MATHEMATICS (MATH)

MATH 10100: BASIC MATHEMATICS I: 3 Hour(s)
BASIC MATHEMATICS I ~ Development of basic mathematical skills necessary for other mathematics courses. The number system and its operations, use of percent, problem solving. (Not for students with prior credit for college-level mathematics.)

MATH 10200: BASIC MATHEMATICS II: 3 Hour(s)
BASIC MATHEMATICS II ~ A continuation of MATH 10100. Solving equations, problem solving, geometric and graphical properties of functions, systems of equations with applications. Prerequisite: MATH 10100 or placement
Prerequisite: MATH 10100 (may be taken concurrently)

MATH 10300: FUNDAMENTALS OF MATH I:MM: 4 Hour(s)
FUNDAMENTALS OF MATHEMATICS I:MM ~ A study of elementary school mathematics topics to promote a deep understanding in the areas of problem solving; number (whole numbers, integers, rational and irrational numbers) and operations (addition, subtraction, multiplication, division); and algebra and functions. Students will learn to apply manipulatives and the technology of calculators and other software. Students will become familiar with the National Council of Teachers of Mathematics (NCTM) resource Principles and Standards for School Mathematics and the Common Core State Standards. For early childhood and middle childhood education majors only.
Core: Modeling Methods

MATH 10400: FUNDAMENTALS MATHEMATICS II:MM: 4 Hour(s)
FUNDAMENTALS OF MATHEMATICS II:MM ~ A continuation of MATH 10300.Topics include geometry (planar and 3 dimensional figures; transformation, symmetries, and tilings; and congruence and similarity), measurement (length, area, perimeter, volume, surface area), and statistics, probability and data analysis. Students will learn to apply manipulatives, and the technology of both calculators and geometry and statistical software. Students will continue to become familiar with the National Council of Teachers of Mathematics (NCTM) resource Principles and Standards for School Mathematics and the Common Core State Standards. For early childhood and middle childhood education majors only.
Core: Modeling Methods

MATH 10800: STATISTICS:MM: 4 Hour(s)
STATISTICS:MM ~ An introduction to the art and science of obtaining meaning from data. The emphasis is on conceptual understanding and developing statistical thinking, rather than on mere calculation and procedures. Topics include experiments and observational studies, data displays and data summaries, correlation and linear regression, randomization, the normal model, sampling distributions, confidence intervals, and testing hypotheses. Technology is used as an aid in developing concepts and analyzing data.
Prerequisite: Math Placement Test-Algebra with a score of 09
Core: Modeling Methods

MATH 11000: COMPUTATIONS FOR NURSING: 2 Hour(s)
COMPUTATIONS FOR NURSING ~ This course provides the students with essential knowledge for the preparation and administration of medications in the clinical setting, including introduction to drug measures, syringe calibrations and dosage calculations as well as intravenous therapy calculations. Also addressed are calculations for pediatrics and older adults. This is a required course for students in the BSN program. For nursing majors only.
Prerequisite: NURS 21000

MATH 13200: METHODS OF DECISION MAKING:MM: 3 Hour(s)
METHODS OF DECISION MAKING:MM ~ An introduction to the field of decision theory. Contemporary mathematical thinking is used to model problems in modern society. Topics may include applications of graph theory, scheduling, voting and apportionment, game theory, and linear programming. Prerequisite: Mathematics Placement Test
Prerequisite: Math Placement Test-Algebra with a score of 09
Core: Modeling Methods

MATH 18000: WKSP.: 1 Hour(s)
WORKSHOP ~ This workshop provides the opportunity for students to examine a special topic in mathematics. Through readings, discussions and written assignments there will be opportunities to evaluate the topic at issue. Workshops may be taken Pass/No Credit only. Students may take no more than nine workshops for credit toward graduation. Workshops can be used as elective credit only. Pass/No Credit only.

MATH 19700: PRECALCULUS: 4 Hour(s)
PRECALCULUS ~ Exponential and logarithmic functions, the trigonometric functions, analytic trigonometry, and topics in analytic geometry. For students who plan to study calculus but need to supplement their prior mathematics courses.
Prerequisite: Math Placement Test-Algebra with a score of 16

MATH 19800: CALCULUS I:MM: 4 Hour(s)
CALCULUS I:MM ~ The differential calculus. Topics include limits, continuity, differentiation of algebraic and transcendental functions, maxima/minima and other applications of the derivative.
Prerequisite: MATH 19700 or (Math Placement Test-Algebra with a score of 16 and Math Placement-Trig/Function with a score of 09 and Math Placement-Calc Readiness with a score of 13)
Core: Modeling Methods

MATH 19900: CALCULUS II:MM: 4 Hour(s)
CALCULUS II:MM ~ A continuation of MATH 19800. The integral calculus. Topics include antidifferentiation, the Riemann integral, the Fundamental Theorem of Calculus, applications of the definite integral, techniques of integration, sequences, and infinite series.
Prerequisite: MATH 19800
Core: Modeling Methods

MATH 20000: CALCULUS III:MM: 4 Hour(s)
CALCULUS III:MM ~ A continuation of MATH 19900. Infinite series, multivariable and vector calculus. Topics include parametrizations, polar coordinates, partial derivatives, directional derivatives, multiple integrals. A computer algebra system is used throughout the course.
Prerequisite: MATH 19900
Core: Modeling Methods

MATH 21000: PROBLEM SOLVING IN MATHEMATICS: 1 Hour(s)
PROBLEM SOLVING IN MATHEMATICS ~ Methods, strategies and skills to solve a large variety of mathematical problems will be studied. Topics such as mathematical induction, indirect reasoning, and symmetry will be developed as needed. Pass/No Credit Only.

MATH 21700: DISCRETE MATHEMATICS: 4 Hour(s)
DISCRETE MATHEMATICS ~ An introduction to proofs and mathematical reasoning in the context of discrete mathematical structures. Topics include proof techniques, mathematical logic, elementary number theory, set theory, relations, and elementary function theory.
Prerequisite: Math Placement Test-Algebra with a score of 21

MATH 21800: LINEAR ALGEBRA:MM: 3 Hour(s)
LINEAR ALGEBRA:MM ~ Systems of linear equations, matrix algebra and determinants, vector spaces, eigenvalues, eigenvectors, and linear transformations are studied.
Prerequisite: Math Placement Test-Algebra with a score of 21 or MATH 19900
Core: Modeling Methods

MATH 24300: DIFFERENTIAL EQUATIONS:MM: 3 Hour(s)
DIFFERENTIAL EQUATIONS:MM ~ A study of the theory, solution, and application of ordinary differential equations. Existence and uniqueness theorems. Solutions of several types of first-order equations. Solution of homogeneous and non-homogeneous higher-order linear equations; Laplace transform methods. Applications for first and second order equations.
Prerequisite: MATH 20000 (may be taken concurrently)
Core: Modeling Methods

MATH 28000: SEM:: 1-4 Hour(s)
SEMINAR ~

MATH 28100: INDEPENDENT STUDY: 1-4 Hour(s)
INDEPENDENT STUDY ~

MATH 29800: FIELD EXPERIENCE: 1-4 Hour(s)
FIELD EXPERIENCE ~

MATH 38100: TPC:: 1-4 Hour(s)
TOPICS IN MATHEMATICS ~ Various advanced topics, such as topology, graph theory, complex variables, combinatorics, and number theory, are offered when need or sufficient interest is demonstrated. Credit hours and prerequisites are established for each offering. May be taken more than once for credit.