MATHEMATICS (MATH)

MATH-1314. College Algebra. (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions and systems of equations using matrices. Additional topics such as sequences, series, probability and conics may be included.

MATH-1324. Mathematics for Business and Social Sciences. (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. (Prerequisite: Meets TSI college readiness algebraic intensive standard) Students will earn an A, B, C, D, F, or W. 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.

MATH-1325. Calculus for Business and Social Sciences. (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. (Prerequisite: MATH 1314 or MATH 1324) Students will earn an A, B, C, D, F, or W. 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.

MATH-1332. Contemporary Mathematics (quantitative Reasoning). (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. (Prerequisite: Meets TSI college readiness non-algebraic intensive standard) Students will earn an A, B, C, D, F, or W. Intended for Non STEM (Science, Technology, Engineering, and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics with appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded through the course. Additional topics may be covered.

MATH-1342. Elementary Statistical Methods. (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. (Prerequisite: Meets TSI college readiness non-algebraic intensive standard) Students will earn an A, B, C, D, F, or W. Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended.

MATH-1350. Mathematics for Teachers I (fundamentals of Mathematics I). (3 Credits)
(3-3-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 1314) Students will earn an A, B, C, D, F, or W. Builds or reinforces a foundation in fundamental mathematics concepts and skills. It includes the 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.

MATH-1351. Mathematics for Teachers II (fundamentals of Mathematics Ii). (3 Credits)
(3-3-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 1314) Students will earn an A, B, C, D, F, or W. Builds or reinforces 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.

MATH-2312. Pre-Calculus Math. (3 Credits)
(3-3-0) Core Area 020 This course is taken for academic credit. (Prerequisite: MATH 1314) Students will earn an A, B, C, D, F, or W. In-depth combined study of algebra, trigonometry and other topics for calculus readiness.

MATH-2318. Linear Algebra. (3 Credits)
(3-4-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 2414) Students will earn an A, B, C, D, F, or W. 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.

MATH-2320. Differential Equationsÿ. (3 Credits)
(3-3-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 2414) Students will earn an A, B, C, D, F, or W. Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods and boundary value problems; application of differential equations to real-world problems.

MATH-2413. Calculus I. (4 Credits)
(4-4-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 2312) Students will earn an A, B, C, D, F, or W. Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas.

MATH-2414. Calculus II. (4 Credits)
(4-4-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 2413) Students will earn an A, B, C, D, F, or W. Differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals.

MATH-2415. Calculus III. (4 Credits)
(4-5-0) Core Area 090 This course is taken for academic credit. (Prerequisite: MATH 2414) Students will earn an A, B, C, D, F, or W. Advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem and Stokes' Theorem.