

MATHEMATICS (MATH)

MATH 0100

Foundations for Algebra

CRT HRS:4 LEC HRS:3 LAB HRS:2 OTH HRS:0

This course is a study of fundamental mathematics principles and concepts. Topics include performing basic arithmetic operations on integers, fractions, and decimals; performing calculations involving exponents and order of operations; solving application problems involving proportions, percent, and fractions; simplifying algebraic expressions and solving linear equations; application problems involving linear models; graphs of linear equations in two variables; applying rules of exponents, operations on polynomials, and factoring polynomial expressions. The focus of lab instruction is content reinforcement.

Prerequisite: None.

MATH 0442

Foundations for Reasoning and Statistics

CRT HRS:4 LEC HRS:3 LAB HRS:2 OTH HRS:0

This course is a study of the basic concepts necessary for success in a college level Statistics or Quantitative Reasoning course. Topics include: numeracy and rounding, ratios and proportional reasoning, percentages, order of operations, evaluating expressions and formulas, introduction to sets and Venn diagrams, data interpretations including graphs and tables, measures of central tendency and position, introduction to probability and the counting principle, and linear models. This course is not for college-level credit.

Prerequisite: None.

◆MATH 1316

Plane Trigonometry

CRT HRS:3 LEC HRS:3 LAB HRS:0 OTH HRS:0

This course covers trigonometric functions, identities, equations and applications.

Prerequisite: MATH 1414 with a grade of "C" or better; or a score CRC 960+ on the Math portion of the TSA2 exam; or 360+ on the Math portion of the TSI exam.

◆MATH 1324

Mathematics for Business & Social Sciences

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

This course covers the application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value.

Prerequisite: Meet TSI college-readiness standard for Mathematics; or completion of MATH 0200 or MATL 0020 or MATL 0014 with a grade of "C" or "P" or better; or completion of or concurrent enrollment in MATL 0024 with a grade of "P" or "C" or better; or equivalent.

◆MATH 1325

Calculus for Business & Social Sciences

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2413, Calculus I.

Prerequisite: MATH 1414 or MATH 1324, with a grade of "C" or better.

◆MATH 1332

Contemporary Mathematics

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

Intended for Non-STEM (Science, Technology, Engineering and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics and appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded throughout the course. Additional topics may be covered.

Prerequisite: Meet TSI college-readiness standard for Mathematics; or completion of MATH 0100, or MATH 0442 or MATL 0020 or MATL 0014 or MATL 0024 with a grade of "C" or "P" or better; or completion of or concurrent enrollment in MATL 0032 with a grade of "C" or "P" or better; or equivalent.

◆MATH 1350

Mathematics for Teachers I

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes conceptual development of the following: sets, functions, numeration systems, number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking.

Prerequisite: MATH 1414 with a grade of "C" or better.

◆MATH 1351

Mathematics for Teachers II

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking.

Prerequisites: MATH 1414 with a "C" or better.

◆MATH 1414

College Algebra

CRT HRS:4 LEC HRS:4 LAB HRS:0 OTH HRS:0

This course is the study of quadratic, polynomial, rational, logarithmic and exponential functions and includes the study of systems of equations and matrices. The focus of the course is the discovery and application of algebraic techniques, including graphing, to solve related equations. Additional topics may include sequences and series.

Prerequisite: Meet TSI college-readiness standard for Mathematics; or completion of MATH 0200 or MATL 0020 or MATL 0024 with a grade of "C" or "P" or better; or completion of or concurrent enrollment in MATL 0014 with a grade of "C" or "P" or better; or equivalent.

◆MATH 2305

Discrete Mathematics

CRT HRS:3 LEC HRS:3 LAB HRS:1 OTH HRS:0

This course is designed to prepare math, computer science, and engineering majors for a background in abstraction, notation, and critical thinking for the mathematics most directly related to computer science. Topics include: logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, combinatorics, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques.

Prerequisite: Completion of MATH 2413 with a grade of C or higher.

◆MATH 2412

Pre-Calculus Math

CRT HRS:4 LEC HRS:4 LAB HRS:1 OTH HRS:0

This course is an in-depth combined study of algebra, trigonometry, and other topics for calculus readiness.

Prerequisite: MATH 1414 or MATH 1324 with a grade of "C" or better.

◆ **MATH 2413**

Calculus I

CRT HRS:4 LEC HRS:4 LAB HRS:1 OTH HRS:0

This course covers functions, limits, continuity, differentiation, anti-derivatives, and the definite integral and its applications.

Prerequisite: MATH 1316 or MATH 2412 with a grade of "C" or better; or a 100+ on the College Level Mathematics ACCUPLACER.

◆ **MATH 2414**

Calculus II

CRT HRS:4 LEC HRS:4 LAB HRS:1 OTH HRS:0

This course covers derivatives and integrals of transcendental functions, integration methods and applications, infinite sequences and series.

Prerequisite: MATH 2413 with a grade of "C" or better.

◆ **MATH 2415**

Calculus III

CRT HRS:4 LEC HRS:4 LAB HRS:1 OTH HRS:0

This course covers the study of vectors, calculus of several variables, partial derivatives, multiple integrals and vector calculus, Divergence Theorem and Stoke's Theorem.

Prerequisite: MATH 2414 with a grade of "C" or better.

◆ **MATH 2418**

Linear Algebra

CRT HRS:4 LEC HRS:4 LAB HRS:0 OTH HRS:0

This course introduces and provides models for application of the concepts of vector algebra.

Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering.

Prerequisite: MATH 2414 with a grade of "C" or better.

◆ **MATH 2420**

Differential Equations

CRT HRS:4 LEC HRS:4 LAB HRS:0 OTH HRS:0

This course is an introduction to ordinary differential equations, emphasizing solution techniques to first order and special higher order differential equations, initial value problems, boundary value problems, Laplace transforms, series solutions, and applications.

Prerequisite: MATH 2414 with a grade of "C" or better.