Mathematics

Study Skills: Math Anxiety

MATH 0405 - 1 Credits

Basic course designed for students who want to reduce or manage math anxiety. Students examine underlying issues that contribute to math anxiety; discuss various learning styles; assess own learning style; learn ways to accommodate an instructor's teaching style; and learn strategies and techniques to effectively cope with math anxiety. This course may be taken three times for credit. This course can only be taken on a pass/fail basis. Prerequisite: Consent of instructor is required. (1 lecture hour)

Arithmetic Whole Numbers I

MATH 0408 - 0.5 Credits

Computation skills involving addition and subtraction of whole numbers and applications. This course can only be taken on a pass/fail basis. Prerequisite: Consent of instructor is required. (.5 lecture hour)

Arithmetic Whole Numbers II

MATH 0409 - 0.5 Credits

Computation skills involving multiplication and division of whole numbers and applications. This course can only be taken on a pass/fail basis. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Whole Numbers

MATH 0410 - 0.5 Credits

Computation skills involving addition, subtraction, multiplication, division and applications of whole numbers. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Fractions I

MATH 0412 - 0.5 Credits

Computation skills involving addition and subtraction of fractions and mixed numbers. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Fractions II

MATH 0413 - 0.5 Credits

Computation skills involving multiplication and division of fractions and mixed numbers. This course may be taken four times for credit. Prerequisite: Consent of instructor is required (0.5 lecture hour)

Arithmetic of Decimals

MATH 0415 - 0.5 Credits

Computation skills involving addition, subtraction, multiplication and division of decimals. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Percents

MATH 0417 - 0.5 Credits

Computation skills involving percents, conversions among fractions, o decimals and percents including applications. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Ratio/Proportion

MATH 0418 - 0.5 Credits

Computation skills involving ratio and proportion. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic: Special Topics

MATH 0420 - 0.5 Credits

Topics include exponents, roots, rounding and estimating. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Arithmetic of Signed Numbers

MATH 0422 - 0.5 Credits

Computation skills involving addition, subtraction, multiplication and division of signed numbers, and properties of numbers. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Mathematics

Algebra: Solving Linear Equations

MATH 0424 - 0.5 Credits

Solve linear equations algebraically. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Word Problems

MATH 0426 - 0.5 Credits

Word problems involving money, ratio and proportion, percent and variation. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Exponents

MATH 0428 - 0.5 Credits

Algebraic expressions involving positive, negative and zero exponents. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Factoring

MATH 0430 - 0.5 Credits

Factoring polynomials and its application in solving equations. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Fractions

MATH 0432 - 0.5 Credits

Computation skills involving addition, subtraction, multiplication and division of algebraic fractions and applications of algebraic fractions. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Graphing

MATH 0434 - 0.5 Credits

Graph linear and quadratic equations and linear inequalities. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Systems of Linear Equations

MATH 0436 - 0.5 Credits

Solving systems of linear equations including applications by graphing, elimination and substitution. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Radicals

MATH 0438 - 0.5 Credits

Simplifying algebraic expressions containing radicals by addition, subtraction, multiplication and division; radical equations; Pythagorean Theorem applications. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Algebra: Quadratic Equations

MATH 0440 - 0.5 Credits

Solve quadratic equations by factoring and the quadratic formula. This course may be taken four times for credit. Prerequisite: Consent of instructor is required. (0.5 lecture hour)

Essentials of Arithmetic I

MATH 0451 - 2 Credits

Fundamental skills in addition, subtraction, multiplication and division with respect to whole numbers, fractions, ratio and proportion, and decimals. Included are problem-solving techniques with practical application. Equivalent to the first half of Mathematics 0460. This course may be taken four times for credit. (2 lecture hours)

Essentials of Arithmetic II

MATH 0452 - 2 Credits

Principles of arithmetic, review of fractions, exponents, order of operations, percents and applications, ratio and proportion, and applications. This course may be taken four times for credit. (2 lecture hours)

Fundamentals of Algebra

MATH 0455 - 2 Credits

Mathematics

Covers essential fundamentals of algebra. Students begin with signed numbers, learn to solve equations and inequalities, apply properties of exponents, and perform fundamental operations with polynomials. Included are problem-solving techniques with practical application. This course may be taken four times for credit. (2 lecture hours)

College Arithmetic

MATH 0460 - 3 Credits

Principles of arithmetic. Fundamental operations with whole numbers, common fractions and decimals. Percents and applications in the world of business. Rational numbers, exponents and powers. This course may be taken four times for credit. (3 lecture hours)

Elementary Plane Geometry

MATH 0470 - 3 Credits

Points and lines in the plane, angles, triangles, quadrilaterals, polygonal regions, circles and their relationships. Prerequisite: Mathematics 0481 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Foundations for College Mathematics I

MATH 0481 - 5 Credits

Topics from elementary algebra: sets of numbers, operations with real numbers, variables, integral exponents, scientific notation, simplification of algebraic expressions, solving linear equations and inequalities in one variable, graphing linear equations, writing equations of lines, solving linear inequalities in two variables, solving systems of linear equations in two or more variables, applications, problem solving, operations with polynomials, factoring polynomials, and solving equations using factoring. Prerequisite: Mathematics 0460 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (5 lecture hours)

Foundations for College Mathematics II

MATH 0482 - 5 Credits

Topics from elementary algebra and intermediate algebra: operations with algebraic fractions, solving equations with the algebraic fractions, radicals and rational exponents, complex numbers, solving quadratic equations, variation, solving equations and inequalities involving absolute value, function notation, graphing functions, inverse functions, exponential and logarithmic functions, applications and problem solving. Prerequisite: Mathematics 0481 (or college equivalent) with a grade of C or better or a qualifying score on the mathematics placement test (5 lecture hours)

Algebra Refresher Workshop

MATH 0485 - 0.5 Credits

Designed as a focused review of the elementary and intermediate algebra techniques and associated problem solving skills required for a student to be successful in college level math. Students meeting mastery-level performance qualifications in the workshop can take a written departmental exit examination for potential placement. Prerequisite: Consent of instructor is required (0.5 lecture hour)

Business Mathematics

MATH 1100 - 3 Credits

Applications of mathematics to business transactions. Analysis and solution of the business problems in profit and loss, interest, installment transactions, percent discounts, taxes and payroll. Prerequisite: Mathematics 0460 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Mathematics for Health Sciences

MATH 1102 - 3 Credits

Designed for health science majors. Topics include systems of measurements, use of formulas, dimensional analysis, percents, decimals, fractions, ratio and proportion, direct and inverse variation, solutions, and dosage calculations. Prerequisite: Mathematics 0481 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Mathematics for Horticulture

MATH 1104 - 3 Credits

Designed for horticulture majors only. Topics include fractions, decimals, percents, systems of measurement, dimensional analysis, use of formulas, ratio and proportion, linear equations, perimeter, area, volume, and surface area as related to landscape, mixtures as related to seed, fertilizer and chemicals, estimation, scale drawings, sales including discount and markup, construction as related to landscape, and estimates and bids on landscaping projects. (3 lecture hours)

Perspectives of Mathematics

MATH 1108 - 3 Credits

Mathematics

The course surveys some of the major ideas of mathematics and relationships to the arts, life sciences, physical sciences, social sciences, games, etc. Topics are selected from number systems, inductive and deductive reasoning, algebraic processes and methods, geometry, probability and statistics. Prerequisite: Demonstrated geometry competency (level 2), and Mathematics 0481 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Technical Mathematics I

MATH 1115 - 3 Credits

For technical/occupational programs. Emphasizes problem-solving skills using elementary algebra, right angle trigonometry, and ratio and proportion. Prerequisite: Mathematics 0481 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Technical Mathematics II

MATH 1116 - 5 Credits

A continuation of Technical Mathematics I emphasizing problem solving-skills using trigonometry, common logarithms and natural logarithms. Prerequisite: Mathematics 1115 with a grade of C or better (5 lecture hours)

Mathematical Foundations for Diagnostic

MATH 1120 - 3 Credits

Designed for Diagnostic Medical Imaging Sonography (DMIS) majors only. Mathematical applications and problem solving in the field of sonography are emphasized. Topics include systems of measurement, dimensional analysis, application of formulas, probability, and statistics. Prerequisite: Mathematics 0482 (or college equivalent) with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (3 lecture hours)

General Education Mathematics

MATH 1218 - 3 Credits

Designed to fulfill general education requirements and not designed as a prerequisite for any other college mathematics course. Focuses on mathematical reasoning and the solving of real-life problems, rather than routine skills. Logic and set theory are studied. Two other topics from the following list are to be studied in depth: counting techniques and probability, game theory, geometry, graph theory, statistics, and mathematics of finance. The regular use of calculators and/or computers are emphasized. Prerequisite: Demonstrated geometry competency (level 2), and

Mathematics 0482 or college equivalent with a grade or C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (3 lecture hours)

Quantitative Literacy

MATH 1220 - 3 Credits

Designed to fulfill general education requirements, and not designed as a prerequisite for any other college mathematics course. Provides the basic numeracy needed by a college graduate to reason about quantities, their magnitudes, and their relationships between and among other quantities. Topics include linear systems, linear programming, analysis and interpretation of graphs, logic and reasoning, descriptive statistics, the normal distribution, statistical inference, estimation and approximation. Prerequisite: Demonstrated geometry competency (level 2), and Mathematics 0482 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Math for Elementary School Teacher I

MATH 1321 - 4 Credits

Designed for elementary education majors. Sets, logic and mathematical reasoning, problem solving, numeration systems, and elementary number theory. Properties, algorithms and computation with the sets of whole numbers, integers, rational and real numbers. One of the requirements for receiving credit in the course is an arithmetic proficiency test that must be passed with a score of at least 80 percent correct. Prerequisite: Demonstrated geometry competency (level 1), and Mathematics 0482 or college equivalent with a grade or C or better or a qualifying score on the mathematics placement test (4 lecture hours)

Math for Elementary School Teacher II

MATH 1322 - 3 Credits

A continuation of Mathematics 1321. Designed for elementary education majors. Introduction to probability and statistics, measurement, geometric constructions, coordinate geometry and geometric transformations. Prerequisite: Mathematics 1321 or college equivalent with a grade of C or better and demonstrated geometry competency (level 1) (3 lecture hours)

History of Mathematics

MATH 1340 - 3 Credits

The historical development of mathematics and certain mathematical concepts from ancient times to the present, with emphasis given to basic and intermediate mathematics concepts. The focus of this mathematics-driven course will be on the problems mathematicians have faced, and the theory

and methodology that were developed to resolve these problems. Prerequisite: Mathematics 1218 or college equivalent with a grade of C or better (3 lecture hours)

College Algebra With Applications

MATH 1428 - 3 Credits

The study of algebra with emphasis on applications. This course should not be taken by students planning to enroll in calculus. Topics include, but are not limited to, matrices, functions, conic sections, polynomials, exponential and logarithmic functions, and sequences and series. Prerequisite: Demonstrated geometry competency (level 2), and Mathematics 0482 or college equivalent with a grade or C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (3 lecture hours)

Precalculus I

MATH 1431 - 5 Credits

A formal study of algebra with emphasis on concepts needed for calculus. Topics include, but are not limited to, functions, conic sections, matrices and determinants, polynomial theory, rational functions, sequences and series, logarithmic and exponential functions, combinatorial mathematics, and mathematical induction. Prerequisite: Demonstrated geometry competency (level 2), and Mathematics 0482 or college equivalent with a grade or C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (5 lecture hours)

Precalculus II/Trigonometry

MATH 1432 - 3 Credits

A formal study of trigonometry with emphasis on concepts needed for calculus. Topics include, but are not limited to, formal definition of trigonometric functions and circular functions, radian measure, inverse trigonometric functions, graphs of trigonometric functions and inverse trigonometric functions, trigonometric identities, trigonometric equations, DeMoivre's theorem, solution of triangles, polar coordinates and applications. Prerequisite: Mathematics 1431 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (3 lecture hours)

Finite Mathematics

MATH 1533 - 4 Credits

Designed primarily for students planning to major in business, or the behavioral, social or biological sciences. Topics include sets, counting techniques, probability, modeling, systems of linear equations and inequalities, matrix algebra, linear programming, Markov chains and game theory.

Applications are presented from business and the above sciences. Prerequisite: Mathematics 1428 or college equivalent with a grade of C or better or Mathematics 1431 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (4 lecture hours)

Statistics

MATH 1635 - 4 Credits

Elementary statistics: elements of descriptive and inferential statistics. Communication with data descriptions and graphs. Probability principles and their use in developing probability distributions. Binomial, normal, student-t, chi-square and F distributions. Hypothesis testing, estimation, contingency tables, linear regression and correlation, and one-way ANOVA. Prerequisite: Mathematics 1428 or college equivalent with a grade of C or better or Mathematics 1431 or college equivalent with a grade of C or better or Mathematics 1533 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (4 lecture hours)

Selected Topics I

MATH 1820 - 1-3 Credits

Introductory exploration and analysis of selected mathematics topics with a specific theme indicated by course title listed in college course schedule. May be taken three times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required. The precise prerequisites will vary according to the specific mathematical selected topic. (1 to 3 lecture hours)

Independent Study

MATH 1840 - 1-4 Credits

Exploration and analysis of topics within Mathematics to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 4 lecture hours)

Discrete Mathematics

MATH 2115 - 3 Credits

An introduction to the formal study of discrete structures in mathematics. Topics include set theory, combinatorial mathematics, logic, graph theory, Boolean algebra, formal languages. Prerequisite: Mathematics 1428 or college equivalent with a grade of C or better or Mathematics 1431 or college equivalent with a grade of C or better or Mathematics 1533 or college equivalent with a grade of C

or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (3 lecture hours)

Calculus for Business and Social Science

MATH 2134 - 4 Credits

Designed primarily for students planning to major in business, or behavioral, social or biological sciences. The basic concepts of differential and integral calculus are taught with emphasis on a wide variety of applications. Prerequisite: Mathematics 1431 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (4 lecture hours)

Calculus and Analytic Geometry I

MATH 2231 - 5 Credits

Lines, circles, functions, limits, continuity, the derivative, rules for differentiation of algebraic, trigonometric, and the transcendental functions, related rates, mean value theorem, optimization and curve sketching, differentials, Newton's method, antiderivatives and integration, and the fundamental theorem of calculus.. Prerequisite: Mathematics 1431 or college equivalent witha grade of C or better and Mathematics 1432 or college equivalent with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (5 lecture hours)

Calculus and Analytic Geometry II

MATH 2232 - 5 Credits

Applications of the definite integral, techniques of integration, indeterminate forms, improper integrals, sequences and series, Taylor and Maclaurin expansions, power series, conics, parametric equations, polar coordinates, introduction to vectors, and operations on vectors. Prerequisite: Mathematics 2231 with a grade of C or better (5 lecture hours)

Calculus and Analytic Geometry III

MATH 2233 - 4 Credits

Geometry of space, cylindrical and spherical coordinate systems, vector functions with physics applications, arc length, curvature, multivariate functions, partial derivatives, multiple integrals and their applications, vector fields and their applications, line integrals and their applications, and Green's theorem in the plane. Prerequisite: Mathematics 2232 with a grade of C or better (4 lecture hours)

Additional Topics in Vector Calculus

MATH 2235 - 1 Credits

An extension of Calculus III, covering the curl of a vector field, surface integrals, Stoke's theorem, and the divergence theorem. Prerequisite: Mathematics 2233 with a grade of C or better (or college equivalent)(1 lecture hour)

Linear Algebra

MATH 2245 - 4 Credits

Geometric vectors and vector spaces, matrices and linear transformations, inner product spaces, eigenvalues and eigenvectors, the determinant function, and formal methods of mathematical proof. Prerequisite: Mathematics 2232 with a grade of C or better (4 lecture hours)

Differential Equations

MATH 2270 - 4 Credits

Equations of first order with applications, homogeneous linear equations of higher order with constant coefficients, non-homogeneous linear equations of higher order with constant coefficients, Laplace transform methods, applications of higher order differential equations, linear equations with variable coefficients, power series solutions, systems of linear equations, and numerical solutions of first order equations. Prerequisite: Mathematics 2233 with a grade of C or better (4 lecture hours)

Mathematical Proof

MATH 2300 - 3 Credits

This course serves as a transition to upper level mathematics with a focus on writing proofs. Topics include: propositional logic, predicate logic, set theory, mathematical induction, number theory, relations and functions. Prerequisite: Mathematics 2232 with a grade of C or better (3 lecture hours)

Advanced Selected Topics I

MATH 2820 - 1-3 Credits

Advanced exploration and analysis of selected mathematical topics with a specific theme indicated by course title listed in college course schedule. May be taken three times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required. The precise prerequisites will vary according to the specific mathematical selected topic. (1 to 3 lecture hours)

Mathematics

Internship (Career & Technical Ed)yCoop Ed/Internship Occup

MATH 2860 - 1-4 Credits

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship Advanced (Career & Tech Ed)

MATH 2865 - 1-4 Credits

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship (Transfer)

MATH 2870 - 1-4 Credits

Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship - Advanced (Transfer)

MATH 2871 - 1-4 Credits

Continuation of Internship (Transfer). Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with

approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.