concurrently with MTHM 081

Typically Offered: Offer as required

MTHM 031, MATH APPLICATIONS 4 (4)

This course presents the basic concepts of negative and positive numbers applied to fractions, decimals, percents, and percent applications. Expressions with algebraic exponents as well as linear equations and applications will also be studied. In depth work on business applications will be studied. (A special fee will be assessed.)

MTHM 033, INTRODUCTION TO TECHNICAL MATHEMATICS 3 (3)

This course is intended for the student needing an introduction to technical mathematics in preparation for college-level technical mathematics. The topics studied include units of measure, approximate numbers, equations, inequalities, functions, factoring, rational expressions, exponents, radicals, complex numbers, and trigonometry.

General Education: IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 061 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 041, PREALGEBRA 2 (2)

This course is intended to prepare a student for algebra. Operations with signed numbers and fractions will be reviewed. Variable expressions and linear equations in one variable and their applications will be studied. The course will include an introduction to different types of graphs including the Cartesian Coordinate System, line and bar graphs.

Course Entry Requirement(s): Course placement policy: Grade of S in NMTH 180 or satisfactory placement assessment in mathematics

Typically Offered: Summer, Fall and Spring Semesters

MTHM 051, BEGINNING ALGEBRA PART I 2 (2)

This course begins with unit conversions. The beginning topics in algebra will be studied, including linear equations and inequalities, graphing and equations of lines, and linear systems.

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 041 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 058, FOUNDATIONS OF QUANTITATIVE REASONING 3 (3)

This course is designed for students who need a review of algebra topics required for college-level mathematics courses in majors that do not require College Algebra, Precalculus, or Calculus. The course focuses on building quantitative reasoning and problem solving skills. Topics include unit conversions, linear equations in one and two-variables, exponents, functions, and radicals.

Course Entry Requirement(s): Course placement policy: Placement assessment or a grade of C or better in MTHM 041 or MTHM 021.

Typically Offered: Summer, Fall and Spring Semesters

MTHM 061, BEGINNING ALGEBRA PART II 2 (2)

This course continues the beginning topics in algebra. The topics that will be studied include polynomials and exponents, factoring, and rational expressions and equations. Application problems such as variation will also be included.

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 051 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 071, INTERMEDIATE ALGEBRA PART I 2 (2)

This course studies the beginning topics in intermediate algebra. These topics include functions, compound inequalities, absolute value equations and inequalities in one variable, and roots and radicals.

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 061 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 081, INTERMEDIATE ALGEBRA PART II 2 (2)

This course continues the topics in Intermediate Algebra. The topics studied include complex numbers, quadratic equations and graphs, exponential and logarithmic functions, and inverse functions. Polynomial and rational inequalities will also be included.

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 071 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 121, TECHNICAL MATHEMATICS I 4 (4)

A technical mathematics course which includes intermediate algebra (simplifying algebraic expressions, functions, basic graphing, systems of linear equations, matrices, linear and quadratic equations, logarithmic and exponential functions and equations, radicals and complex numbers) and basic trigonometry (right-angle trigonometry, radian measure, Law of Sines, Law of Cosines, sine and cosine graphs and vectors). Emphasis is on technical applications and problem-solving skills including the appropriate use of technology. Graphing calculator required. Mathematics Core Course.

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 033 or MTHM 058 or satisfactory placement assessment in mathematics

Typically Offered: Summer, Fall and Spring Semesters

MTHM 122, TECHNICAL MATHEMATICS II 3 (3)

A continuation of Technical Mathematics I which includes Algebra (systems of non-linear equations, non-linear inequalities, roots of polynomials, geometric series and the Binomial Theorem), basic statistics, empirical curve-fitting, analytic trigonometry (identities, equations and graphs) and analytic geometry (conic sections, parametric equations and polar coordinates). Emphasis is on technical applications and problem-solving skills including the appropriate use of technology. Graphing calculator required. Mathematics Core Course.

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 121 or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 150, THE ART OF MATHEMATICAL THINKING 3 (3)

A course designed primarily for the Liberal Arts major. Topics include number theory, sets, infinity, geometry, topology, graph theory, dimensions, fractals, and proofs. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 058 or satisfactory placement assessment in mathematics or division approval

Typically Offered: Fall and Spring Semesters

MTHM 151, COLLEGE MATHEMATICS 3 (3)

A course designed primarily for the Business and Liberal Arts major. Topics include algebraic functions, exponential and logarithmic functions, mathematics of finance, systems of linear equations, matrix algebra, linear programming, and probability. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 081 or satisfactory placement assessment in mathematics

Typically Offered: Not offered this year

MTHM 158, QUANTITATIVE REASONING 3 (3)

This course is designed for students in majors that do not require College Algebra, Precalculus, or Calculus. It focuses on using real world applications to build quantitative reasoning and problem solving skills. Topics include logic, analysis of growth, linear and exponential change, and personal finance. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Satisfactory score in placement assessment in mathematics; C or higher MTHM 058 or MTHM 071; or division approval.

Typically Offered: Summer, Fall and Spring Semesters

MTHM 161, MATHEMATICS FOR ELEMENTARY TEACHERS I 3 (3)

Focuses on foundational concepts of number theory, arithmetic, and algebra that underlie the elementary school mathematics curriculum. Emphasizes problem-solving and the historical development of numeration systems and other mathematical concepts. Mathematics Core Course.

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 058 or satisfactory placement assessment in mathematics or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 162, MATHEMATICS FOR ELEMENTARY TEACHERS II 3 (3)

A continuation of the concepts and ideas basic to elementary school mathematics with particular emphasis on the development of geometry. Topics include: an introduction of probability and statistics; congruence and similarity of triangles; properties of polygons; geometric constructions; perimeter, area and volume; coordinate geometry; and motion geometry. Computer software will be used by the student as a vehicle to explore geometric properties and relationships. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 161

Typically Offered: Summer, Fall and Spring Semesters

MTHM 168, STATISTICS 3 (3)

This course provides a non-calculus based introduction to statistical thinking and statistical methods. The topics discussed in the course include: data collection, data description, basic probability, sampling distributions, probability distributions, confidence intervals and hypothesis tests. An emphasis is placed on using technology to solve problems involving real data and hands-on projects are used throughout the course. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 058 or satisfactory placement assessment in mathematics or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 171, COLLEGE ALGEBRA 4 (4)

Study of algebraic functions, equations, systems of equations, inequalities, matrices, partial fractions, exponential and logarithmic functions. Designed primarily for the calculus-bound student. Not to be taken if credit for MTHM 175 has been earned. Graphing calculator required. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 081 or satisfactory placement assessment in mathematics

Typically Offered: Summer, Fall and Spring Semesters

MTHM 172, PRECALCULUS 3 (3)

For the calculus-bound student. A study of trigonometric functions and their graphs; trigonometric identities and equations; conic sections; polar and parametric equations; mathematical induction; and the Binomial Theorem. Not to be taken if credit for MTHM 175 has been earned. Graphing calculator required. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: Grade of C or better in MTHM 171 or 3 1/2 years high school college-preparatory mathematics and satisfactory placement assessment score or division approval.

Typically Offered: Summer, Fall and Spring Semesters

MTHM 175, COLLEGE ALGEBRA AND PRECALCULUS 5 (5)

An accelerated course designed primarily for the calculus-bound student. Algebraic functions, equations, systems of equations, matrices, partial fractions, exponential and logarithmic functions, trigonometric functions and their graphs, trigonometric identities and equations, conic sections, mathematical induction, and the Binomial Theorem. Not to be taken if credit for either MTHM 171 or 172 has been earned. Graphing calculator required. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: Four years of high school college-preparatory mathematics and a satisfactory placement assessment score or division approval.

MTHM 178, BUSINESS CALCULUS 4 (4)

A calculus course designed for the non-science major. Topics include: algebra review, limits, continuity, applications of differentiation, curve sketching, and applications of integration, all of which use polynomial, rational, algebraic, exponential and logarithmic functions. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: A grade of C or better in MTHM 171 or MTHM 175 or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 181, CALCULUS I 5 (5)

Differential and integral calculus of one variable, including limits, continuity, differentiation, applications of derivatives, and transcendental functions. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: A grade of C or better in MTHM 172 or MTHM 175 or four years of high school college-preparatory mathematics including trigonometry and a satisfactory placement assessment score or division approval.

Typically Offered: Summer, Fall and Spring Semesters

MTHM 182, CALCULUS II 5 (5)

Continuation of Calculus I. Applications of integration, techniques of integration, numerical integration, indeterminate forms, improper integrals, infinite series, plane curves and polar coordinates, and vectors in two and three dimensions. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: A grade of C or better in MTHM 181 or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 221, TECHNICAL CALCULUS 3 (3)

An advanced technical mathematics course designed for the Engineering Technology student. Introduction to differential and integral calculus on algebraic, trigonometric and transcendental functions with an emphasis on technical applications. Graphing calculator required. Mathematics Core Course. Prerequisite: MTHM 122 or MTHM 172 or divisional approval.

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 122 or MTHM 172 or division approval

Typically Offered: Fall and Spring Semesters

MTHM 222, ADVANCED TECHNICAL CALCULUS 3 (3)

A continuation of Technical Calculus which includes techniques of integration, L'Hospital's Rule, infinite series (Maclaurin, Taylor and Fourier) and an introduction to ordinary differential equations. Emphasis is on technical applications. Graphing calculator required. Mathematics Core Course. Prerequisite: MTHM 221 (or MTHM 181 with divisional approval).

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 221 or MTHM 181 with division approval

Typically Offered: Fall and Spring Semesters

MTHM 268, ENGINEERING STATISTICS 3 (3)

This course introduces the student to the areas of probability theory and statistical inferences as they relate to the engineering profession. Topics include: sample spaces, the concept of random variable distributions, functions of random variables, transformation of variables, moment generating functions, sampling and estimation theory, T, F, Chi-Square distribution. This course is co-listed with MTHM 268. (TAG)

General Education: IN1

Course Entry Requirement(s): Prerequisite: MTHM 281

MTHM 270, DISCRETE MATHEMATICS 3 (3)

An introduction to the mathematics and discrete structures used in computer science to develop software including proof techniques, Boolean logic, graphs, trees, recurrence relations and functions. Mathematics Core Course. (OTM)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 182 and PHL 171 or division approval

Typically Offered: Fall and Spring Semesters

MTHM 280, LINEAR ALGEBRA 4 (4)

A study of linear equations, matrices, vector spaces, linear transformations, eigenvalues and eigenvectors, and elementary numerical methods. Mathematics Core Course. (OTM, TAG)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 181 and 182 or MTHM 221 and 222 or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 281, MULTIVARIABLE CALCULUS 4 (4)

A third-semester calculus course which includes an in-depth study of vector-valued functions and space curves, functions of several variables, partial differentiation, multiple integration and vector calculus. Mathematics Core Course. (OTM, TAG)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 182 or division approval

Typically Offered: Fall and Spring Semesters

MTHM 283, DIFFERENTIAL EQUATIONS 3 (3)

An introductory course which includes first-order and second-order differential equations, applications to physical models, series solutions, Laplace transforms, first-order systems and elementary numerical methods. Mathematics Core Course. (OTM, TAG)

General Education: C2, IN1

Course Entry Requirement(s): Prerequisite: MTHM 281 and previous or concurrent enrollment in MTHM 280 or division approval

Typically Offered: Summer, Fall and Spring Semesters

MTHM 299, INDIVIDUALIZED STUDIES/MATHEMATICS 1-2 (1)

An in-depth study of areas in Mathematics presented by discussion and/or individual research and reading. Topics will vary. Repeatable up to a total of four (4) credit hours.

Course Entry Requirement(s): Prerequisite: Second year standing and division approval

Typically Offered: Offer as required